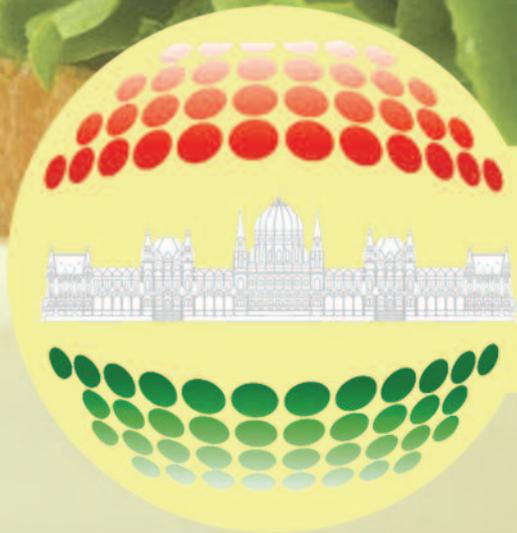


# OBESITOLOGIA HUNGARICA

Journal of Hungarian Society for the Study of Obesity



**2<sup>ND</sup> CECON** 

2<sup>nd</sup> Central European Congress on Obesity  
1<sup>st</sup> - 3<sup>rd</sup> October 2009, Budapest, Hungary

**QUO VADIS OBESITOLOGIA?**

## Hallgasson rá!



**A gyakorlat is ezt diktálja**

Az orvosi gyakorlat a kiérlelt szakmai rutinra, a sokat ismételt mesterszintű döntésekre épül. Szinte észrevétlenül alkalmazzuk a már régóta bevált fogásokat. A jó szakember a sok éves praxis alatt kialakult ösztöneire, megérzéseire hagyatkozva oldja meg a rendelői helyzeteket, gyógyítja pácienseit. A sikeres gyógyszerválasztáshoz is ugyanilyen fontosak a mesterien alkalmazott szakmai megérzések. Hallgasson Ön is a szívére! Ehhez járul hozzá szív- és érrendszeri bázisterápiás gyógyszereivel Magyarország egyik vezető gyógyszergyára a Richter Gedeon.



RICHTER GEDEON



# WELCOME MESSAGE OF THE CONGRESS PRESIDENT

DEAR COLLEAGUES,

The work of EASO is distributed into North-, Central- and South-European regions. Each region is affected by a high prevalence of obesity, but their historical, economical and social development differs significantly even within the Central-Eastern-European region.

What are the characteristic features of these countries? How do they manage prevention and treatment in different circumstances? What useful knowledge can they share with others? What kind of cooperation can be developed among the national societies? What are the newest results in obesitology? How can we connect to the work of scientific societies of nutrition, physical activity or studying the different co-morbidities?

Quo Vadis obesitology in Central-Eastern Europe? These questions are to be answered on the 2<sup>nd</sup> Central European Congress on Obesity (2<sup>nd</sup> CEECON), organised in Budapest between October 1-3, 2009.

We expect, that the memory of the 15<sup>th</sup> European Congress on Obesity held in Budapest in 2007 give you the hope of a new scientific event of high quality, combined with the traditional Hungarian hospitality.



Professor László Halmy MD, PhD, DMSc  
President of the 2<sup>nd</sup> CEECON

## IMPRINT

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**Thank you for your support!**

The list only includes the information received before the closing date.

# GENERAL INFORMATION

## REGISTRATION DESK OPENING HOURS

1 <sup>st</sup> October, Thursday	08:00 – 18:00
2 <sup>nd</sup> October, Friday	08:00 – 18:00
3 <sup>rd</sup> October, Saturday	08:00 – 12:00

## NAME BADGES

All delegates will receive a name badge upon registration.  
Everyone is kindly requested to wear his/her name badge during the whole congress.

## INTERNET

Wireless internet access will be available in the whole congress venue.

## LUNCH

Lunch will be provided for registered participants at the venue at a charge of LUNCH TICKETS given upon registration. Please take care of the tickets as more ticket cannot be issued.

## LANGUAGE

The official language of the congress is English, please note that translation facilities will not be provided.

## POSTERS

The poster exhibition will be available during the whole congress in the Fat cell room near to the commercial exhibition to ensure maximum visibility. Authors please note that posters shall be set up from 8:00 am on Thursday, 1<sup>st</sup> October. and they should be dismantled latest by 14:30 on Saturday, 3<sup>rd</sup> October. Adhesive tape, pins for poster set up will be available at the poster area.

# SOCIAL PROGRAMMES

## OPENING CEREMONY AND WELCOME RECEPTION | 1<sup>ST</sup> OCTOBER, THURSDAY 18:30

All participants are invited to the official Opening Ceremony and Welcome Reception will start on 1<sup>st</sup> October at 18:30 in the "Gólyavár" Main Auditorium..

## GALA DINNER | 2<sup>ND</sup> OCTOBER, FRIDAY 19:00

The Organizing Committee invites congress participants to an enchanted evening with dinner and entertainment on 2<sup>nd</sup> October at 19:00 in XO Bistro and Aula Restaurant next to the venue.  
This program is an optional extra, please register for it on-site at the Registration desk.  
Price: 40 EUR per person

## ACCOMPANYING PERSONS' PROGRAMME | 2<sup>ND</sup> OCTOBER, FRIDAY 9:30

### Cooking course in the central market hall:

Use a unique opportunity and enjoy Hungarian Hospitality. We take you straight to the famous Central Market Hall, where guests will be shown how to prepare a typical Hungarian Goulash with help of English speaking assistance. Eat what you had cooked! 2 Course lunch included in the programme including Goulash and Hungarian pancakes. Outstanding mood and a special gastronomic adventure guaranteed! After lunch guests are shown around in the market and have time for their own to do some shopping. Duration: approx 3 hours.

Meeting point: Registration desk at 09:30

# OPTIONAL TOURS

Take the opportunity to see more from Budapest and Hungary! A wide range of full and half-day excursions are available daily throughout the congress and can be booked with Asszisztencia at the Tours Desk in the registration area.

# CONGRESS ORGANISATION

## CONGRESS PRESIDENT

**László Halmy**

## CONGRESS CO-PRESIDENT

**Antal Czinner**

### INTERNATIONAL SCIENTIFIC COMMITTEE

L. Halmy  
K. Asatiani  
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G. Pados  
G. Paragh  
J. Pucsok  
Z. Sidó  
J. Szvitek  
G. Téglásy  
G. Zajkás

### CONTACT FOR SCIENTIFIC AND PROGRAM ISSUES

Prof. László Halmy  
Tel.: +36 20 468 9120  
E-mail: laszlo@halmy.hu

### CONGRESS SECRETARIAT

ASSZISZTENCIA Congress Bureau  
Hegedus Gy. u. 20.  
H-1136 Budapest, Hungary  
Phone: +36 1 350 1854  
Fax: +36 1 350 0929  
E-mail: cecon@asszisztencia.hu

# Programme Overview

## Fat cell room

- 10:00-11:45** Nutrition in obesity in collaboration with the Hungarian Dietetic Association
- 11:50-13:00** Orthomol symposium
- 14:00-15:50** SCOPE course I.
- 16:00-18:00** SCOPE course II.

## Mitochondrion room

### 1<sup>st</sup> October, 2009 Thursday

- 8:00 – 18:00** Onsite registration
- 13:00-14:00** Lunch break  
Exhibition visit
- 15:50-16:00** Coffee Break
- 18:30-19:30** Opening Ceremony
- 19:30-** Welcome Reception

### 2<sup>nd</sup> October, 2009 Friday

- 9:00-10:00** Plenary session I.
- 10:00-12:00** Abbott symposium
- 12:15-13:00** Review session I.
- 14:00-16:00** OBEKON symposium
- 16:15-18:00** Review session II.  
Food safety
- 18:00-18:50** Plenary session II.

- 8:00-18:00** Onsite registration
- 12:00-12:15** Coffee Break
- 13:00-14:00** Poster session  
In Lunch Break
- 16:00-16:15** Coffee Break
- 19:00-** Gala Dinner

- 14:00-15:00** Oral session I.
- 15:00-16:00** Oral session II.
- 16:20-18:00** Oral session III.

### 3<sup>rd</sup> October, 2009 Saturday

- 8:15-9:00** Plenary session III.
- 9:00-9:50** Review session III.
- 9:50-11:30** Review session IV.  
Childhood obesity
- 11:45-13:10** EASO Midle region  
round table conference
- 13:40-14:00** Closing Ceremony

- 8:00-12:00** Onsite registration
- 11:30-11:45** Coffee Break
- 14:00-** End of programme

- 9:00-10:00** Connections of obesity
- 10:00-11:30** Clinical aspects of obesity I.
- 11:45-12:15** Experimental session
- 12:15-13:40** Clinical aspects of obesity II.

OCTOBER 1, 2009 Thursday  
FAT CELL ROOM

08.00-18.00 ONSITE REGISTRATION

**Nutrition in obesity in collaboration with the Hungarian Dietetic Association**

Chairman: Emese Antal, Mária Barna Thursday, 01. October 2009

10:00-11:45

Fat cell room

**1. PRACTICAL EDUCATION OF DIETETIC TREATMENT OF OBESITY**

András Jávor

Department of Information and Knowledge Management, Budapest University of Technology and Economics, Hungary

15'

A-0084

**2. NOT ALL FATS ARE THE SAME**

Assoc. Prof., Dipl. Ing. Jiří Brát, PhD\* - Assoc. Prof., Dipl. Ing. Jana Dostálová, PhD\*\*

\*PTZ Nelahozeves, \*\*Institute of Chemical Technology Prague

30'

A-0076

**3. THE POTENTIAL OF N-3 POLYUNSATURATED FATTY ACID IN PREVENTION AND TREATMENT OF METABOLIC SYNDROME**

Jan Kopecky

Department of Adipose Tissue Biology, Institute of Physiology of the Academy of Sciences of the Czech Republic, Videnska 1083,

142 20 Prague, Czech Republic E-mail: kopecky@biomed.cas.cz

15'

A-0066

**4. QUO VADIS "LOW CARB DIET"?**

Gábor Zajkás

National Institute for Food and Nutrition, Hungary

15'

A-0107

**5. ROLE OF PROTEIN IN WEIGHT MANAGEMENT DIETS**

Marie Kunesova

Obesity Unit, Institute of Endocrinology, Prague, Czech Republic

15'

A-0087

**6. INITIAL WEIGHT LOSS AS PREDICTOR OF WEIGHT LOSS SUCCESS DURING 8-WEEK LOW-CALORIE DIET (LCD). (DATA FROM DIOGENES PROJECT)**

Sv. Handjiev\* - T. Handjieva-Darlenska\* - T.M. Larsen\*\* - M. van Baak\*\*\* - S. Jebb\*\*\*\* - A. Kaffatos\*\*\*\*\* - A. Pfeiffer\*\*\*\*\* - J.A. Martinez\*\*\*\*\* - M. Kunesova\*\*\*\*\* - C. Holst\*\*\*\*\* - W. H. M. Saris\*\*\* - A. Astrup\*\* - on behalf of Diogenes\*\*

\*National Multiprofile Transport Hospital, Sofia, Bulgaria \*\*Department of Human Nutrition, Faculty of Life Sciences, University of Copenhagen, Copenhagen, Denmark \*\*\*Department of Human Biology, Nutrition and Toxicology Research Institute, Maastricht, Maastricht University, Maastricht, The Netherlands

\*\*\*\*Human Nutrition Research, Elsie Widdowson Laboratory, Cambridge, UK \*\*\*\*\*Department of social Medicine, Preventive Medicine & Nutrition Clinic, University of Crete, Heraklion, Crete, Greece \*\*\*\*\*Department of Clinical Nutrition, German Institute of Human Nutrition Potsdam-Rehbruecke, Nuthetal, Germany \*\*\*\*\*Department of Physiology and Nutrition, University of Navarra, Pamplona, Spain \*\*\*\*\*Obesity Management Centre, Institute of Endocrinology, Prague, The Czech Republic \*\*\*\*\*Institute of Preventive Medicine, Centre for Health and Society, Copenhagen, Denmark

\*\*\*\*\*DiOGenes is the acronym of the project 'Diet, Obesity and Genes' supported by the European

Community (Contract no. FOOD-CT-2005-513946), <http://www.diogenes-eu.org>

15'

A-0083

**Orthomol symposium**

Chairman: László Halmy Thursday, 01. October 2009

11:50-13:00

Fat cell room

**1. ORTHOMOLECULAR PRINCIPLES IN PREVENTION AND TREATMENT OF SOME CHRONIC DISEASES**

László Halmy

Platon Health Services and Advisory Ltd.

10'

A-0082

**2. ROLE OF MICRONUTRIENTS IN THE PREVENTION AND TREATMENT OF CARDIOVASCULAR DISEASES**

Kálmán Tóth - Katalin Koltai

University of Pécs, Medical School, Hungary

25'

A-0166

**3. NUTRITION AND MUSCULOSKELETAL DISEASES**

Pál Géher

Semmelweis University, Budapest

25'

A-0167

**4. CLOSING REMARKS**

10'

13:00 LUNCH BREAK – EXHIBITION VISIT

**SCOPE course I.**

Chairman: Stephan Rössner Thursday, 01. October 2009

**14:00-15:50**

*Fat cell room*

**1. THE EPIDEMIC OF THE 21TH CENTURY**

Stephan Rössner

Obesity Unit, Karolinska University Hospital Huddinge, Stockholm Sweden

55'

**A-0095**

**2. DIAGNOSIS OF OBESITY**

László Halmy

Hungarian Society for the Study of Obesity

55'

**A-0140**

**15:50 COFFEE BREAK**

**SCOPE course II.**

Chairman: Stephan Rössner Thursday, 01. October 2009

**16:00-18:00**

*Fat cell room*

**1. COMBINATIONS OF TREATMENTS FOR OBESITY**

Richard L. Atkinson

Emeritus Professor of Medicine and Nutritional Science University of Wisconsin, Madison

55'

**A-0134**

**2. THE ROLE OF PHYSICAL ACTIVITY IN OBESITY MANAGEMENT**

Hermann Toplak

University of Graz, Austria

55'

**A-0104**

**3. CLOSING REMARKS**

Stephan Rössner

Obesity Unit, Karolinska University Hospital Huddinge, Stockholm Sweden

10'

**18.30 OPENING CEREMONY**

**19.30 WELCOME RECEPTION**

OCTOBER 2, 2009  
FAT CELL ROOM

**08.00-18.00 ONSITE REGISTRATION**

**Plenary session I.**

Chairman: Péter Jákó Friday, 02. October 2009

**09:00-10:00**

*Fat cell room*

**1. FRAUD IN OBESITY TREATMENT PROGRAMS**

Stephan Rössner

Obesity Unit, Karolinska University Hospital Huddinge, Stockholm Sweden

60'

A-0127

**Abbott symposium**

Chairman: László Halmy Friday, 02. October 2009

**10:00-12:00**

*Fat cell room*

**1. CAN WE GET ANY GOOD RESULT WITHOUT COMPLIANCE IN THE WEIGHT MANAGEMENT?**

László Halmy

Hungarian Society for the Study of Obesity

25'

A-0128

**2. PATIENT COMPLIANCE. THE IMPORTANCE OF PROFESSIONAL AND EFFECTIVE COMMUNICATION**

Nick Finer

Department of Medicine University College London Vascular Physiology Unit 34 Great Ormond Street London WC1N 1EH

50'

A-0129

**3. IMPROVEMENT OF PATIENT COMPLIANCE DURING WEIGHT LOSS PROGRAMS**

Laszlo Bajnok

Division of Endocrinology and Metabolism, 1st Department of Medicine, University of Pécs, Pécs, Hungary

35'

A-0119

**4. OVERALL DISCUSSION**

10'

**12:00 COFFEE BREAK**

**Review session I.**

Chairman: Gyula Gyenis Friday, 02. October 2009

**12:15-13:00**

*Fat cell room*

**1. ECONOMICS OF THE OBESITY PANDEMIC**

John Komlos

University of Munich, Germany

25'

A-0085

**2. LIPID LOWERING THERAPY IN PATIENTS WITH HIGH CARDIOVASCULAR RISK AND LIPID DISTURBANCES**

György Paragh

Debreceni Egyetem, Orvos- és Egészségtudományi Centrum

20'

A-0091

**Poster session**

**In Lunch Break**

Chairman: Antal Czinner, Zoltán Sidó, Gábor Zajkás

Friday, 02. October 2009

**13:00-14:00**

*Fat cell room*

**1. EFFICIENCY OF TRANSIENT ELASTOGRAPHY IN OBESE CHILDREN AND ADOLESCENTS WITH NAFLD**

Andrey Zubovich\*\* - A Starodubova\* - E Pavlovskaya\*\* - T Strokova\*\* - A Surkov\*\* - Z Ganskaya\*\* - D Sargaeva\* - S Kasyura\* - O Kisliak\*

\*Department of Internal Disease, Russian State Medical University, Moscow, Russia \*\*Research Institute of Nutrition, Russian Academy of Medical Sciences, Moscow, Russia

A-0005

**2. THE INFLUENCE OF TWO DIFFERENT MODES OF COMBINED EXERCISE TRAINING ON INDICES OF OBESITY, PHYSICAL FITNESS AND LIPID PROFILE IN OVERWEIGHT AND OBESE ADOLESCENTS WITH MENTAL RETARDATION**

Patrick Calders - S. Elmahgoub - D. Cambier - S. Stegen - S. Lambers - C. Van Laethem

Rehabilitation Sciences and Physiotherapy University Hospital Ghent De Pintelaan 185 9000 Ghent Belgium

A-0006

**3. A STUDY OF THE BMI AMONG THE 13-14 YEAR OLD CHILDREN, IN ALBANIA.**

YLLKA BILUSHI - LORETA KUNESHKA\*\* - LLUKAN RRUMBULLAKU\*\* - KLODIANA POSHI\*\*

\*Department of Health Sciences, Vlora University, Albania. \*\*University Hospital Center "Mother Theresa" Tirana

A-0007

- 4. RISK FOR OBESITY IN HUNGARIAN CHILDREN GROUPED BY NEONATAL DEVELOPMENTAL STATUS**  
 Kálmán JOUBERT\* - A. ZSÁKAI\*\* - D. MOLNÁR\*\*\* - G. GYENIS\*\*  
 \*Demographic Research Institute, Hungarian Central Statistical Office, POBox 51, H-1525 Budapest, Hungary, kalman.joubert@gmail.com,  
 \*\*Department of Biological Anthropology, Faculty of Sciences, Eötvös Loránd University, Budapest,  
 Hungary, zsakaia@elte.hu, gyenis@elte.hu, \*\*\*Department of Pediatrics, University of Pécs, Pécs, Hungary, denes.molnar@aok.pte.hu **A-0009**
- 5. SCHOOL NUTRITION AND PHYSICAL ACTIVITY IMPROVEMENT AS A REALIZATION OF POLISH NATIONAL PROGRAM FOR PREVENTION OF OVERWEIGHT, OBESITY AND NON-COMMUNICABLE DISEASES THROUGH DIET AND IMPROVED PHYSICAL ACTIVITY (POL-HEALTH)**  
 Katarzyna Wolnicka - M. Jarosz - J. Jaczewska-Schuetz  
 Department of Dietetic and Hospital Nutrition, National Food and Nutrition Institute, Powsińska 61/63 Str. 02-903 Warsaw, Poland;  
 email:kwolnick@izz.waw.pl, **A-0015**
- 6. THE RELATION BETWEEN PARENTAL CARE AND NEGLECT DURING IN CHILDHOOD AND THE DEVELOPMENT OF ADULT OBESITY - A CO-TWIN CONTROL STUDY.**  
 Marianne Vámosi\* - Berit L. Heitmann\*\* - Kirsten O. Kyvik\*\*\*  
 \*Department of Health Promotion, Institute of Public Health, University of Southern Denmark, Denmark. \*\*Research Unit for Dietary Studies,  
 Institute of Preventive Medicine, Center for Health and Society, Copenhagen, Denmark \*\*\*Institute of Regional Health Services Research,  
 University of Southern Denmark, Denmark and the Danish Twin Registry, Institute of Public Health, University of Southern Denmark, Denmark. **A-0016**
- 7. PREVALENCE OF OBESITY, OVERWEIGHT AND DIETARY HABITS ON CHILDREN IN AGE 8 - 14 YEARS**  
 Hana Stritecka - Pavol Hlubik  
 University of Defence, Faculty of Military Health Sciences, Department of Military Hygiene, Trebeska 1575, 50001 Hradec Kralove, Czech Republic **A-0018**
- 8. PREVALENCE OF RISK FACTORS OF METABOLIC SYNDROME IN CZECH ARMY**  
 Hana Stritecka - Pavol Hlubik  
 Faculty of Military Health Sciences, University of Defence, Hradec Králové, Czech Republic **A-0019**
- 9. THE EFFECT OF DIFFERENT DIETS ON LEPTIN AND LIPIDS STATUS IN PREPUBERTAL CHILDREN**  
 Teresa Laskowska-Klika - J Ambroszkiewicz - J Gajewska - M Chelchowska - W Klemarczyk  
 Screening Test Department, Institute of Mother and Child, Kasprzaka 17a, 01-211 Warsaw, Poland Department of Nutrition,  
 Institute of Mother and Child, Kasprzaka 17a, 01-211 Warsaw, Poland **A-0020**
- 10. DETERMINATION OF C-PEPTIDE, INSULINE AND LIPID PROFILES IN THE SERUM SAMPLES IN GROUPS OF OBESE CHILDREN AND CHILDREN WITH DIABETES MELLITUS TYPE 1.**  
 Jana Uhrova - K Mrazova - Z Vanickova - T Zima  
 Institute of Clinical Biochemistry and Laboratory Diagnostics, General University Hospital, 1st Faculty of Medicine, Charles University (Czech Republic) **A-0024**
- 11. EFFECTS OF HOME MEAL REPLACEMENT ON WEIGHT REDUCTION AND PREMENSTRUAL APPETITE CONTROL**  
 Kyong Yeun Lee - N Kim - J Kim - H Kim - J So - S Lee - G Chae  
 365 mc Obesity Clinic, Address : Lextower floor 6-8, Nonhyundong ,Gangnamgu, Seoul, South Korea.  
 E-mail : baltibalti@empal.com **A-0028**
- 12. INVESTIGATION OF STUDENTS' THOUGHTS AND KNOWLEDGE ON THE SUBJECT OF NUTRITION AND CROSS-CORRELATION WITH THEIR ALIMENTARY BEHAVIOUR**  
 Aspasia Milona - T.Kogiopoulou  
 Technical High School of Nafpaktos, Greece Private Dietological Office, Kastoria, Greece **A-0030**
- 13. DIETARY HABITS OF OVERWEIGHT AND OBESE GIRLS IN POLAND**  
 Ewa Rychlik  
 National Food and Nutrition Institute, Warsaw, Poland **A-0031**
- 14. DETECTION OF STUDENTS' CONCEPTUAL AND COGNITIVE PROBLEMS ON THE SUBJECT OF NUTRITION AND THE NECESSITY OF HEALTH EDUCATIONAL PROGRAMMES AT THE SCHOOLS**  
 Thomai Kogiopoulou - A. Milona  
 Dietician, Private Dietological Office, Kastoria, Greece Technical High School of Nafpaktos, Greece **A-0032**
- 15. AUDITING THE MULTI-DISCIPLINARY APPROACH TO OBESITY MANAGEMENT.**  
 Hannah Maree Dix - N.Y.Haboubi - S.Jones - J.Gray - G.Golding - A.Weaver - J.Reynolds  
 Medical Student, Specialist Weight Management Clinic, Blaena Hospital, Natygio, Blaenau Gwent, Wales, NP23 4LY. Consultant,  
 Specialist Weight Management Clinic, Blaenau Gwent, Wales. Specialist Dietician, Specialist Weight Management Clinic, Blaenau Gwent, Wales.  
 Cognitive Behavioral Psychotherapist, Specialist Weight Management Clinic, Blaenau Gwent, Wales. Specialist Physiotherapist,  
 Specialist Weight Management Clinic, Blaenau Gwent, Wales. Specialist Nurse, Specialist Weight Management Clinic, Blaenau Gwent, Wales.  
 Specialist Nurse, Specialist Weight Management Clinic, Blaenau Gwent, Wales. **A-0034**
- 16. PROMOTING SUITABLE CHOICES OF PACKAGED PRODUCTS TO PREVENT CHILDHOOD OBESITY: FRONT OF PACK LOGO VS GUIDELINE DAILY AMOUNTS**  
 Teresa Denise Spagnoli\*,\*\* - D Lo Bartolo\*,\*\* - L Bioletti\*,\*\* - M Caputo\* - R Magliola\* - M Audenino\* - L Cesari\*,\*\*  
 \*ASL TO 3 Department of Preventive Medicine, Service of Nutrition and Food Hygiene, Via Martiri XXX Aprile n. 30 10093 Collegno, Turin, Italy,  
 email address siannutrizione.collegno@asl5.piemonte.it or sian.co@asl5.piemonte.it ,  
 \*\*Piedmont Regional Network for Nutritional Evaluation of Food Labels, Department of Hygiene and Public Health, Piedmont Region, Turin, Italy,  
 email address: sanita.pubblica@regione.piemonte.it. **A-0035**

- 17. FIGHTING THE INTAKE OF UNHEALTHY PACKAGED SNACKS BY READING THE NUTRITIONAL LABEL. THE PIEDMONT REGION PROMOTES EDUCATIONAL TOOLS FOR SCHOOLS.**  
Teresa Denise Spagnoli\*,\*\* - D Lo Bartolo\*,\*\* - L Bioletti\*,\*\* - S Santolli\* - R Berruti\* - M Croce\* - P Maimone\* - M Caputo\* - R Magliola\* - M Audenino\* - L Cesari\*,\*\*  
\*ASL TO 3 Department of Preventive Medicine, Service of Nutrition and Food Hygiene, Via Martiri XXX Aprile n. 30 10093 Collegno, Turin, Italy, email address siannutrizione.collegno@asl5.piemonte.it or sian.co@asl5.piemonte.it  
\*\*Piedmont Regional Network for Nutritional Evaluation of Food Labels, Department of Hygiene and Public Health, Piedmont Region, Turin, Italy, email address sanita.pubblica@regione.piemonte.it **A-0036**
- 18. KEEP AN EYE ON SERVINGS. TOOLS TO PROMOTE CHOOSING OF THE SUITABLE SERVING OF UNPACKAGED SNACKS TO PREVENT OBESITY IN CHILDREN**  
Teresa Denise Spagnoli\*,\*\* - D Lo Bartolo\*,\*\* - L Bioletti\*,\*\* - M Croce\* - M Caputo\* - R Magliola\* - M Audenino\* - L Cesari\*,\*\*  
\*ASL TO 3 Department of Preventive Medicine, Service of Nutrition and Food Hygiene, Via Martiri XXX Aprile n. 30 10093 Collegno, Turin, Italy, email address siannutrizione.collegno@asl5.piemonte.it or sian.co@asl5.piemonte.it  
\*\*Piedmont Regional Network for Nutritional Evaluation of Food Labels, Department of Hygiene and Public Health, Piedmont Region, Turin, Italy, email address sanita.pubblica@regione.piemonte.it **A-0037**
- 19. ESTIMATION OF DENSITY OF LIVER BY DATA TRANSIENT ELASTOGRAPHY IN PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE TREATED WITH LOW-CALORIE DIET**  
Natalia Topilskaya - B. Kaganov - V. Isakov  
Research Institute of Nutrition of the Russian Academy Medical Science **A-0038**
- 20. INTRAGASTRIC BALLOON IN THE TREATMENT OF PATIENTS WITH MORBID OBESITY**  
Andriy Lavryk - O.M. Buryi - M.V. Manoylo - O.O. Doskuch  
National institution of Surgery and Transplantology, Ukraine, Kiev **A-0039**
- 21. AN AUDIT OF PATIENT ELIGIBILITY FOR BARIATRIC SURGERY AND ECONOMIC IMPACT IN A PUBLIC FUNDED HEALTH SYSTEM**  
Simon Wood - L Satherley - M Nutt - A Rasheed  
Institute of Minimal Access Surgery, Department of General Surgery, Royal Gwent Hospital, Newport, UK.  
Email: siwood@doctors.org.uk **A-0040**
- 22. VASCULAR DENSITY OF ABDOMINAL ADIPOSE TISSUE IN METABOLICALLY HEALTHY OBESE SUBJECTS**  
Biljana Srdic\* - E Stokic\*\* - A Korac\*\*\* - K Micunovic\*\*\* - M Ukropina\*\*\*  
\*Department of Anatomy, Faculty of Medicine, Novi Sad, Serbia \*\*Department of Endocrinology, Institute of Internal Disease, Clinical Centre of Vojvodina, Novi Sad, Serbia \*\*\*Institute of Zoology, Faculty of Biology, Beograd, Serbia **A-0041**
- 23. OBESITY AND CARDIOVASCULAR RISK FACTORS**  
R Bagina - C Baeta  
Internal Medicine Department; Hospital de Portalegre - ULSNA, epe; Portalegre; Portugal; cfbaeta@gmail.com **A-0042**
- 24. SHOULD A BMI THRESHOLD BE INCORPORATED INTO SCREENING TOOLS FOR OBSTRUCTIVE SLEEP APNOEA?**  
Anil Dhadwal - AJ Hartland - G Gorthi - A Elshaw - A Khan  
Walsall Hospitals NHS Trust, Walsall, UK Bariatric Services Manor Hospital Moat Road Walsall West Midlands WS2 9PS UK  
anil.dhadwal@doctors.org.uk **A-0046**
- 25. OBESITY AND BONE DENSITY IN UKRAINIAN POSTMENOPAUSAL WOMEN**  
Vladyslav Povoroznyuk - N. Dzerovych - Lar. Martynyuk - V. Vayda  
Department of Clinical Physiology and Pathology of Locomotor Apparatus, Institute of Gerontology AMS Ukraine, Ukrainian Scientific-Medical Centre for the Problems of Osteoporosis, Kyiv, Ukraine **A-0047**
- 26. OSTEOPENIC SYNDROME AMONG CHILDREN AND TEENAGERS WITH OBESITY**  
Vladyslav Povoroznyuk\* - E. Podlianova\*\* - N. Dzerovych\* - I. Kolenko\*\*\* - M. Ivashenko\*\*  
\*Department of Clinical Physiology and Pathology of Locomotor Apparatus, Institute of Gerontology AMS Ukraine, Ukrainian Scientific-Medical Centre for the Problems of Osteoporosis, Kyiv, Ukraine, okfpodac@ukr.net \*\*Zaporizhzhia State Medical University, Zaporizhzhia, Ukraine \*\*\*Ukrainian stomatological Medical University, Poltava, Ukraine **A-0048**
- 27. ASSESSMENT OF OSTEOPOROSIS RISK FACTORS IN OBESE POSTMENOPAUSAL WOMEN**  
Vladyslav Povoroznyuk - N. Dzerovych - Lar. Martynyuk - V. Vayda  
Department of Clinical Physiology and Pathology of Locomotor Apparatus, Institute of Gerontology AMS Ukraine, Ukrainian Scientific-Medical Centre for the Problems of Osteoporosis, Kyiv, Ukraine, okfpodac@ukr.net **A-0049**
- 28. THE RELATIONSHIP BETWEEN BONE DENSITY AND OBESITY IN UKRAINIAN POSTMENOPAUSAL WOMEN**  
Vladyslav Povoroznyuk - N. Dzerovych - Lar. Martynyuk - V. Vayda  
Department of Clinical Physiology and Pathology of Locomotor Apparatus, Institute of Gerontology AMS Ukraine, Ukrainian Scientific-Medical Centre for the Problems of Osteoporosis, Kyiv, Ukraine, okfpodac@ukr.net **A-0051**
- 29. PROGRAM OF NON-COMMUNICABLE DISEASES PREVENTION THROUGH OBESITY TREATMENT.**  
Wioleta Respondek\* - M Jarosz\* - I Mackiewicz\*\* - A Grodowska\*  
\*Gastroenterology and Metabolic Disease Clinic of Brodno Hospital, National Food and Nutrition Institute, Poland, Warsaw, wrespondek@izz.waw.pl, mjarosz@izz.waw.pl, agrodowska@izz.waw.pl  
\*\*Rehabilitation Department of Brodno Hospital, Poland, Warsaw **A-0052**
- 30. INDUCIBLE THERMOGENESIS IN SKELETAL MUSCLE: STIMULATION BY HIGH-FAT DIET IN POSTWEANING MICE**  
Vladimir Kus - T Prazak - P Brauner - M Hensler - O Kuda - P Flachs - P Janovska - D Medrikova - M Rossmesl - J Jilkova - Z Drahota\* - J Kopeccky  
Departments of Adipose Tissue Biology and Bioenergetics\*, Academy of Sciences of the Czech Republic, Prague, Czech Republic **A-0054**

- 31. COMBINATION TREATMENT BY ROSIGLITAZONE AND N-3 LONG CHAIN POLYUNSATURATED FATTY ACID EXERTS ADITIVE EFFECTS AND PREVENTION AND REVERSAL OF OBESITY AND ASSOCIATED PATHLOGIES**  
O Kuda\* - T Jelenik\* - Z Jilkova\* - P Flachs\* - M Rossmeisl\* - P Janovska\* - V Mohamed-Ali\*\* - J Kopecky\*  
\*Department of Adipose Tissue Biology, Institute of Physiology of the Academy of Sciences of the Czech Republic, Prague, Czech Republic  
\*\*Adipokines and Metabolism Research Group, Centre for Clinical Pharmacology, Department of Medicine, University College London, UK A-0055
- 32. BODY MASS AND COLORECTAL POLYPS - PRELIMINARY STUDY**  
M. Jarosz - Iwona Sajor - E. Kasinska - T. Blazejczyk - H. Wisznik  
Department of Diabetic and Nutrition in Hospitals with Clinic of Metabolic Diseases and Gastroenterology,  
National Food and Nutrition Institute, Warsaw, Poland A-0056
- 33. OVERWEIGHT AND OBESITY IN SCHOOLCHILDREN IN CROATIA**  
Vesna Jureša\* - V. Musil\* - M. Kujundžić-Tiljak\*\* - D. Petrović\*\*\*  
\*Department of social medicine and organisation of health care, Andrija Stampar School of Public Health Medical School University of Zagreb, Zagreb, Croatia, vjuresa@snz.hr \*\*Department of social medicine and organisation of health care, Andrija Stampar School of Public Health Medical School University of Zagreb, Zagreb, Croatia, vmusil@snz.hr \*\*\*Department of medical statistics, epidemiology and medical informatics, Andrija Stampar School of Public Health Medical School University of Zagreb, Zagreb, Croatia, mktiljak@gmail.com \*\*\*\*Institute for gynaecological and prenatal pathology, University hospital Zagreb, Zagreb, Croatia, dvrptrvc@yahoo.com A-0058
- 34. REPEATED INTRAVENOUS GLUCOSE LOADS ELICIT BRAIN ACTIVATION CHANGES IN THE RHESUS MONKEY: AN FMRI STUDY**  
Csaba Szalay\* - M Aradi\*\* - A Schwarcz\*\*\*,\*\*\* - G Orsi\*\*\*\* - B Nagy\* - G Takács\* - L Lénárd\* - Z Karádi\*  
\*Institute of Physiology and Neurophysiology Research Group of the Hungarian Academy of Sciences, Pécs University, Medical School \*\*Neurosurgery Clinic, Pécs University, Medical School \*\*\*Pécs Diagnostic Center Ltd. A-0060
- 35. PRODUCTS PROMISED TO BE EFFECTIVE AGAINST OBESITY IN HUNGARIAN FOOD SUPPLEMENT DATABASE**  
Andrea Lugasi - Éva Martos  
National Institute for Food and Nutrition Science A-0061
- 36. COMPLEX CHEMOSENSITIVITY OF NEURONS IN THE MEDIODORSAL PREFRONTAL CORTEX**  
Bernadett Nagy - Sz. Papp - G. Takács - Cs. Szalay - D. Keresztes - B. Hideg - B. Faragó - L. Németh - T. Csulak - S. Hanna - Z. Karádi  
Institute of Physiology and Neurophysiology Research Group of the Hungarian Academy of Sciences (HAS), Pécs University, Medical School, Pécs, Hungary A-0064
- 37. PYROGENIC BUT NOT ANOREXIGENIC AND ADIPSOGENIC EFFECTS OF INTERLEUKIN-1BETA IS MEDIATED BY CYCLOOXYGENASES IN THE NUCLEUS ACCUMBENS OF THE RAT**  
Gábor Takács - Cs Szalay - B Nagy - B Hideg - T Csulak - S Hanna - D Keresztes - B Faragó - L Németh - Z Karádi  
Institute of Physiology and Neurophysiology Research Group of the Hungarian Academy of Sciences (HAS), Pécs University, Medical School, Pécs, Hungary A-0065
- 38. THE USE OF DUAL ENERGY X-RAY ABSORPTIOMETRI FOR THE EARLY DIAGNOSTICS OF OSTEOPOROSIS AT THE PRESENCE OF METABOLIC SYNDROME**  
E. Giorgadze - Sh. Janjgava - L. Uchava - M. Tsagareli - M. Lomidze - N. Svani - N. Nozadze - T. Bakhtadze - K. Asatiani  
Ltd "Healthy Life", Gudamakari street N4, Tbilisi, Georgia A-0110
- 39. MICROALBUMINURIA AND ARTERIAL HYPERTENSION RELATIONSHIP IN OBESE CHILDREN WITH METABOLIC DISORDERS**  
M Zaniew - Bogda Skowronska - W Stankiewicz - K Majewska - A Blumczynski - P Fichna - J Zachwieja  
Department of Pediatric Endocrinology and Diabetes Department of Pediatric Cardiology and Nephrology Karol Marcinkowski University of Medical Sciences, Poznan, Poland A-0111
- 40. LEPTIN AND ENERGY HOMEOSTASIS IN RATS ON HIGH-FAT DIET OR CALORIE-RESTRICTION**  
Szilvia Soós - M Balaskó - M Székely - E Pétervári  
Department of Pathophysiology and Gerontology, Medical School, University of Pécs, Hungary H-7624 Pécs, 12 Szigeti str.  
e-mail: szilvia.soos@aok.pte.hu A-0113
- 41. EFFICIENCY OF ELIMINATION DIET BASED ON RESULTS OF FED TEST (FOOD ENVIRONMENT DRUG TEST) IN PATIENTS WITH OVERWEIGHT**  
Nataliia Mikhnova - O.V.Shvets - A.A.Martunchuk  
Ukrainian Research Institute of Nutrition A-0115
- 42. ADIPONECTIN LEVEL AFTER SUPPLEMENTATION WITH N-3 POLYUNSATURATED FATTY ACID IN MODERATELY OBESE WOMEN**  
Petr Hlavaty\* - M Kunesova\* - P Kalouskova\* - J Kopecky\*\* - P Flachs\*\* - E Tvrzicka\*\*\* - B Stankova\*\*\* - M Vecka\*\*\* - J Nedvidkova\* - L Srbova\* - K Hlavata\* - H Zamrazilova\* - A Zak\*\*\* - M Hill\*  
\*Obesity Management Centre, Institute of Endocrinology, \*\*Department of Adipose Tissue Biology, Institute of Physiology, \*\*\*4th Department of Internal Medicine, 1st Medical Faculty, Charles University, Prague, Czech Republic A-0118
- 43. COMPARATIVE MEASUREMENTS OF FAT MASS USING VARIOUS DEVICES**  
Beata Bódis\* - B Csíky\*\* - M Figler\*\* - P Kenyeres\* - L Bajnok\*  
\*1st Department of Medicine \*\*2nd Department of Medicine, University of Pécs, Pécs, Hungary A-0120
- 44. RELATIONSHIP OF ADIPOKINES AND NON-ESTERIFIED FATTY ACID TO THE INSULIN RESISTANCE IN NON-DIABETIC INDIVIDUALS**  
Attila Peti\* - E Csongradi\*\*\* - A. Juhasz\*\*\* - P Kenyeres\*\* - Zs Varga\*\*\* - I Seres\*\*\* - G L Kovacs\*,\*\*\*\* - Gy Paragh\*\*\* - L Bajnok\*\*  
Institute of Laboratory Medicine\*, 1st Department of Medicine\*\*, University of Pécs, Pécs Hungary; 1st Department of Medicine, University of Debrecen, Medical and Health Science Center, Debrecen, Hungary\*\*\*, Medipolis Knowledge Center, Pécs, Hungary\*\*\*\* A-0121

- 45. COMPOSITION OF FATTY ACIDS IN SUPPLEMENTS WITH OIL OF SEA BUCKTHORN, AMARANTH, PUMPKIN AND SAW PALMETTO**  
Eva Tvrzicka - B. Stankova - A. Zak  
Charles University in Prague, 1st Faculty of Medicine, Prague, Czech republic **A-0135**
- 46. THE METHOD OF TREATMENT THE OBESITY PATIENTS BY THE COMPUTERIZED FRAGMENTARY IMAGES IN THE INTERNET**  
Vladyslav Vlastopulo  
Research Laboratories VVL **A-0146**
- 47. LIFE GUIDE - LEAD YOUR LIFE!**  
Heim Pál - dr. Skurdenka Beatrix  
Életvezető Kft., Budapest **A-0147**
- 48. ANALYSIS OF SHORT-TERM BAROREFLEX SENSITIVITY IN PCO SYNDROME AND OBESITY**  
Eva Csajbok - Peter Legrady - Dora Bajcsy - Gyorgy Abraham  
1st Department of Internal Medicine, University of Szeged, Hungary **A-0151**
- 49. ALLELE FREQUENCY DISTRIBUTION DATA FOR D16S3096 AND D16S2624 IN FOUR ETHNIC GROUPS IN RELATION WITH METABOLIC SYNDROME: TEHRAN LIPID AND GLUCOSE STUDY**  
Mehdi Hedayati\* - Maryam Sadat Daneshpour\*, \*\* - Suad Alfadhli\*\*\* - Massoud Houshmand\*\* - Sirous Zeinali\*\*\*\* - Maryam Zarkesh\* - Fereidoun Azizi\*  
\*Obesity Research Center, Research Institute for Endocrine Sciences, Shahid Beheshti MC, Tehran, Iran \*\*Department of Medical Genetics, National Institute for Genetic Engineering and Biotechnology, Tehran, Iran \*\*\*Department of Medical Laboratory Sciences, Faculty of Allied Health Sciences, Kuwait University, Kuwait \*\*\*\*Biotechnology Research Centre, Pasteur Institute of Iran, Teheran, Iran **A-0155**
- 50. STUDY ON EFFECTIVENESS, COMPLIANCE AND ADHERENCE OF NUTRITIONAL THERAPY AN PHYSICAL THERAPY IN OBESITY MAMAGEMENT**  
Octavian Alexe - C Neamtu - C Carmen - A Plesea - C Plesea - A Vasiliu  
University of Medicine and Pharmacy "Gr.T. Popa" Iași, România **A-0156**
- 51. ENDOTHELIAL DYSFUNCTION AND HYPOADIPONECTINEMIA IN OBESE INSULIN RESISTANT PATIENTS**  
K.Elksne\* - A.Jurka\*\*, \*\*\* - I.Bormane\*\* - D.Reihmane\*\* - I.Mikelsone\*\* - L.Balode\*\* - P.Tretjakovs\*, \*\*, \*\*\* - V.Pirags\*\*, \*\*\*  
\*Riga Stradins University; \*\*University of Latvia, Riga, Latvia; \*\*\*Pauls Stradins Clinical University Hospital, Riga, Latvia. **A-0157**
- 52. THE ASSOCIATION OF SOME GENE POLYMORPHISMS (APOE, CETP, LPL) AND OBESITY, HYPERLIPIDEMIA IN MIDDLE-AGED RUSSIAN MEN .**  
G Silvestrova - E Generozov - A Sirkin - B Kaganov  
Moscow medical academy named after I.M. Sechenov, Moscow, Russia Institute of Nutrition of the Russian Academy of Medical Science, Moscow, Russia  
Institute of Physical Chemical medicine, Moscow, Russia **A-0159**
- 53. ASSOCIATION OF ANXIETY AND DEPRESSION DISORDERS WITH WEIGHT AND WEIGHT GAIN IN YOUNG WOMEN**  
Antonina Starodubova - O Draenkova - O Kisliak - G Storozhakov - A Kopelev - V Sergienko - V Govorun - L Djedjeva  
Russian State Medical University, Moscow, Russian Federation, Research Institute of Physicochemical Medicine, Moscow, Russian Federation **A-0161**
- 54. LEFT VENTRICULAR HYPERTROPHY AND OTHER STRUCTURAL CARDIAC ABNORMALITIES IN ADOLESCENT GIRLS AND YOUNG WOMEN WITH OBESITY**  
Antonina Starodubova - D Sargaeva - G Storozhakov - A Kopelev - M Turshева - N Fedotova - V Svetlakov - S Kosyura  
Russian State Medical University, Moscow, Russian Federation The Moscow City Clinical Hospital №12, Moscow, Russian Federation **A-0162**
- 55. EFFECT OF WALKING PROGRAM USING UNSTABLE FOOT WEAR ON THE CHANGE OF BODY WEIGHT AND BODY FAT MASS IN OBESE PATIENTS**  
L.G. Halmy - E. Halmy - L. Halmy  
Platon Health Services and Advisory Ltd. **A-0164**
- 56. INCIDENCE OF EATING DISORDERS IN OBESITY**  
Katalin Bátky - Simon Armbruszt - Zsuzsa Kívés  
Sopron Elizabeth Educational Hospital, University of Pécs, Faculty of Health Sciences, The Insitute of Physiotherapy and Nutrition Science and The Institute of Public Health, Recreation Management and Health Promotion **A-0165**
- 57. SHADOWING OF GLITAZON TREATMENT OF OBESE DIABETIC PATIENTS**  
István Sal  
HEALTHCARE SERVICE DIABETOLOGY OF ZUGLO DISTRICT BUDAPEST **A-0168**
- 58. THE INFORMATION RATE OF FOOD LABELS IN NUTRITION OF OBESE PEOPLE**  
Zita DOBÁK\* - Ildikó KOVÁCS\*\* - Zsuzsanna LELOVICS\*  
\*Association for Healthy Hungary (AHH), Budapest, Hungary \*\*Institute of Human Nutritional Sciences and Dietetics, Faculty of Health Sciences, University of Pécs, Pécs, Hungary **A-0169**
- 59. THE RESULTS OF THE THE BIGGEST LOSER IN HUNGARY**  
Kitti DEÉ\* - Zsolt VÁGI\* - Kitti VÖLGYI\* - Mária FIGLER\*, \*\* - Zsuzsanna LELOVICS\*  
\*Faculty of Health Sciences, University of Pécs, Pécs, Hungary \*\*2nd Department of Internal Medicine, Medical School, University of Pécs, Pécs, Hungary **A-0170**
- 60. DEVELOPMENTS ON THE FIELD OF COMPUTER AIDED (CAD) DIET PLANNING**  
L. Biró - Gy. Arató J. Schmidt - I. Szórád  
NutriComp Co., Budapest, Hungary **A-0171**

**OBEKON symposium**

Chairman: Tamás Pázmány Friday, 02. October 2009  
**14:00-16:00**  
*Fat cell room*



Ányos Jedlik programme

Established by the support of the National Office for Research and Technology.



- 1. IDENTIFICATION OF MOLECULAR TARGETS AND BIOMARKERS IN THE MECHANISM AND THE TREATMENT OF OBESITY. INTRODUCTION OF THE ACTIVITY OF THE „OBEKON”**  
 Tamás Pázmány\* - Zoltán Urbányi\* - András Falus\*\* - András Budinszky\*\*\* - Károly Vékey\*\*\*\* - László Takács\*\*\*\*\* - Sándor Cseh\*\*\*\*\* - Tamás Olj\*\*\*\*\*  
 \*Gedeon Richter Ltd., Budapest, Hungary \*\*Semmelweis University, Dept of Genetics, Cell- and Immunobiology, Budapest, Hungary \*\*\*Pázmány Péter Catholic University, Faculty of Information Technology, Budapest, Hungary \*\*\*\*Hungarian Academy of Sciences, Chemical research Center, Budapest, Hungary \*\*\*\*\*Biosystems International Ltd., Budapest, Hungary \*\*\*\*\*Targetex Research and Development Ltd., Dunakeszi, Hungary \*\*\*\*\*QSX Quality Software Expert Ltd., Budapest, Hungary  
 25' A-0130
- 2. INVESTIGATION OF THE GENOMIC BACKGROUND OF OBESITY USING SINGLE NUCLEOTIDE POLYMORPHISM ANALYSIS IN CANDIDATE GENES**  
 Csaba Szalai - AF Semsei - I Ungvári - P Kiszél - P Antal - A Falus  
 Semmelweis University, Dept of Genetics, Cell- and Immunobiology, Budapest Heim Pál Pediatric Hospital, Budapest Dept. of Meas. and Inf. Sys., Budapest University of Technology and Economics  
 20' A-0033
- 3. APPLICATION OF PROTEOMICS METHODS IN THE IDENTIFICATION OF BIOMARKERS, SUITABLE FOR STUDYING OBESITY AND OBESITY RELATED DISEASES**  
 Kurucz I.\* - Kádás J.\* - Tardieu N.\*\* - Malderez C.\*\* - Urbányi Z.\*\*\* - Drahos L\*\*\*\* - Vékey K.\*\*\*\* - Flachner B.\*\*\*\*\* - Cseh S.\*\*\*\*\* - Takács L.\*\*,\*\*  
 \*BioSystems International (BSI) Ltd., Debrecen \*\*BSI SAS, Evry, France \*\*\*Gedeon Richter Ltd., Budapest \*\*\*\*Hungarian Academy of Sciences, Chemical Research Center, Budapest \*\*\*\*\*TargetEx Ltd., Dunakeszi  
 20' A-0139
- 4. OBESITY RELATED MRNA AND MIRNA PROFILING**  
 Katalin Éder\* - I. Likó\*\* - A. Falus\*  
 \*Semmelweis University, Department of Genetics, Cell- and Immunobiology, Budapest; \*\*Richter Gedeon Nyrt., Budapest  
 20' A-0043
- 5. OBESITY: GENETIC UPDATE BY CGH ANALYSIS AND ITS POTENTIAL CLINICAL IMPLICATIONS**  
 Viola Tamási - András Falus  
 Semmelweis University, Faculty of Medicine, Department of Genetics, Cell- and Immunobiology, H-1445 Budapest, POB. 370., Hungary  
 20' A-0022
- 6. GLYCOSYLATION PATTERN ANALYSIS WITH MASS SPECTROMETRY**  
 Lívía Budai - Ferenc Pollreisz - Oliver Ozohanics - Krisztina Ludányi - László Drahos - Károly Vékey  
 1 Hungarian Academy of Sciences, Chemical Research Center H-1025, Pusztaszeri 59-67., Budapest, Hungary  
 2 Semmelweis University, Department of Pharmaceutics H-1092. Högyes Endre 7., Budapest, Hungary  
 5' A-0013
- 7. EPI TOPE MAPPING OF MABS RECOGNIZING PROTEIN MARKERS OF OBESITY: A PHAGE DISPLAY STUDY**  
 Beáta Flachner - K Dobi - J Varga - Z Lőrincz - S Cseh  
 TargetEx Kft., Dunakeszi  
 5' A-0044
- 8. STUDY OF LIGAND-BINDING MODE TO LYSOPHOSPHATIDIC ACID RECEPTORS BY MOLECULAR MODELLING METHODS**  
 Andras Szilagyí - B Balogh - B Jojart - P Matyus  
 Department of Organic Chemistry, Semmelweis University, Budapest Department of Chemistry and Chemical Informatics, Faculty of Education, University of Szeged, Szeged, Hungary Drug Discovery and Safety Centre, Semmelweis University, Budapest, Hungary  
 5' A-0067

**16:00 COFFEE BREAK**

**Review session II.**

**Food safety**

Chairman: Diana Bánáti Friday, 02. October 2009  
**16:15-18:00**  
*Fat cell room*

- 1. PRIORITY IN THE EUROPEAN FOOD SAFETY POLICY**  
 Diana Bánáti  
 Central Food Research Institute H-1022 Budapest, Herman Ottó út 15.  
 25' A-0073
- 2. FOOD SAFETY RISK AND LEGAL ASPECTS OF DIETING**  
 Mária Szeitz-Szabó  
 Hungarian Food Safety Office  
 20' A-0100

**3. THE ROLE OF FOOD INDUSTRY IN THE PREVENTION AND DEVELOPMENT OF OBESITY**

Péter A. Biacs  
Budapest Corvinus University, Faculty of Food Science  
20'

**A-0074**

**4. THE NUTRITIONAL RISK**

György Biró - Emese Antal  
Complex Committee on Food Science of HAS Hungarian Association of Dietitians  
20'

**A-0008**

**5. ENVIRONMENTAL ESTROGEN EXPOSURE AND OBESITY**

Anna Tompa  
Semmelweis University, Department of Public Health  
20'

**A-0101**

**Plenary session II.**

Chairman: Svetoslav Handjiev Friday, 02. October 2009

**18:00-18:50**

***Fat cell room***

**1. IS THERE VALUE FOR LOW-GLYCAEMIC INDEX DIETS?**

Arne Astrup  
Department of Human Nutrition, Faculty of Life Sciences, University of Copenhagen, Copenhagen, Denmark  
50'

**A-0070**

**19.00 GALA DINNER**

OCTOBER 2, 2009  
MITOCHONDRIMUM ROOM

**Oral session I.**

Chairman: Éva Martos, Dénes Molnár Friday, 02. October 2009

**14:00-15:00**

*Mitochondrium room*

- 1. OVERWEIGHT AND OBESITY IN AN ITALIAN SCHOLAR AGE CHILDREN POPULATION**  
 Fabrizia Bamonti\* - C. Novembrino\* - R. De Giuseppe\* - F. de Liso\* - D. Sommaruga\*\* - L. Vigna\*\*\*  
 \*Dip. Scienze Mediche, Università degli studi di Milano, O.M.P.Ma.RE, Fondazione IRCCS, via F. Sforza 35, 20122 Milano,  
 \*\*Servizio Dietetico Direzione Sanitaria OM.P.Ma.RE, Fondazione IRCCS, via F. Sforza 35, 20122 Milano, Italy;  
 \*\*\*Dip Medicina Preventiva Clinica e del Lavoro, U.O. Medicina del Lavoro I, O.M.P.Ma.RE, Fondazione IRCCS ,  
 via F. Sforza 35, 20122 Milano, Italy;  
 12' A-0124
- 2. THE EVALUATION OF THE PHYSIC DEVELOPMENT AMONG THE SCHOOL AGES (6-21)YEARS OLD, STUDIES OBJECT FOR THE NURSES IN COMMUNITY.2006-2009**  
 YLLKA BILUSHI\* - VASILIKA PRIFTI\* - ALEKSANDER LLANO\* - LEDION DAKA\* - LORETA KUNESHKA\*\* -  
 LLUKAN RRUMBULLAKU\*\*  
 \*Department of Health Sciences, Vlora University, Albania. yllanaj@univlora.edu.al  
 \*\*University Hospital Center "Mother Theresa" Tirana  
 12' A-0062
- 3. CHANGES OF GLUCOSE METABOLISM IN OBESE CHILDREN**  
 Natalia Lasztity - S. Almasy - É. Németh - A. Czinner  
 I. Department of Pediatrics, Heim Pal Children's Hospital, Budapest, Hungary  
 12' A-0136
- 4. RELATION BETWEEN THE OBESITY AND THE PERI- AND POSTOPERATIVE COMPLICATIONS IN A GROUP OF CHILDREN WITH SLEEP RELATED BREATHING DISORDER**  
 Benedek P. - Bognar Zs. - Katona G. - Czinner A.  
 Heim Pal Children's Hospital, Budapest  
 12' A-0126
- 5. THE EFFECTS OF REGULAR PHYSICAL ACTIVITY WITH BALL FOR BODY COMPOSITION AND MOTOR PERFORMANCE IN 9-10 -YEARS OLD BOYS**  
 F Ihász\* - Zs Mészáros\*\* - E. Halmy\*\*\* - J. Rikk\* - J. Mészáros\*\*  
 \*Faculty of Apáczai Csere János, University of West Hungary, Győr, Hungary \*\*Faculty of Physical Education and  
 Sport Sciences, Semmelweis University, Budapest, Hungary \*\*\*Hungarian Association for Overweight and Obese  
 12' A-0137

**Oral session II.**

Chairman: Zoltán Karádi, Gabriella Roman Friday, 02. October 2009

**15:00-16:00**

*Mitochondrium room*

- 1. COMPARISON OF BODY MASS INDEX WITH ABDOMINAL OBESITY INDICATORS AND WAIST-TO- STATURE RATIO FOR PREDICTION OF TYPE 2 DIABETES: THE ISFAHAN DIABETES PREVENTION STUDY**  
 Mohsen Janghorbani - Masoud Amini  
 Department of Epidemiology and Isfahan Endocrine and Metabolism Research Center, Isfahan University of Medical  
 Sciences and Health Services, Iran  
 12' A-0021
- 2. THE DINAMICITY OF WEIGHT GAIN IN OBESE, DIABETIC AND HYPERTENSIVE PATIENTS**  
 Imre RURIK  
 University of Debrecen, Medical and Health Science Center Department of Family and Occupational Medicine  
 12' A-0112
- 3. CENTRAL ADIPOSITY AND CARDIOVASCULAR COMPLICATION- IS THERE A MATTER OF TIME?**  
 Adorata Elena Coman - C Petrovanu - G Murariu - M Maidaniuc - E Popa - C Grigore - R Petrovanu  
 University of Medicine "Gr T Popa", Iasi, Ambulatory Care Department  
 12' A-0116
- 4. OXIDATIVE STATUS IN OBESITY: ROLE OF DIABETES**  
 F. Bamonti\* - C. Novembrino\* - R. De Giuseppe\* - F. de Liso\* - S. Tirelli\*\* - L. Vigna\*\*\* - L. Riboldi\*\*\*  
 \*Dip. Scienze Mediche, Università degli studi di Milano, O.M.P.Ma.RE, Fondazione IRCCS, via F. Sforza 35, 20122 Milano, Italy;  
 e-mail: fabrizia.bamonti@unimi.it. \*\*Dip. Area Servizi Diagnostici, Lab. Patologia Clinica, O.M.P.Ma.RE, Fondazione IRCCS, via F. Sforza 35,  
 20122 Milano, Italy; e-mail: amedeo.tirelli@policlinico.mi.it \*\*\*Dip Medicina Preventiva Clinica e del Lavoro, U.O. Medicina del Lavoro I, O.M.P.Ma.RE,  
 Fondazione IRCCS , via F. Sforza 35, 20122 Milano, Italy; e-mail: luisellavigna@inwind.it  
 12' A-0125
- 5. OBESITY AND INCREASING PREVALENCE OF METABOLIC SYNDROME AMONG EGYPTIAN ADOLESCENTS**  
 Nebal Ella Rahman Aboul - D Shehab - M Ismail - A Abdel-Maksoud  
 National Nutrition Institute, Cairo, Egypt  
 12' A-0012

**16:00 Coffee Break**

**Oral session III.**

Chairman: Csaba Nyakas, Imre Rurik Friday, 02. October 2009

16:20-18:00

Mitochondrium room

- 1. OBESITY OF AGING AND AGE-RELATED ALTERATIONS IN THE RESPONSIVITY OF THE CENTRAL MELANOCORTIN SYSTEM**  
 Márta Balaskó - E Pétervári - S Soós - M Székely  
 Department of Pathophysiology and Gerontology, Medical School, University of Pécs, Hungary H-7624 Pécs,  
 12 Szigeti str. e-mail: marta.balasko@aok.pte.hu  
 12' A-0114
- 2. THE INFLUENCE OF BODY MASS INDEX ON LIPID PROFILE, BMD AND OSTEOPROTEGERIN LEVELS IN POSTMENOPAUSAL WOMEN WITH CARDIOVASCULAR DISEASES**  
 Vladyslav Povoroznyuk - O. Nishkumay  
 Department of Clinical Physiology and Pathology of Locomotor Apparatus, Institute of Gerontology AMS Ukraine,  
 Ukrainian Scientific-Medical Centre for the Problems of Osteoporosis, Kyiv, Ukraine, okfpodac@ukr.net  
 12' A-0050
- 3. INFLAMMATION CYTOKINES IN PATIENTS WITH OBESITY AND METABOLIC SYNDROME**  
 Olga Grigoryan - T. Sentsova - Z. Zaynudinov - J. Shehonina  
 Research Institute of Nutrition Or Russian Academy of Medical Sciences, Moscow, Russia  
 12' A-0011
- 4. THE ROLE OF NUTRITIONAL EDUCATION IN THE MANAGEMENT OF OBESE ADOLESCENTS**  
 Dana Teodora Anton - O O Duma  
 "Gr.T.Popa" University of Medicine and Pharmacy, Iasi, Romania 3-rd Clinic of Pediatrics (Dana Teodora Anton)  
 Department of Management and Public Health (O.O. Duma)  
 12' A-0017
- 5. STUDY OF ADOLESCENTS' BODY WEIGHT CONTROL IN LIGHT OF THEIR SPORTS ACTIVITY**  
 Rita Mikulán\*,\*\* - Bettina Pikó\*\*\*  
 \*Szegedi Tudományegyetem, JGYPK, Testnevelés és Sporttudományi Intézet, Szeged \*\*Országos Sportegészségügyi Intézet,  
 Szeged, Megyei Sportorvosi Rendelő \*\*\*Szegedi Tudományegyetem, ÁOK, Magatartástudományi Intézet, Szeged  
 12' A-0027
- 6. URIC ACID, OBESITY AND CARDIOMETABOLIC RISK**  
 Luisella Vigna\* - L. Airaghi\*\* - C. Novembrino\*\*\* - A.S. Tirelli\*\*\*\* - F. Bamonti\*\*\* - L. Riboldi\*  
 \*Dip Medicina Preventiva Clinica e del Lavoro, U.O. Medicina del Lavoro I, O.M.P.Ma.RE, Fondazione IRCCS, via F. Sforza 35, 20122 Milano, Italy;  
 e-mail: luisellavigna@inwind.it \*\*Dip. Scienze Mediche, U.O. Medicina Interna I, Fondazione O.M.P.Ma.RE, Fondazione IRCCS, via F. Sforza 35,  
 20122 Milano, Italy; \*\*\*\*Dip. Scienze Mediche, Università degli studi di Milano, Fondazione O.M.P.Ma.RE, Fondazione IRCCS, via F. Sforza 35, 20122 Milano,  
 Italy; e-mail: fabrizia.bamonti@unimi.it. \*\*\*\*Dip. Area Servizi Diagnostici, Laboratorio di Patologia Clinica, O.M.P.Ma.RE, Fondazione IRCCS, via F. Sforza 35,  
 20122 Milano, Italy; e-mail: amedeatirelli@policlinico.mi.it  
 12' A-0149
- 7. RESPIRATORY FUNCTION IN OBESE WORKERS**  
 Vigna L\* - Patrini L\* - Somaruga D\*\* - Agnelli G\* - Consonni D\*\*\* - Belluigi V\*\*\*\* - Pellegatta M\*\*\*\*\* - Riboldi L\*  
 \*Dip di Medicina del Lavoro Clinica del Lavoro L Devoto; U.O. Medicina del Lavoro 1 \*\*Servizio Dietetico Direzione Sanitaria di Presidio  
 \*\*\*U.O. Epidemiologia, Fondazione IRCCS Ospedale Maggiore Policlinico, Mangiagalli e Regina Elena, Milano  
 \*\*\*\*Novelis SPA \*\*\*\*\*Scuola di Specializzazione in Medicina del Lavoro, Università degli Studi di Milano; Italy.  
 12' A-0152
- 8. ALLELE FREQUENCY DISTRIBUTION DATA FOR D12S1632, D12S329, D12S96 IN FOUR ETHNIC GROUPS IN RELATION WITH METABOLIC SYNDROME: TEHRAN LIPID AND GLUCOSE STUDY**  
 Maryam Sadat Daneshpour\*,\*\* - Suad Alfadhli\*\*\* - Massoud Houshmand\* - Sirous Zeinali\*\*\*\* - Mehdi Hedayati\*\* -  
 Maryam Zarkesh\*\* - Fereidoun Azizi\*\*  
 \*Obesity Research Center, Research Institute for Endocrine Sciences, Shahid Beheshti MC, Tehran, Iran \*\*Department of Medical Genetics,  
 National Institute for Genetic Engineering and Biotechnology, Tehran, Iran \*\*\*Department of Medical Laboratory Sciences,  
 Faculty of Allied Health Sciences, Kuwait University, Kuwait \*\*\*\*Biotechnology Research Centre, Pasteur Institute of Iran, Teheran, Iran  
 12' A-0154
- 9. PHARMACEUTICAL QUALITY OF GENERIC ORLISTAT PRODUCTS COMPARED WITH XENICAL**  
 P.W.Taylor\* - I. Arnet\*\* - M. Born\*\*\* - A. Fischer\*\*\*\* - I. Simpson\*\*\*\*\*  
 \*London School of Pharmacy, London, UK. peter.taylor@pharmacy.ac.uk \*\*Institute of Clinical Pharmacy, University of Basle,  
 Basle, Switzerland. isabelle.arnet@unibas.ch \*\*\*PBH, F. Hoffmann - La Roche Ltd. Basle, Switzerland. markus.born@roche.com  
 \*\*\*\*PTGF, F. Hoffmann - La Roche Ltd. Basle, Switzerland. anton.fischer@roche.com \*\*\*\*\*The Micron Group, Chatteris, UK.  
 iain.simpson@micron-research.com  
 12' A-0059

OCTOBER 3, 2009  
FAT CELL ROOM**08.00-12.00 Onsite registration****Plenary session III.**

Chairman: Lajos Szollár Saturday, 03. October 2009

**08:15-09:00***Fat cell room***1. VIRUSES AND THE WORLDWIDE EPIDEMIC OF OBESITY: AN UPDATE**

Richard L. Atkinson

Emeritus Professor of Medicine and Nutritional Science University of Wisconsin, Madison

45'

[A-0071](#)**Review session III.**

Chairman: Ketevan Asatiani, Eszter Halmly Saturday, 03. October 2009

**09:00-09:50***Fat cell room***1. BASIC PRINCIPLES AND OUTCOMES OF BARIATRIC TREATMENT OF MORBID OBESITY**

Martin Fried\*,\*\* - K. Dolezalova\* - P. Sramkova\* - K. Owen\* - J. Herlesova\*

\*OB Klinika, Prague, Czech Republic \*\*1st Faculty of Medicine, Charles University, Prague, Czech Republic

25'

[A-0057](#)**2. DEVELOPING A PAN-EUROPEAN CAMPAIGN TO TACKLE OBESITY: THE CASE FOR A NEW STAKEHOLDER NETWORK**

Nevill Rugby

European Network on Overweight and Obesity

25'

[A-0096](#)**Review session IV.****Childhood obesity**

Chairman: Endre Sulyok Saturday, 03. October 2009

**09:50-11:30***Fat cell room***1. PREVENTION OF CIVILIZATION CAUSED DISEASES**

Tivadar Tulassay

Semmelweis University, Budapest, Hungary

[A-0102](#)**2. THE GLOBAL SIGNIFICANCE OF CHILDHOOD OBESITY DEMONSTRATED BY RESULTS OF EUROPEAN PROJECTS**

D Molnár\* - L Moreno\*\* - W Ahrens\*\*\* - and On behalf of the HELENA and IDEFICS Consortia

\*Dept. Pediatr., Univ Pécs, Hungary; \*\*Escuela Universitaria de Ciencias de la Salud, Univ. Zaragoza, Spain, \*\*\*BIPS,

Univ.Bremen, Germany

[A-0089](#)**3. THE PREVALENCE OF CHILDHOOD OBESITY IN HUNGARY**

Antal Czinner - Attila Pintér+

I. Department of Pediatrics, Heim Pal Children's Hospital, Budapest, Hungary

20'

[A-0077](#)**4. GOOD PRACTICES AGAINST CHILDHOOD OBESITY BY NATIONAL INSTITUTE OF FOOD AND NUTRITION SCIENCE**

Eva Martos

National Institute of Food and Nutrition Science, Budapest, Hungary

20'

[A-0123](#)**5. NUTRIENT SUPPLEMENTATION OF CHILDREN: INFLUENCING FACTORS AND ANTHROPOMETRIC CORRELATIONS**

Soos Tünde - Stomfai, S - Repasy, J - Kovacs, E - Molnar, D

Department of Paediatrics, University of Pécs, Hungary

15'

[A-0153](#)**6. BODY COMPOSITION ASSESSMENT AND ITS CORRELATION WITH PATHOLOGIC FINDINGS IN CHILDREN**

Eva Kovacs - S Stomfai - J Repasy - T Soos - D Molnar

Department of Paediatrics, University of Pécs, Hungary

15'

[A-0122](#)**7. INTERDISCIPLINARY APPROACH TO THE TREATMENT OF CHILDHOOD OBESITY**

Bea Pászthy

Head of Child and Adolescent Mental Health Unit, Semmelweis University, Budapest, Hungary

20'

[A-0092](#)**11:30 Coffee Break**

**EASO Midle region round table conference**

Chairman: Hermann Toplak Saturday, 03. October 2009

11:45-13:10

*Fat cell room*

- 1. EASO ACTIVITIES IN THE LAST THREE YEARS: REALIZED VISIONS & REMAINED TASKS**  
 Vojtech Hainer\* - E. Woodward\*\*  
 \*past-president of EASO (2006-2009), Institute of Endocrinology, Prague, Czech Republic; \*\*EASO Executive Director,  
 London, United Kingdom, European Association for the Study of Obesity (EASO)  
 15' A-0080
- 2. GEORGIA**  
 Ketevan Asatiani  
 10' A-0068
- 3. CZECH REPUBLIC**  
 Martin Fried  
 10' A-0142
- 4. HUNGARY**  
 László Halmy  
 10' A-0143
- 5. SLOVAKIA**  
 Pavol Holéczy  
 10' A-0141
- 6. ROMANIA**  
 Gabriella Roman  
 10' A-0094
- 7. POLAND**  
 Barbara Zaharoska-Markiewicz  
 10' A-0106

**13.40 CLOSING CEREMONY**

**14.00 END OF PROGRAMME**

OCTOBER 3, 2009  
MITOCHONDRIMUM ROOM

**08.00-12.00 Onsite registration**

**Connections of obesity**

Chairman: Anna Tompa, Hermann Toplak

Saturday, 03. October 2009

**09:00-10:00**

*Mitochondrium room*

1. **THE PATHOGENESIS OF THE METABOLIC SYNDROME**  
Lajos Szollár  
Institute of Pathophysiology, Faculty of Medicine Semmelweis University, Budapest, Hungary H-1145 POB 370.  
e-mail: szollaj@net.sote.hu;  
15' A-0023
2. **WINE CONSUMPTION AND OBESITY**  
Janos Feher - G. Lengyel  
2nd Department of Medicine, Semmelweis University, Budapest  
15' A-0078
3. **BODY MASS INDEX AND CAUSE-SPECIFIC MORTALITY IN 900 000 PEOPLE: THE PROSPECTIVE STUDIES COLLABORATION**  
Gary Whitlock - S Lewington - P Sherliker - R Peto, on behalf of the Prospective Studies Collaboration  
Clinical Trial Service Unit & Epidemiological Studies Unit, University of Oxford  
15' A-0025
4. **PREVENTION OF OBESITY IN EUROPE. WHERE ARE WE GOING?**  
Dana Müllerova  
Public Health Department, Medical School and Faculty Hospital in Pilsen, Charles University in Prague, Czech Republic  
15' A-0029

**Clinical aspects of obesity I.**

Chairman: János Fehér, Barbara Zaharoska-Markiewicz

Saturday, 03. October 2009

**10:00-11:30**

*Mitochondrium room*

1. **RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND OBESITY**  
Jako Peter  
Hungarian Society of Sports Medicine, Budapest, Hungary  
15' A-0014
2. **TO EAT OR NOT TO EAT? PSYCHOLOGICAL MECHANISM AND TREATMENT POSSIBILITIES IN OBESITY**  
Dóra Perczel Forintos  
Department of Clinical Psychology Semmelweis University  
15' A-0093
3. **EATING BEHAVIOURS AND WEIGHT STATUS OF URBAN PRIMARY-SCHOOL CHILDREN - LESSONS FROM LEARN STUDY**  
Viktoria Anna Kovacs - Zs Fajcsak - A Gabor - E Martos  
National Institute for Food and Nutrition Science, Budapest, Hungary  
15' A-0117
4. **TRAIT DEPRESSION, READINESS FOR PHYSICAL ACTIVITY AND PHYSICAL SELF-WORTH OF GRADE I-II OBESE AND MORBID OBESE PATIENTS**  
Szilvia Boros\* - László Halmy\*\*  
\*Faculty of Physical Education, Semmelweis University, Budapest, Hungary \*\*Central Hospital, Ministry of Home Affairs, Center of Hypertension  
10' A-0138
5. **NUTRITIONAL SURVEY OF OVERWEIGHT, OBESE CLASS I-II AND MORBID OBESE PERSONS**  
Eszter Halmy - Gertrud Kovacs - Laszlo Halmy  
Platon Health Services and Advisory Ltd.  
10' A-0081
6. **THE TEN MOST OBESE PEOPLE OF THE WORLD**  
G. Gyenis\* - L. Halmy\*\*  
\*Department of Biological Anthropology, Faculty of Science, Eötvös Loránd University, Pázmány Péter stny. 1/C, Budapest, 1117 Hungary \*\*Platon Health Services and Advisory Ltd.  
10' A-0079
7. **RESULTS OF GASTRIC BANDING IN THE TREATMENT OF MORBID OBESITY**  
Pavol Holeczy - M.Bolek - J.Kristof - J.Sevcikova  
Surgical dept., Vitkovice hospital, Zalusanskeho 15, 703 84 Ostrava-Vitkovice, Czech republic  
15' A-0158

**11:30 COFFEE BREAK**

**Experimental session**

Chairman: Martos Éva Saturday, 03. October 2009  
 11:45-12:15  
 Mitochondrium room

1. **FOREBRAIN GLUCOSE-MONITORING NEURONS IN THE CENTRAL CONTROL OF FEEDING AND METABOLISM**  
 Zoltán Karádi - B. Nagy - G. Takács - Cs. Szalay - Sz. Papp - B. Lukáts - D. Fotakos - D. Keresztes - B. Hideg - L. Lénárd  
 Institute of Physiology and Neurophysiology Research Group of the Hungarian Academy of Sciences (H.A.S.), Pécs University,  
 Medical School, Pécs, Hungary  
 15' A-0063
  
2. **GENE-ENVIRONMENT INTERACTION IN THE DEVELOPMENT OF OBESITY: PREVENTIVE ROLE OF PHYSICAL ACTIVITY**  
 Csaba Nyakas - G van Dijk  
 Nutrition and Physical Activity Unit, Semmelweis University, Budapest, Hungary and Center for Behavior and Neurosciences,  
 Unit Neuroendocrinology, University Groningen, The Netherlands  
 15' A-0160

**Clinical aspects of obesity II.**

Chairman: Izabella Henter, Ferenc Kovács Saturday, 03. October 2009  
 12:15-13:40  
 Mitochondrium room

1. **IMPORTANCE OF ECHOCARDIOGRAPHY IN THE EVALUATION OF OBESITY STATUS**  
 Zoltán Sidó  
 VIP Department, National Health Centre, Budapest, Hungary  
 11' A-0097
  
2. **IS THE CARDIOMETABOLIC RISK FACTOR IMPROVEMENT AFTER WEIGHT LOSS IN OBESITY PATIENTS SIMILAR TO A STABLE OBESITY CONTROL GROUP?**  
 Vincent Makoundou\* - Z. Pataky\* - E. Bobbioni-Harsch\* - JP Gachoud V. Barthassat\*\* - A. Golay\*  
 \*University Hospital of Geneva, Service of therapeutic Education for chronic diseases, Switzerland \*\*Roche Pharma(Schweiz) AG, Basel, Switzerland  
 11' A-0010
  
3. **THE IMPORTANCE OF COMBINING BODY MASS INDEX (BMI) AND WAIST CIRCUMFERENCE MEASUREMENTS IN THE ASSESSMENT OF THE RISKS OF OBESITY AND OBESITY-RELATED CO MORBIDITIES.**  
 Vasant Hirani  
 UCL Medical School 1-19 Torrington Place London WC1E 6BT  
 11' A-0003
  
4. **THE RISK OF WEIGHT GAIN DURING MANAGEMENT OF THYROID DYSFUNCTIONS**  
 stván Szabolcs  
 Department of Dietetics and Nutrition, Faculty of Health Sciences, Semmelweis University Budapest  
 11' A-0098
  
5. **PREVALENCE AND SIGNIFICANCE OF SOME THYROID ABNORMALITIES IN OBESITY**  
 Ágnes Szebeni - L. Halmy  
 Ultrasound Laboratory and Hypertension Decentre of Central Hospital, Budapest, Hungary  
 11' A-0045
  
6. **THE EFFECT OF PHYSICAL ACTIVITY AND LOW CALORY DIET FOR THE WEIGHT REDUCTION IN PATIENTS SUFFERING FROM OSTEOARTHRITIS**  
 F. Kovács\* - E. Halmy\*\* - L. Halmy\*\*  
 \*ÁEK Cure Hotel Sanatorium, Hévíz \*\*Platon Health Ltd., Budapest, Hungary  
 11' A-0086
  
7. **SLEEP APNEA IN OBESITY**  
 Zoltan Szakacs - M Györfi  
 State Health Centre, Sleep Disorder Centre, Neurology  
 11' A-0163
  
8. **OBESITY: KNOWLEDGE, ATTITUDES AND EVERYDAY PRACTICE AMONG HUNGARIAN GENERAL PRACTITIONERS**  
 Peter Torzsa - A. László - A. Eöry - L. Kalabay  
 Department of Family Medicine, Semmelweis University, Budapest, Hungary  
 11' A-0026

13.40 **CLOSING CEREMONY**

14.00 **END OF PROGRAMME**

Nutrition in obesity | 2009-10-01 10:00

A-0076

**NOT ALL FATS ARE THE SAME**

Assoc. Prof., Dipl. Ing. Jiří Brát, PhD\* - Assoc.

Prof., Dipl. Ing. Jana Dostálová, PhD\*\*

\*PTZ Nelahozeves, \*\*Institute of Chemical Technology Prague

The role of fats in nutrition is in the spotlight, not only in scientific literature, but also in publications aimed at the general public. We often come across the general opinion of the necessity to avoid fats due to the growing number of overweight or obese people in the general population. But it is not the fats that are responsible for the alarming trend. The explanation is simple: we are consuming more energy than we are expending.

Another alarming statistic is the high mortality rate due to cardiovascular diseases (CVD). In the EU countries, approximately 48% of the 4.3 million registered deaths each year are due to this cause. Figures from Central and Eastern Europe present an even worse picture. From this perspective, the consumption of fats plays an even more important role.

But it is not about the total consumption, but rather the composition of the consumed fats. We should significantly limit our intake of saturated fats and trans fatty acids and, in addition, we should choose to consume unsaturated fatty acids. The most important fatty acids within the unsaturated fatty acids are the polyunsaturated fatty acids. Our body is not able to create them; therefore, they must be consumed in food. Both groups (omega 3, as well as omega 6 fatty acids) are important for our body. They are part of the cell membranes where they help in the transport of nutrients and metabolites on a cellular level. Without them, the individual cells could not exist.

The consumers, as well as the well-educated ones, are often influenced by articles in popular magazines, special weekend supplements of daily papers, TV and other consumer information. This information is not always based on scientific fact and can lead to confusion. This confusion is often caused by consumers' unfamiliarity with the composition of food or manufacturing technologies. A worldwide survey of public opinion carried out last year pointed out the key problems.

We are continuously monitoring the market of products which can significantly affect the overall composition of consumed fats. There is still the persisting problem of high consumption of saturated fats, which is being largely ignored. The content of trans fatty acids in foods (an issue to which the media devote more than enough attention) is falling. Some foods, for example margarines, are still being related to many myths. However, quality branded products nowadays contain only one third to one half of saturated fatty acids compared to butter; they also contain less trans fatty acids than butter and, unlike butter or other non-brand products, many of them are among the best sources of polyunsaturated fatty acids. Due to the trends of increased consumption of

fast food products in our society, the nutritional composition of products is often overlooked. Relatively less attention is devoted to pastries, biscuits, wafers and the composition of fats in these products. The pressure to reduce prices is leading to increased consumption of chocolate substitutes. We can also find nutritionally inappropriate composition of fats in icing used also on the products, which are perceived as nutritionally preferred (müsli bars). From this perspective, it is apparent that it is necessary to pay a greater attention to the composition of fatty acids in individual foods, especially in those with a high fat content. This requirement is particularly true for foods we consume regularly. Fats do not have to be strictly limited provided that we have a balanced consumption and expenditure of energy. However, we should avoid animal fats or generally, fats where there is a high content of saturated fatty acids or those which contain high amounts of trans fatty acids.

Nutrition in obesity | 2009-10-01 10:00

A-0066

**THE POTENTIAL OF N-3 POLYUNSATURATED FATTY ACID IN PREVENTION AND TREATMENT OF METABOLIC SYNDROME**

Jan Kopecky

*Department of Adipose Tissue Biology, Institute of Physiology of the Academy of Sciences of the Czech Republic, Videnska**1083, 142 20 Prague, Czech Republic**E-mail: kopecky@biomed.cas.cz*

Development of metabolic syndrome (MS) could be delayed by lifestyle modifications, while both dietary and pharmacological interventions are required for the successful therapy of MS. n-3 long-chain polyunsaturated fatty acids (LC-PUFA), namely eicosapentaenoic and docosahexaenoic acid, which are abundant in sea fish, act as hypolipidaemics, reduce cardiac events and decrease progression of atherosclerosis. Therefore, n-3 LC-PUFA represent healthy constituents of diets for MS patients. In rodents, n-3 LC-PUFA prevent development of obesity and impaired glucose tolerance. The effects of n-3 LC-PUFA are mediated transcriptionally, by AMP-activated protein kinase and by other mechanisms. n-3 LC-PUFA activate a metabolic switch toward lipid catabolism and suppression of lipogenesis, namely in the liver, adipose tissue and small intestine. This metabolic switch improves dyslipidaemia and reduces ectopic deposition of lipids, resulting in improved insulin signalling. Adipose tissue is specifically linked to the beneficial effects of n-3 LC-PUFA, as documented by a large capacity of adipose tissue for n-3 LC-PUFA accumulation, and (i) prevention of adipose tissue hyperplasia and hypertrophy, (ii) induction of mitochondrial biogenesis in adipocytes, (iii) induction of adiponectin secretion, and (iv) amelioration of adipose tissue inflammation by n-3 LC-PUFA.

Nutrition in obesity | 2009-10-01 10:00

A-0107

**QUO VADIS "LOW CARB DIET"?**

Gábor Zajkás

*National Institute for Food and Nutrition, Hungary*

The low carb diet story began in 1863 with the edition of the book "Letter on Corpulence, Addressed to the Public" on the first popular success of low carb diet, described by William Banting. He wrote his successful weight loss experiment using a diet prescribed by his ear surgeon, Dr. William Harvey. He claimed that he was never hungry and at the age of 66, in a period of a year, lost 20,7 of his initial 90,2 kg "The great charms and comfort of the system are that its effects are palpable within a week of trial and creates a natural stimulus to persevere for a few weeks more" he wrote. The success of this pamphlet led to the popularization of the term "Bantingism" to refer to this diet. Almost 100 years later Dr. Robert Atkins' book was edited, at first in 1973, and he low carb diet became the one of the most popular weight loss diets. However, numerous professional organizations, e.g. American Heart Association and American Dietetic Association have cautioned against the use of low carb diets. Bravata DM et al in 2003 found 2609 potentially relevant articles of low carb diets, and after analyzing 107 of them they stated that there was insufficient evidence to make recommendations for or against the use of low carb diets. In early stages of popular diets the recommended carbohydrate amount is <20, and later <50 g/d, and this typically leads to measurable ketones in the urine. The popular low carb diets have high energy % of protein, which have very similar energy density to carbohydrate, but protein is more satiating than carbohydrate. High protein diets imply high thermogenesis, with animal protein showing a higher one, and high protein diet shows reduced energy efficiency related to body composition of the body weight regained, that is, in favor of FFM. Besides during body weight loss as well as during weight regain, a high protein diet preserves or increases FFM and reduces FM and improves the metabolic profile. According to some authors the success of the low-carb diet might be due to the restriction of variety of food choices - the monotony and simplicity of the diet could inhibit appetite and food intake. Many popular diets (Atkins, The Zone, The South Beach Diet) have been marketed as low carb, but they are probably mainly successful because they are high-protein diets. The protein content of these diets is high: 30-40 en%, and new research indicate, that high-protein content may be the reason for the partial success of these diets in inducing weight loss without restrictions in total energy. Diets such as Atkins may also suppress food intake by producing ketosis through depletion of glycogen stores. Most experimental studies suggest that replacement of some carbohydrate by protein has a neutral or even positive influence on inflammation, risk factors for 2tDM, CVD and osteoporosis. Finally 2 sentences from

Professor Katan to think further - "Weight-loss studies are behavioural studies; they require participants to eat less.... We do not need another diet trial; we need a change of paradigm."

**Nutrition in obesity | 2009-10-01 10:00**

**A-0087**

### **ROLE OF PROTEIN IN WEIGHT MANAGEMENT DIETS**

Marie Kunesova

*Obesity Unit, Institute of Endocrinology, Prague, Czech Republic*

Although energy content of the weight management diets was shown to be the most important parameter predicting weight loss, dietary composition may not be neglected. Role of protein in weight management was studied in detail in numerous projects. One of the last largest projects is paneuropean project Diogenes. The aim of the project was to compare effect of diets with higher (HP) and lower protein (LP) and carbohydrates with the higher (HGI) and the lower glycaemic index (LGI) with control diet in weight maintenance after weight loss. The first results of the project presented in satellite of ECO 2009 have shown significantly better weight maintenance after high protein diets in comparison with low protein diets in the group with strictly monitored diet (van Baak et al.) as well as in subjects from all the centres. Individual effects of HP and LGI diets as compared to a LP/HGI diet were significantly higher -1.25 kg ( $p=0.008$ ) and -1.20 kg ( $p=0.010$ ) respectively (Astrup et al). The effect of moderately higher content of protein in the weight management diets (usually performing 20- 25% of energy/day) is mediated by several mechanisms. Dietary protein influences production of gastrointestinal peptides with anorectic effect- GLP1 and GIP. This is related to enhanced satiety after protein containing meal. Increase in postprandial energy expenditure after higher protein meals was confirmed in many studies. Recent study showed increased gluconeogenesis after the high-protein carbohydrate-free isoenergetic diet in healthy men; increased gluconeogenesis explained forty-two percent of the increase in energy expenditure. The effect of protein can differ according to gender; men tended to stronger reaction in energy expenditure and substrate oxidation while in women satiety reacted stronger. Composition of protein can influence satiety; alpha-lactalbumin and gelatin were more satiating than casein, soy and whey (Westerterp-Plantenga et al). Diets with higher protein proportion seem to have favourable effect in weight loss and maintenance.

Supported by the grant NS/9830-4 IGA Ministry of Health, Czech Republic.

**Nutrition in obesity | 2009-10-01 10:00**

**A-0083**

### **INITIAL WEIGHT LOSS AS PREDICTOR OF WEIGHT LOSS SUCCESS DURING 8-WEEK LOW-CALORIE DIET (LCD). (DATA FROM DIOGENES PROJECT)**

Sv. Handjiev\* - T. Handjieva-Darlenska\* - T.M. Larsen\*\* - M. van Baak\*\*\* - S. Jebb\*\*\*\* - A. Kaffatos\*\*\*\*\* - A. Pfeiffer\*\*\*\*\* - J.A. Martinez\*\*\*\*\* - M. Kunesova\*\*\*\*\* - C. Holst\*\*\*\*\* - W. H. M. Saris\*\*\* - A. Astrup\*\* - on behalf of Diogenes\*\*

\*National Multiprofile Transport Hospital, Sofia, Bulgaria

\*\*Department of Human Nutrition, Faculty of Life Sciences, University of Copenhagen, Copenhagen, Denmark

\*\*\*Department of Human Biology, Nutrition and Toxicology Research Institute, Maastricht, Maastricht University, Maastricht, The Netherlands

\*\*\*\*Human Nutrition Research, Elsie Widdowson Laboratory, Cambridge, UK

\*\*\*\*\*Department of social Medicine, Preventive Medicine & Nutrition Clinic, University of Crete, Heraklion, Crete, Greece

\*\*\*\*\*Department of Clinical Nutrition, German Institute of Human Nutrition Potsdam-Rehbruecke, Nuthetal, Germany

\*\*\*\*\*Department of Physiology and Nutrition, University of Navarra, Pamplona, Spain

\*\*\*\*\*Obesity Management Centre, Institute of Endocrinology, Prague, The Czech Republic

\*\*\*\*\*Institute of Preventive Medicine, Centre for Health and Society, Copenhagen, Denmark

\*\*\*\*\*DiOGenes is the acronym of the project 'Diet, Obesity and Genes' supported by the European Community (Contract no. FOOD-CT-2005-513946),

<http://www.diogenes-eu.org>

**Introduction:** The research in the last decades was focused on the identification of prognostic markers of weight loss for long-term outcomes. However, there is not enough data in the literature on the anthropometrical predictors of weight loss success. Therefore, the aim of our study was to identify the possible role of the early body weight loss as predictor of weight loss outcome during the LCD period.

**Materials and methods:** 932 obese and overweight subjects (620 female and 312 male, mean age 41.2, mean body weight 99.4 kg) were enrolled in the study and started the 8-week LCD period with four sachets of powder drink, soup and crême Modifast®, Nutrition et Santé, Belgium), providing the subjects with 800-880 kcal/day. All the patients underwent full clinical examination before and after the 8-week LCD. At each visit different anthropometrical parameters (body weight, height, body mass index, waist and hip circumferences, sagittal diameter), body composition (fat mass in %, fat mass in kg, fat free mass in kg) as well as blood pressure, and blood, urine and fat biopsy samples were collected and measured.

Statistical modelling tested initial body weight as well as early weight loss (week 1) and half-way (week 3) weight loss as potential predictors

individually in a model including center number, gender, age, basic subject characteristics in a linear regression model.

Correlation analyzes were also performed. Sensitivity, specificity, predictive value and ROC curves were calculated.

**Results:** The results showed that the final weight loss (week 8) was positively correlated with the initial body weight ( $r=0.62$ ), height ( $r=0.43$ ), BMI ( $r=0.43$ ), waist ( $r=0.48$ ), hip ( $r=0.33$ ) and sagittal ( $r=0.45$ ) parameters, fat mass in kg ( $r=0.35$ ) and fat free mass ( $r=0.52$ ), and negatively correlated with the age ( $r=-0.36$ ), (all  $P<0.0001$ ). Moreover, analyzing the regression model only the initial body weight, early (week 1) and half-way (week 3) weight loss were significant predictors of weight loss ( $r^2=0.684$ ,  $P=0.0001$ ) during the 8-week LCD period.

**Conclusion:** Taken together all these determinants could improve the development of adequate prognostic model of weight loss to identify responders vs. non-responders to a diet.

**Orthomol symposium | 2009-10-01 11:50**

**A-0082**

### **ORTHOMOLECULAR PRINCIPLES IN PREVENTION AND TREATMENT OF SOME CHRONIC DISEASES**

László Halmj

*Platon Health Services and Advisory Ltd.*

According to food consumption survey the food intake of the population is characterized by dysalimination that is either more or less than needed is consumed of certain substances. A decrease of calcium and increase of sodium intake is obvious. The intake of several micro-elements is insufficient. A further problem is the excessive consumption of saturated and trans fatty acids. The ratio of the intake of the different types of carbohydrates is also inappropriate. The decrease of fiber consumption is an important problem as well. Earlier we used to try to provide sufficient vitamin intake by food. This effort was not fully successful. A negative balance is seen in the case of vitamins D and A, and also of some water soluble vitamins. At the same time our needs of vitamins have increased. This may lead to deficiency and eventually to certain diseases. Orthomolecular medicine is the restoration and maintenance of health through the administration of adequate amounts of substances that are normally present in the body. Nobel Prize winner Linus Pauling, one of the leading molecular chemists of the last century, established this definition of orthomolecular medicine in 1968.

Practice of the orthomolecular principles provides the maintenance of the homeostasis of the organism. This is a possible way in the treatment and prevention of disease. These principles have already been successfully applied in the prevention and adjunctive therapy of some diseases, like for

example cardiac diseases, osteoarthritis, rheumatism, osteoporosis, diabetes, age related macula degeneration, glaucoma, certain immune disorders, menopause, burn out syndrome, the support of physical activity, and the vitamin supply in childhood. Different metabolic pathways are impaired before and after the onset of certain diseases. Therefore it is required to dose the different vitamins, macro- and micro-nutrients, fatty acids and amino-acids in a specific ratio according to disease state.

The orthomolecular nutritional principals are: our nutrition should be palatable, varied, well-balanced and complete. Overconsumption of high fat and high energy types of foods should be omitted. The different carbohydrates should be consumed in the appropriate ratio. Fresh fruit, salad and vegetables should be consumed five times a day. Eat fish twice a week. The consumption of at least 1,5 liter of mineral water, unsweetened fruit juice or infusion is suggested. Decrease or abandon alcohol and nicotine consumption. Nutrition should be supplemented with orthomolecular micro-nutrients. Adherence to the orthomolecular principles can lead to eu-alimentation, which is appropriate nutrition.

Orthomol symposium | 2009-10-01 11:50

A-0166

## ROLE OF MICRONUTRIENTS IN THE PREVENTION AND TREATMENT OF CARDIOVASCULAR DISEASES

Kálmán Tóth - Katalin Koltai

University of Pécs, Medical School, Hungary

During the past decades a number of micronutrients essential for the biochemical processes of the organism could have been identified besides the long known vitamins. Many examinations have proved the connection between the consumption of certain vegetables, fruits and foods of animal origin and the decrease of the risk of cardiovascular diseases. The preventive features of the herbal micronutrients, so called secondary herbal active ingredients, flavonoides, fitosteroles and herbal sulphur could have been identified.

The flavonoids are of various chemical structures and are to be found in fruits, vegetables, stone-fruits and seeds. Their favourable effect is due to their antioxidant characteristics.

Beta-fitosterole, stigmasterole and campesterole of the herbal sterols have similar structure to cholesterol and proved to be effective in the decrease of hypercholesterinemy. Sitostanole, the saturated derivative of sitosterole decreases the absorption of cholesterol and the blood cholesterol level more effective than sterol. Recently a number of stanole or sterol containing margarine and other products were launched. These products can lower the plasma cholesterol level according to results in Finland. Squalene is the precursor of sterol, can also be found in herbal food and earlier chole-

sterine lowering characteristics were attributed to it.

The sulphur containing herbal compounds, among them alliin are to be found in garlic, onion and in scallion. Garlic extract has decreased the total cholesterol level by a small degree according to the results of a metaanalysis published in 2000 and has no effect on HDL cholesterol and postprandial triglycerides. A slight antihypertensive effect was also proven in part of the examinations.

Increased homocystein level is the major risk factor of cardiovascular diseases. Folic acid, vitamins B6 and B12 play a role in the desintegration of plasma homocystein. Nevertheless the trials have not proved that substitution of folic acid would decrease the risk of atherosclerosis, neither the favourable effect of these vitamins in the primary and secondary prevention.

The significance of antioxidant vitamins E and C and of beta-carotene is subject of intensive research; their results regarding the cardiovascular mortality are often contradictory.

Omega-3-fatty acids decrease the cardiovascular risk both in patients with cardiovascular diseases and of healthy persons. Fat fishes as mackerel, trout, herring, sardine, salmon or carp are rich in eicosapentaenacid (EPA) and in docosahexaenacid (DHA). Alfa-linolic acid (LNA), which can be found in soya bean, linseed and hazel nut, is transformed partly to omega-3-acid in the organism. The level of this latter is not cleared so far, therefore the cardiovascular effects of alfa-linolic acid needs to be submitted to further experiments. Omega-3-fatty acids are proven to be effective in decreasing arrhythmias and the risk of sudden heart death as its consequence. They are proved to lower triglyceride level, inhibit the growth of atherosclerotic plaque and slightly decrease blood pressure. Epidemiological and clinical trials have shown that omega-3-fatty acids lower the incidence of cardiovascular diseases. Randomised clinical trials showed, that food supplementation by omega-3-fatty acid lower the cardiovascular mortality and the incidence of non-fatal myocardial infarct and stroke. It is proven to slow down the process of atherosclerosis in cardiovascular patients. It has also significantly lowered the relative cardiovascular and total mortality risk of heart insufficiency patients; it is more effective than statines in this patient group.

The possibilities of effectivity in decreasing cardiovascular risks are considered with a number of other micronutrients, as for example coenzyme Q10 and L-carnitine. Their effect however could not be identified in clinical trials on large population.

Orthomol symposium | 2009-10-01 11:50

A-0167

## NUTRITION AND MUSCULOSKELETAL DISEASES

Pál Géher

Semmelweis University, Budapest

Nutrition is a significant risk and/or causative factor in a great number of musculoskeletal diseases.

Obesity, an increasing worldwide concern is a well known risk factor of musculoskeletal pain anywhere in the body (odds ratio: 1.7-9.9). It is a preventable risk factor for osteoarthritis (especially for knee osteoarthritis) and also for gout.

Nutrition - especially lack of balanced and sufficient provision of vitamins, minerals salts, etc.- a contributing factor of several diseases:

- osteoporosis (where there is a hormonal imbalance and also there is a lack of sufficient intake of calcium salts and vitamin D);
- rickets (lack of sufficient vitamin D supply);
- diabetic arthropathy (despite of insufficient release of insulin, inappropriate intake of carbohydrates);
- scurvy (lack of vitamin C, myopathies).

Other aspect of nutrition in the pathophysiology of musculoskeletal diseases is the scope of nutritional treatment, which has a great public interest, with a profound ignorance by the physicians. There are many controversies on the therapeutic efficacy of these treatments in rheumatoid arthritis and osteoarthritis. There is a lack of agreement on the scientific value of this form of treatment. Therefore nutritional aspects of treatment are not included in the treatment recommendations of rheumatoid arthritis. This is largely due to the insufficient scientific data from well controlled pharmacological studies.

There are several forms of diet therapy:

- antioxidant nutrients
- dietary fatty acids (especially omega-3 fatty acids);
- special diets (fasting or vegetarian diets);
- trace elements.

Beside these classic forms of diet therapy - because of regulatory reasons - some forms of supplementary therapy of osteoarthritis (glucosaminoglycan, chondroitinsulphat) also belong to these groups of treatment modalities. The international guidelines on the treatment of osteoarthritis included the application of these treatment modalities.

The reviewer also describes the application of orthomolecular medicine (developed by Linus Pauling, Nobel-prize winner in the last century) in the field of musculoskeletal medicine, its scientific base and its possible indications. The treatment of osteoarthritis and rheumatoid arthritis needs special emphasis in this treatment modality.

Plenary session I. | 2009-10-02 09:00

A-0127

## FRAUD IN OBESITY TREATMENT PROGRAMS

Stephan Rössner

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Although weight loss is feasible for most people, weight loss maintenance is difficult. Diet, exercise and behaviour modification remain cornerstones in obesity treatment. Drugs help but in spite of monumental efforts there are still no effective drugs for treatment of obesity which match other chronic conditions, e.g. hypertension, where today with an arsenal of effective and safe drugs blood pressure can almost always be significantly and continuously controlled. Drugs for obesity treatment may deliver a 10% maintained weight loss, which undoubtedly has beneficial metabolic effects but clearly do not satisfy the patient. Bariatric surgery is reasonably effective, but costly and resource consuming and will always be reserved for a small fraction of those who actually may qualify.

Against this sombre background it is easy to understand that the public is more than happy for products which promise safe and quick fixes. The market is immense and in spite of warnings to the consumers it keeps flourishing. Pills, mechanical devices and other products are generally sold with promises that are beyond probability. The old saying "if it sounds too good to be true- it is not" still holds. However, often producers boast their methods by referring to scientific data, which are difficult for the public to interpret. "Logic jumping" is a technique to provide pseudo-scientific support. In an analysis of 18 products, commercially available a few years ago, none was found to have any solid scientific backing. Most were harmless (except to the purse of the buyer) but in some cases drugs may have quite a harmful potential, such as adrenergic derivatives which may cause cardiac problems in patients, prone to arrhythmias.

It is a sad reality that many clinicians, tempted by the financial rewards, may lend themselves to support fraud slimming products or even actively promote these compounds. It remains a challenge for serious clinicians to help to develop such effective obesity treatment tools that the fraud products run out of business. Unfortunately that is not going to happen for a long time.

Abbott symposium | 2009-10-02 10:00

A-0128

## CAN WE GET ANY GOOD RESULT WITHOUT COMPLIANCE IN THE WEIGHT MANAGEMENT?

László Halmy

*Hungarian Society for the Study of Obesity*

Formerly we thought the physiological weight increase to be 0.3 kg, recently 0.5-1.0 kg has been reported. My personal result of a 10 year longitudinal study during the period of 1968 and 1977 was 3.7 kg (F:23.2). Body weight regulation after minimum 5% weight loss may not only cause returning to the original weight (43.43% in my study), but exceeding it (20.43%). The different weight loss programs showed long-term significant result in only a few percent, and most of the patients do not reach the minimal 10 percent reduction necessary for any effect on health. The plateau phase after the negative dynamic phase in weight loss programs is well-known, and it is usually followed by weight increase. This break of the curve is seen most of the time at half time. This phenomenon does not seem to correlate with the length of a program, which calls the attention to the human factor.

In the treatment of chronic disease the compliance of the patient, that is the degree to which a patient correctly follows medical advice is of major importance. Compliance is positively affected by the sense of disease, the decreased activity due to the disease, written instructions, simple methods, short waiting at visits, direct medical advice, financial benefit from recovery, support from medical insurance. Compliance is decreased by forgetfulness, neglect, lack of understanding with the physician, lack of symptoms, difficult instructions, physical obstacles like traveling or the size of the drug, cost of treatment. A paternalistic physician will insist on giving direct instructions as the best way of treatment, while recently the adherence, attitude, compliance and activity of the patient seem to be predominant. Patient education, as an important form of compliance has become a major issue in the treatment of lipid disorders, hypertension and diabetes. Publications reporting on good compliance are often betrayed by the high drop out. Compliance is of utmost importance in the treatment of obesity, since our primary role is a life-style change. We do not want less from our patients, than to change his or her nutritional habits, both in quality and quantity, increase physical activity, have a stress free life-style and take regularly the drugs. And we wonder why long-term results are unsatisfactory. The elaboration of good compliance needs objective conditions. Good quality and effective once-a-day drugs without side-effects are essential, just like financial possibilities of a safe low calorie diet or favorable life conditions.

Subjective conditions start with the personality of the physician and his method. Mihály Bálint, who developed the group psychotherapy method first at

the university in Budapest than at the Tawistock Institute in London, postulates in his book "The physician, his patient and the disease", that the personality of the physician is already a drug. The role of the spouse and family is also very important. Recently it has been shown that the body weight of a friend of the same sex plays a major role in obesity. The style of the medical visit may also have a strong effect on the compliance. I have shown in a previous study that the same method lead to a two-fold weight decrease with a control every two weeks (-13.7 kg), compared to a group where only one control per month was provided (-7.78 kg). Regular follow-up in the frames of a club program provided weight maintenance during five years. The length of the consultation is also important. The first one should last at least 30 minutes, but the more is the better. After the initiating questions the physician should listen to the patient without stopping the talk with new questions. The opportunity must be given to the patient to tell his or her hypothesis of the disease, even if it is full of subjective elements, like calorie intake or physical activity. During the first visit, direct instructions, like eat less and move more, are to be avoided. It is more appropriate to lead the patient to find the solution and the tasks to be done. Only an undisturbed consultation can provide a confidential atmosphere. The visit should not be disturbed by a phone call or an urgent program. The attitude of the physician must be sympathizing. He must be forgiving for the sins committed by the patient, must accept the sense of guilt, and give absolution. During a long-term treatment permissive meals may be allowed, with the feeling of self-reward for the achieved results. The reward may also be a purchase of a one size smaller dress, since the aim is not to fit again in the old clothes. Compliance is difficult to achieve if patient and physician have different goals. A 5-10% weight loss may be planned by the physician during weeks, months or years, while patients would like to reach ideal weight. They dream of their wedding attire, wishing 20-40% weight loss in a couple of weeks, or perhaps months. As I explained earlier, we put on weight by grams but we want to lose it by kilos. A further important issue is to create a personal program, specific to the patients, instead of overwhelming them with the totality of the methods. Physical and mental capabilities, geographic situation, work circumstances and income must all be taken in consideration. Gradual expectation and strain must characterize our treatment. An accord should be reached instead of instructions. Losing a partner may appear as a new problem during a weight reduction program. After successful weight loss our patients may become strange for an overweight partner, or the patients may wish to seduce and have new company.

Finally, regular, straightforward and discrete, diplomatic education is essential for the improvement of compliance.

Abbott symposium | 2009-10-02 10:00

A-0129

## PATIENT COMPLIANCE. THE IMPORTANCE OF PROFESSIONAL AND EFFECTIVE COMMUNICATION

Nick Finer

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Obesity management has the same requirements as the management of other long-term, chronic diseases. Unlike an acute infection where diagnosis, treatment and 'cure' can take place over a matter of days, the care of someone with obesity often requires helping the person to accept they have important health needs, understand the circumstances in which their obesity has developed, and how long-term changes in lifestyle are needed, and to set realistic goals and expectations.

When pharmacological or surgical treatments are envisaged, a careful explanation of their benefits (and risks) is essential for patients properly to engage and benefit. All of the above require the health care professional to have knowledge, skills and appropriate attitudes to the patient in order to deliver empathetic, evidence-based and ultimately effective care. This process starts by ensuring that the clinical setting is appropriate to the patients needs, that is with equipment designed to meet the needs of the obese patient. The process of consultation should utilise the techniques of motivational interviewing, allowing the patient to be part of the process of diagnosis and treatment. In this setting the patient will feel able to communicate issue that may be painful, embarrassing or long-suppressed, such as a history of childhood abuse, that may be pivotal in the holistic care that needs to be delivered. Many patient seeking treatment for their obesity have unrealistic goals and expectations and part of a professional approach is to explore, challenge and restructure where necessary such beliefs and expectations. When it comes to recommending treatment, the professional must explain and deliver interventions that are based on sound clinical principles and evidence, and support the patient during what may be a long period of care. Clearly in this setting, the integration of other health care professionals (dietitians, nurse specialists, psychologists) into a multi-disciplinary team will be of value both to the patient but also the physician or surgeon caring for the obese patient. The example for diabetes, asthma and oncology multi-disciplinary teams has shown the value of such an approach. It is only with such a professional approach that patients will understand their needs and responsibilities and be empowered to comply with treatment in the long-term.

Abbott symposium | 2009-10-02 10:00

A-0119

## IMPROVEMENT OF PATIENT COMPLIANCE DURING WEIGHT LOSS PROGRAMS

Laszlo Bajnok

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Dealing with patients who need and want to lose weight, I formulated the following aspects:

1. Learning the motivation and commitment of the patient. Effectiveness can be improved if, according to the patient's personality a wide scale of tuning in the style of consultation is used. Meantime we can learn of what "material" the patient is made of. During this process, assessing the meta-communication may be very informative.

2. Being as personal as possible during the patient education, focusing on the important subjects, meantime checking what was comprehended by the patient (and guessed being useful). Too much talk may be counterproductive, while other tools (brochures, websites, clubs, etc.) may be less boring.

3. Efficacy can and should be multiplied in a continuously developed team, for compliance also. However, the psychological role of a medical doctor cannot be replaced even by specially trained psychologist (better accepted as a "superego", as a leader of the program is usually perceived). Moreover, many patients dislike direct psychological approach feeling it "overpsychology".

4. Trying to figure out what have changed in the patient's daily routine during the subsequent steps (able to achieve goals; comprehend differences?). A special balance is needed between acceptance of failure and demand for the achievements of feasible tasks (e.g. defined aims, weight diary, counting calories, etc.). We may improve the conscious attitude (obese persons tend to react in less intended ways), and may assist in making good compromises (e.g. between the successful vs. acceptable, or enjoyable vs. effort). Therapeutic treaty should be made and then renewed with the patients as clear and factual as possible, without inducing eating disorders.

5. Success delivers further success, even in weight loss. Some needs early start of medicine to aid the development of new habits, while others will take the pills persistently only after long enough life-style-change-alone struggling.

6. Helping persistence (against the erosion related to monotony of long-term compliance). A properly functioning system is economic using energy and resources in the best way (for compliance of those who really benefit of regular check-ups in a specialist).

Review session I. | 2009-10-02 12:15

A-0085

## ECONOMICS OF THE OBESITY PANDEMIC

John Komlos

University of Munich, Germany

1. Recent rise in obesity worldwide
2. Economic explanations for rise in obesity
3. Economic consequences of obesity
4. Economic rationales for government intervention to prevent or reduce obesity
5. Effectiveness and cost-effectiveness of specific anti-obesity policies and interventions

Review session I. | 2009-10-02 12:15:00

A-0091

## LIPID LOWERING THERAPY IN PATIENTS WITH HIGH CARDIOVASCULAR RISK AND LIPID DISTURBANCES

György Paragh

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The prevention and treatment of cardiovascular disease is important in the assessment of global cardiovascular risk. Accordingly, the cardiovascular risk determines the target lipid levels. The target lipid levels are determined by the cardiovascular risk. A target oriented and holistic approaches need to be employed in the treatment. This means the simultaneous treatment of each risk factor, the aim being to prevent organ damage. According to previous multicenter studies, the ATPIII differentiated 3 main risk factors in 2001. Those patients whose 10 year risk for acute cardiovascular events was higher than 20% belonged to the high risk category. Those who fell within the 10-20% range were grouped under the moderate risk category, while those under the 10% level were assigned to the low risk category. The European SCORE recommendation considers acute cardiovascular disease within 10 years. Both recommendations suggest an LDL target level of 2.6 mmol/L for the high cardiovascular risk category. Studies conducted after the ATPIII and SCORE recommendations drew attention to the beneficial effects of lower LDL target levels than previously recommended. Grundy and coworkers considered these evidences and modified the ATPIII recommendations in 2004, by creating a new risk category called the very high risk category. Patients with coronary disease associated with diabetes mellitus or metabolic syndromes or who are hard smokers belong to this category.

The target LDL-C levels in this category is 1.8 mmol/L. The most important objective of lipid lowering therapy is LDL reduction, followed by HDL elevation, and lastly by triglyceride reduction. Recent studies indicate that clinical outcome is better in patients who achieve all lipid target levels. However,

only a few percentages of patients achieve the three lipid target levels with lipid lowering monotherapy. That is the reason why combined lipid lowering therapy is often indicated. Statin+niacin or statin+fibrate combination therapy may be effective in attaining all lipid target levels. The combined lipid lowering therapy may lead to increased side effects and caution is needed in its application.

Poster session | 2009-10-02 13:00

A-0005

### EFFICIENCY OF TRANSIENT ELASTOGRAPHY IN OBESE CHILDREN AND ADOLESCENTS WITH NAFLD

Andrey Zubovich\*\* - A Starodubova\* - E Pavlovskaya\*\* - T Strokova\*\* - A Surkov\*\* - Z Ganskaya\*\* - D Sargaeva\* - S Kasyura\* - O Kisliak\*

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Background and aims: Transient elastography (TE) (FibroScan) is a novel, noninvasive, rapid method to assess liver fibrosis by measuring liver stiffness, but the presence of obesity restricts the usage of this method. So data on TE in children with non-alcoholic fatty liver disease (NAFLD) associated with obesity is limited. The aim of this study was to evaluate the successiveness of TE in obese children and adolescents with NAFLD.

Methods: 150 young patients (4-18 years old, mean age 12,8±2,88y.o., 27% boys) were examined. Patients with viral and other hepatitis were not included in the study. Data of clinical evaluation, ultrasonography, biochemical tests (lipid profile, ALT, AST, GGTP, AP), body composition (by bioimpedance) were analyzed. TE was performed in 34 patients with NAFLD.

Results: Ultrasound signs of NAFLD (signal depletion in distal parts of the liver, heterogeneity of liver tissue, decrease of sound conductivity) were revealed in 46 children and adolescents (31%), 40% were boys, mean age 13,1±2,3 y.o., BMI 35,01±6,64 kg/m<sup>2</sup>(98,31±0,78 percentile), waist circumference (WC) 107,15±18,57 cm, hip circumference 110,54±25,37 cm. In children < 15 years the most frequent complaint was increased appetites, > 15 - weakness and fatigue. There was high frequency of hypertension and lipid disorders in all ages. In overall group mean weight 83,65±24,73kg, height 159,42±13,62 cm, BMI 33,13±20,61 (97,73±1,65 percentile). TE was performed in patients with NAFLD, in 26 pts (76,47%) it was successful. In 8 patients results were invalid, because of insufficient number of measurement points (<10). The group of patients with unsuccessful liver elastography had higher WC (113,2±2,17 vs 100,73±14,4 cm), BMI (37,3±2,3 vs 32,6±3,8 kg/m<sup>2</sup>), ultrasound measured size of right liver lobe (146,67 ±17,51 vs 138,33±9,59

mm), AST/ALT (1,11±0,69 vs 0,75±0,23) (p<0,05). Successiveness of LE was associated with BMI (r=-0,52 p<0,05), WC (r=-0,55 p<0,05), and nonsignificantly correlated with percentage of fat mass (r=-0,74 p=0,05), and percentage of active cells mass (r=0,74 p=0,05). Hepatic fibrosis was found in 13 patients (50%).

Conclusions: The prevalence of fibrosis in obese children and adolescents with NAFLD is very high. Though high BMI and WC could lower success rate of the transient elastography, but it must be recommended for early diagnostic of fibrosis in all children and adolescents with obesity.

Funding: Research related to this abstract was funded by Russian Federation Presidential Grant MK-6368.2008.7

Poster session | 2009-10-02 13:00

A-0006

### THE INFLUENCE OF TWO DIFFERENT MODES OF COMBINED EXERCISE TRAINING ON INDICES OF OBESITY, PHYSICAL FITNESS AND LIPID PROFILE IN OVERWEIGHT AND OBESE ADOLESCENTS WITH MENTAL RETARDATION

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Introduction Data about effects of exercise training in adolescents with mental retardation are scarce. This study investigated the effect of two different modes (three times a week versus twice a week, same intensity and duration) of combined exercise training on indices of body composition, physical fitness and lipid profile in overweight and obese adolescents with mental retardation.

Materials and methods Forty-five overweight and obese adolescents with mental retardation (total IQ, 45-70) received combined endurance (walking, stepping, cycling) and strength training (biceps, triceps, quadriceps and hamstrings) three times a week for 40 sessions (CET3; 13 weeks; n=16), twice a week for 40 sessions (CET2; 20 weeks; n=14) or no training (13 weeks; n=15). Groups were matched for age (14 to 22 years), sex and mental retardation. Before and after the intervention period, indices of body composition (length, weight, BMI, waist, fat and fat free mass), physical fitness (6 minute walk test, peakVO<sub>2</sub>, hand grip strength, muscle fatigue resistance, sit-to-stand, 1RM upper limb and lower limb) and lipid profile (total cholesterol, HDL and LDL) were measured.

Results Compared to the control group, CET3 resulted in a significant decrease of weight, BMI, waist and fat mass, while relative fat-free mass did not significantly change. Muscle strength of upper and lower limb, muscle fatigue resistance and sit-to-

stand were significantly ameliorated. PeakVO<sub>2</sub>/peak power decreased significantly, indicating an improvement in mechanical efficiency. The distance covered in the 6-min walk test (6MWT) increased with 55 up to 80 m. The level of total cholesterol and low-density lipoprotein decreased significantly, while high-density lipoprotein concentration increased.

Comparing CET3 with CET2 no significantly different evolutions were noticed, except for strength lower limb in favor of exercising three times a week. Conclusion In conclusion, combined exercise training (three times or twice a week, same intensity and duration) has a positive effect on indices of obesity, physical fitness and lipid profile in overweight and obese adolescents with mental retardation. No significant differences could be noticed between exercising three times or twice a week with the same volume in this specific population, indicating that physical fitness progressed more quickly in CET3.

Poster session | 2009-10-02 13:00

A-0007

### A STUDY OF THE BMI AMONG THE 13-14 YEAR OLD CHILDREN, IN ALBANIA.

YLLKA BILUSHI - LORETA KUNESHKA\*\* - LLUKAN RRUMBULLAKU\*\* - KLODIANA POSHI\*\*

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\*\*University Hospital Center "Mother Theresa" Tirana

Objectives The purpose of this study is to assess the prevalence of overweight and obesity among the 13-14 year old children, in Vlora city Albania, between years 2003-2007.

Metodes: We have anthropometrically measured and analysed 504 children, 270 females and 234 males. All these children filled in detailed forms where we gathered the important data that define the bodily weight indicator.

Results: According to the results of this study 20% are underweight, 47% normal, 32% are overweight, 15% are obese, we have chosen students from public and non public schools, from the city and the villages, from different areas of Vlora to make the study as objective possible.

Conclusions: In the 13-14 year old children females tend to be healthier than males. The number of members in a family doesn't influence the change of bodily weight indicator. (p>0.05) The parents education compared to underweight children (p<0.05). Underweight children with working person in the family (p<0.05) Prefer products that contain high levels of carbohydrates. (p<0.05). Animal deriving product consumer doesn't justify the changes of bodily weight indicator (p>0.05). From this observation it can be proved that overweight is genetically transmitted. (p<0.05).

Overweight children consume less salty food compared to the underweight children. (p>0.05) Underweight children use more medications compared to the overweight children (p<0.05). Physical activi-

ties is low, comparing ( $p>0.05$ )

Poster session | 2009-10-02 13:00

A-0009

### RISK FOR OBESITY IN HUNGARIAN CHILDREN GROUPED BY NEONATAL DEVELOPMENTAL STATUS

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**Objectives:** The main purpose of the analysis was to study the main characteristics of childhood BMI development in children grouped by birth weight related to gestational age by 1) studying the main characteristics of BMI development in SGA, AGA and LGA children, and 2) by comparing BMI development in the two subgroups of SGA, AGA and LGA children resp. grouped by the age at adiposity rebound.

**Subjects:** The subjects were examined in a nation-wide representative longitudinal growth survey in Hungary, which was started with a 2% sample ( $n=5685$ ) of newborns born between 1980-83. Children were measured regularly from birth until the age of 18. All of SGA ( $n=560$ ), LGA ( $n=593$ ) children and a random sample of AGA children ( $n=600$ ) were selected for the present analysis.

**Methods:** The Reed-Asefa model was fitted to the subject's serial data of BMI. Parameters of the individual curves were assessed from the fitted curves. Subjects were divided into normal, overweight and obese subgroups by using the age-dependent BMI cut-off points. Early adiposity rebound was considered by following the international recommendations, i.e. when the rebound occurred before the age of 61.

**Results:** 1) Although BMI of the neonatal developmental subgroups differed gradually from birth in both genders, i.e. the smaller the birth weight related to gestational age, the smaller BMI was found in childhood, but the timing of childhood BMI wave events (adiposity peak and rebound) of SGA, AGA and LGA children happened at the same age. 2) Early adiposity rebound was associated with bigger BMI from the age at adiposity peak in all the three neonatal developmental subgroups, the prevalence of overweight and obese children was found to be higher in children with early adiposity rebound than in children with late rebound in both genders.

**Conclusions:** Not only the neonatal developmental status, but also the features of childhood BMI development, especially age at adiposity rebound were found to have considerable influence on childhood nutritional status after the childhood BMI wave

period. To understand the childhood development of BMI in more details could help us to screen children for obesity as early as possible.

Reference: 1Rolland-Cachera MF et al. (2006) *Int. J. Obesity*, 30: 11.

Poster session | 2009-10-02 13:00

A-0015

### SCHOOL NUTRITION AND PHYSICAL ACTIVITY IMPROVEMENT AS A REALIZATION OF POLISH NATIONAL PROGRAM FOR PREVENTION OF OVERWEIGHT, OBESITY AND NON-COMMUNICABLE DISEASES THROUGH DIET AND IMPROVED PHYSICAL ACTIVITY (POL-HEALTH)

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**Objectives:** Schools can provide opportunity for prevention of overweight, obesity and non-communicable diseases as they can improve their environment by providing healthy meals, breakfast clubs, fruit, vegetables and milk, healthy options in vending machines and snack bars and water and educational programs. As a realization of Program (POL-HEALTH) Food and Nutrition Institute took activities to improve nutrition in schools.

**Results:** On the basis of GUS 2008 data the situation concerning infrastructure and organization of children nutrition at schools in Poland was analyzed. School canteen existed in 51% of elementary schools and in 31,5% of secondary schools. Only 47,9% of pupils take part in meals organized by schools in elementary schools and 30,1% in secondary schools. In rural areas more pupils eat school meals than in urban schools.

Data about nutrition and physical activity education programs at schools was obtained among 29 selected schools. Only one of these schools did not undertake any activities related to improvement of children nutrition and physical activity. More than one program was realized in 41 % of schools. In 72% of schools all pupils took part in programs and in 24% of schools only selected pupils. The survey shows that the implementation of programs in schools was conducted in a different ways: from a very appealing form of activation children (talks, competitions, making posters, days of healthy food, preparing a healthy menu, practical workshops etc.) to form less attractive, not requiring the child's own initiative and commitment (lecture).

The range of food product in school shops should be extended to pro-healthy food, with a maximum reduction of unhealthy product. Based on its survey found that only 30% schools have changed the range of food products.

As the realization of POLHEALTH two monographs was prepared „Healthy diet principles for children and young people and instructions on healthy lifestyle.” and “School lunches”with regard to Good Hygiene Practice and the HACCP system for meals served in schools and proposals of 60 healthy menus for canteens which will be helpful for improving quality of school meals.

The most important governmental initiative related to physical activity of school children aged 10-15 years was obligatory introduction of 4 classes x 45 min (180 min per week) of physical education. **Conclusions:** Many schools in Poland does not have canteens, and the percent of pupils using various forms of organized meals in schools is unsatisfactory. In order to improve this situation, it is necessary to take activities to improve the quality and attractiveness of school meals and the facilities. The most effective educational programs on proper nutrition and physical activity are based on the school environment, so there is a need for further introducing educational programs into schools.

Poster session | 2009-10-02 13:00

A-0016

### THE RELATION BETWEEN PARENTAL CARE AND NEGLECT DURING IN CHILDHOOD AND THE DEVELOPMENT OF ADULT OBESITY - A CO-TWIN CONTROL STUDY.

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**Background:** The prevalence of obesity is on a global-wide increase, but still the aetiology of adult obesity is poorly understood. It has been shown that overweight children suffer from adverse psychological events, but less is known about the potential effects of adverse psychological factors among normal weight children for later development of obesity.

The objective of this study was to examine if the perception of parental care and neglect during childhood and development of obesity in adulthood. **Methods:** Adult twin pairs discordant for BMI were identified from the Danish Twin Registry. Criteria for being discordant were when one of the twins had a normal BMI between 20 and 25 kg/m<sup>2</sup> and the co-twin a BMI > 30 kg/m<sup>2</sup>.

The twins in a pair should be of the same sex and aged between 20 and 50 years in 2002. A total of 146 complete pairs fulfilled the criteria for

election. Three subjects could not be contacted, while the remaining 143 complete pairs and 3 single persons (289 twin individuals) were invited to an interview and a physical examination, which took place in the twins' own home, or at the nearest nursing college in 2006.

A part of the questionnaire had relation to the perception of parental care and neglect during childhood developed by Bufilco et al was used. In total 236 (81.7 %) twin individuals participated. Data were analyzed by means of a growth-curve model and an intra-pair comparison

Results: In total 236 twin individuals participated, giving a participation rate of 81.7 %. Adult obesity at the age of 20 in 2006 was associated with perceived maternal antipathy ( $p = 0.04$ ) and perceived maternal neglect ( $p = 0.01$ ). There was no association to perceived paternal antipathy or neglect.

This study demonstrates that perception of lack of maternal care and neglect during childhood seems to have a potentially negative influence on adult weight.

Keywords: psychological factors, childhood, parental care and neglect, obesity, BMI, adults, twin study.

Poster session | 2009-10-02 13:00

A-0018

**PREVALENCE OF OBESITY, OVERWEIGHT AND DIETARY HABITS ON CHILDREN IN AGE 8 - 14 YEARS**

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Aim of study: The prevalence of child obesity is increasing rapidly worldwide. It is associated with several risk factors for later heart disease and other chronic diseases. Obesity is consequence of an energy imbalance. Many of children are not meeting dietary recommendations. Food habits are characterized by an irregular meal pattern, skip breakfast, also school lunch, increases in soft-drink consumption, and are not eating fruits and vegetables.

Subjects: The target population was elementary school children in 2nd, 4th, 6th and 8th grade in district Hradec Králové (2 village schools, 6 town schools and 2 small town schools)

Method: In order to generally evaluate up-to-date health condition of examined children and to record their eating habits all the study participants received simple food frequency questionnaire., which were focused on the consumption of meat, fish, milk, eggs, vegetables, fruit, type of beverage and sweets. Children completed 24-hour recall too. Dietary intakes were analyzed using nutrient analysis software NUTRIDAN.

Results: The majority of children are not meeting recommendations for energy intake. Much of

this deficit is attributed to changing beverage consumption patterns, characterized by declining milk intakes and substantial increases in soft-drink consumption. On average children are not eating the recommended amount of fruits and vegetables. Overall, children consumed larger part of their total daily energy from fat. Boys consumed higher portion of energy derived from fat and girls consumed more energy from carbohydrates. The daily fiber intake was similar in both gender and lower than recommendations.

The data were collected from 10 basic schools. From results is shown that at the village schools are more obese (29%) than at town school (22%). The prevalence of overweight show similar trend (village - 18%, town - 15%) in group of gender more obese are girls (22%) than boys (21%) and overweight the higher prevalence is in group of boys (19%) than girls (15%).

Conclusion: Parents' food choices and purchasing behaviors may affect how their children purchase both healthy and unhealthy foods.

Supported by PPZ - MZ CR - No.9985

Poster session | 2009-10-02 13:00

A-0019

**PREVALENCE OF RISK FACTORS OF METABOLIC SYNDROME IN CZECH ARMY**

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Objective: Metabolic syndrome risk level is elevated not only in patients with established CVD, but also with DM II and obesity. The report predicts that unless action is taken, by the year 2020 there will be five million deaths attributable to overweight and obesity, compared to three million now. In Czech Army is program of primary preventive care (PPC) - this is early PPC for soldiers assorted professions, functions and education in age group (25, 30, 33, 36, 39, 40-55 year).

Anthropometrical, laboratory and clinical knowledge give sufficiency information about everyone and so that is real to on this information determine individual medication - preventive recommendation. Sense of this is accepted and long-time kept recommendation and put behind manifestation of civilization diseases (Diabetes mellitus II. type, disorders of metabolisms, hyperlipoproteinemia, hypertension, atherosclerosis etc.). It is impossible to mention negative influence next risk factors as stress, smoking, overweight, obesity, bad eating habit, live style and aging

Aim of study: Our objective was the investigation of the change of selected anthropometrical and biochemical parameters, especially those, which are generally, used as risk indices for the origin and development of no infection diseases: BMI, waist circumference, % of body fat, serum concentrations of

total cholesterol, HDL and LDL.

Results: Because Czech Army became a professional Army, increase the number of young soldiers and women too. At group of soldiers are about 20% obese and 30-40 % overweight. About 5% are diagnostic for hypertension and more 30% are smoker. In lipid profile 10-15% of soldiers TCHOL and 20-25% of TAG have upper limit. Supported by VZ MOO FVZ 0000502

Poster session | 2009-10-02 13:00

A-0020

**THE EFFECT OF DIFFERENT DIETS ON LEPTIN AND LIPIDS STATUS IN PREPUBERTAL CHILDREN**

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Aim. In the present study we investigated three groups of children with different dietary habits (vegetarian, omnivores and obese) in order to determine the influence of nutrition on leptin and lipids status.

Subjects. We examined 75 prepubertal children (age 4-9 years) who had been referred to Department of Nutrition at the Institute of Mother and Child in Warsaw. They were divided into 3 groups with different kinds of nutrition: vegetarian children on lacto-ovo-vegetarian, lacto-vegetarian and vegan diets ( $n=25$ ), normal-weight children on omnivores diet ( $n=25$ ) and children with simple obesity ( $n=25$ ).

Methods. Main daily diet components and anthropometrical data (weight, height, fat mass) of all subjects were collected. Dietary constituents were assessed by questionnaire and calculated using the nutritional computer program Food2®. Serum total cholesterol (TC), high-density lipoprotein HDL (HDL-C), low-density lipoprotein LDL (LDL-C) and triglycerides (TG) concentrations were determined enzymatically on Cobas Integra analyzer. Serum leptin concentration was determined by immunoassay (ELISA) using kits from DRG Diagnostics (Germany)

Results. In all groups of children average daily dietary energy intake and the percentage of energy from protein, fat and carbohydrates were within the reference range in all groups of children. Mean body mass index (BMI) was  $15.6 \pm 1.3$  kg/m<sup>2</sup> for vegetarians and  $16.3 \pm 1.7$  kg/m<sup>2</sup> for normal-weight children, whereas  $25.4 \pm 3.2$  kg/m<sup>2</sup> for obese children. The percent of fat was  $21.5 \pm 3.2$  in vegetarian,  $21.9 \pm 7.8$  in normal-weight and  $43.3 \pm 5.1$  in obese children. Obese children had similar concentrations of total cholesterol and HDL cholesterol, but higher level (by 15%) of triglycerides in comparison to other studied groups. Vegetarian children had lower (by about

10%) LDL-C level than other groups. The mean serum leptin concentration in obese children was significantly higher than in normal-weight children ( $37,4 \pm 18,8$  ng/ml versus  $6,9 \pm 3,7$  ng/ml). Children on vegetarian diet had about twice lower serum level of leptin ( $3,0 \pm 1,7$  ng/ml) compared to omnivores counterparts ( $6,9 \pm 3,7$  ng/ml).

Conclusions. In children different kinds of diet modified not only body mass and lipids profile but also serum concentration of leptin. In the management of prepubertal obese as well as of vegetarian children determination of leptin may be clinically useful.

Poster session | 2009-10-02 13:00

A-0024

### **DETERMINATION OF C-PEPTIDE, INSULINE AND LIPID PROFILES IN THE SERUM SAMPLES IN GROUPS OF OBESE CHILDREN AND CHILDREN WITH DIABETES MELLITUS TYPE 1.**

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Obesity is one of the biggest health problems, taking comorbidities like diabetes mellitus type 1 (DM), cardiovascular or cancer diseases. Half of all adults and one in five children in the WHO European Region are overweight. There are countries with more than 30% of overweight children. In the Czech Republic are 52% adults and approximately 11% children, ages 6-15 years, with overweight or obesity. The aim of this study was to evaluate the relationship between serum levels of C-peptide (CP), insulin (INS), glucose (GLU), triglycerides (TG), total serum cholesterol (CH), HDL-cholesterol and LDL-cholesterol parameters in group 200 obese children, age 6-15 years and in 100 non-obese children with DM, ages 6-15 years. In group of children with DM were also evaluated serum concentrations of antibodies against the Glutamic acid decarboxylase (GAD), antibodies from tyrosine phosphatase family (IA2) and free anti-insulin antibodies (AIA). We quantified serum levels of GAD, IA2 a AIA by radioimmunoassay, CH, HDL, LDL, TG, GLU by photometric and INS, CP by ECLIA. Levels of analytes were evaluated according to corresponding referencel ranges. The most significant differences between monitored groups where in TG and HDL-cholesterol. The level TG  $>1,64$  mmol/l was increased in 18,7% of obese children and only in 2,7 % of children with DM. The level of TG  $<1,0$  mmol/l was decreased only in 56,4% children with DM. The level of HDL  $>1,8$  mmol/l was increased in 7,1 % of obese children and in 35,9 % of children with DM. The level of HDL  $<1,0$  mmol/l was decreased in 13,6 % obesity children. Alarming findings were found for the levels of INS  $<3,8$  mIU/l and CP  $<0,37$  mmol/l in

8% obese children. Number of children with level of CH  $>4,8$  mmol/l was in both groups approximately 19,5 %. The levels AIA were out of reference range (5,5%) in all children with DM but only 8% of diabetics had increased levels of GAD  $>1,45$  U/ml or IA2  $>1,1$  U/ml. Our data shown that 65% individuals in obese group have pathologic results of lipid metabolism and 8% of subjects have concentration of INS  $<3,8$  mIU/l and CP  $<0,37$  nmol/l. In group of children with DM was found that only 8% of subjects has level CH  $>4,8$  mmol/l, but all subjects have AIA  $>5,5\%$  and only 8% subjects has GAD  $>1,45$  U/ml or IA2  $>1,1$  U/ml. In group of obese children were 8% of subjects with concentration of insuline  $<3,8$  mIU/l and C-peptide  $<0,37$  nmol/l. The statistical analysis of the results of obese group shown a high relevance of lipid parameters, as well as CP and INS as a sensitive markers of DM development risk.

Poster session | 2009-10-02 13:00

A-0028

### **EFFECTS OF HOME MEAL REPLACEMENT ON WEIGHT REDUCTION AND PREMENSTRUAL APPETITE CONTROL**

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Objectives : The public's interest for the treatment of obesity is increasing because obesity causes chronic diseases as well as social and psychological disability. For the treatment of obesity, the most important aspect is dietary control, but Increased premenstrual appetite is often an obstacle to dietary control of women. The authors performed the study to reveal the effects of home meal replacement (HMR), one of the methods developed for the dietary control on weight reduction and premenstrual appetite control.

Subjects : During April 2008, 72 obese women who visited the Obesity Clinic were enrolled in our study. Their age ranged from 18 to 40 years and menstrual period was relatively regular

Methods : We categorized patients into three groups. Group A was treated with HMR, dietary control and exercise. Additional appetite suppressant during menstrual period was added in group B. Group C was treated with dietary control and exercise only without HMR. We evaluated several values including physical measurements, biochemical markers, SNAQ (Simplified Nutritional Appetite Questionnaire) and MDQ (Menstrual Distress Questionnaire) during 12 weeks and compared each in three groups statistically.

Results : In group A, body weight, WC (Waist Circumference) and HC (Hip Circumference) were reduced significantly during the study ( $p=0.005, 0.011, 0.003$ ), but there was no significant

difference in their reduction between three groups ( $p=0.834, 0.787, 0.806$ ). SNAQ was reduced over the repeated menstrual period in group A and B more efficiently than in group C ( $p=0.045, 0.031$ ). MDQ was reduced in all groups, but there was no statistical significance.

Conclusion : HMR was helpful in weight reduction though there was no significant difference from control group. However, HMR was effective in premenstrual appetite control. These results suggest that HMR might be beneficial to women of the reproductive age for weight control.

References :

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Keywords: HMR(home meal replacement), Weight Reduction, Appetite Control

Poster session | 2009-10-02 13:00

A-0030

### **INVESTIGATION OF STUDENTS' THOUGHTS AND KNOWLEDGE ON THE SUBJECT OF NUTRITION AND CROSS-CORRELATION WITH THEIR ALIMENTARY BEHAVIOUR**

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Aim: The aim of the study was the investigation of students' thoughts about nutrition, their ideas and opinions for their alimentary behaviour, as well as the factors that influence it so we could detect conceptual problems and cognitive voids which will result, in case they are not covered, in an erroneous alimentary and consuming behaviour.

Material-Subject: 78 students of the Technical High School of Nafpaktos participated in the study. The sample was categorized depending on their attendance or not in health educational programs on the subject of nutrition. It was considered that students who were taking the course: "Preventive medicine - Education of health", in their weekly programme belonged to the same category as those who had attended, since we had referred to nutrition.

Method: A questionnaire of open type questions, anonymous for each category, was completed by the students, during one instructive hour. In the end of the questionnaire students had to attribute the pyramid of Mediterranean diet and one of their trials of alimentary preferences, reporting where their possible divergences resulted from. Then their answers were marked in a scale of 0-20 and their pyramids were analyzed.

Results: The average mark of the students who

had attended health nutrition programmes was 16.19, presenting bigger grades with statistically important difference ( $p < 0.5$ ), as opposed to 9.76, which was the average mark of them who hadn't participate. However their alimentary behaviour was satisfactory, but didn't correspond to their knowledge. Unanimity of opinions existed among the students about the factors that are accountable for their alimentary behaviour. Almost all of them attributed the responsibility to the western model of diet.

Conclusions: The students who attended health educational programmes were leading to a satisfactory knowledge concerning nutrition and balanced diet, leading to a better alimentary behaviour than non-participating, avoiding an erroneous alimentary and consuming behaviour.

**Poster session | 2009-10-02 13:00**

**A-0031**

**DIETARY HABITS OF OVERWEIGHT AND OBESE GIRLS IN POLAND**

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The aim of the reported study was to assess the diet of overweight and obese girls and to compare it with the diet of their peers with normal body weight. The study included girls aged 14-15 years from the whole country. There were studied 395 subjects. Overweight and obesity occurrence was diagnosed on the basis of anthropometric measurements. Underweight girls (38 persons) were excluded from the presented analysis. Dietary data were collected using 24-h recall method.

The energy value of daily diet was 1392 kcal (5.84MJ) in girls with overweight or obesity. It was significantly lower than energy intake in girls with normal body weight - 1704 kcal (7.13 MJ). The content of macronutrients: protein, fat and carbohydrates was lower in diet of overweight or obese girls in comparison with those of normal weight. However the percentage of energy from protein in diet of both groups did not differ significantly - 11.6% and 12.1% respectively, similarly the percentage of energy from fat - 31.6% and 32.1%.

The intake of minerals (potassium, calcium, magnesium, iron, zinc, copper, manganese) and some vitamins (thiamin, riboflavin, niacin, vitamin B6) among overweight or obese girls also was lower than in their peers with normal weight. However the content of other analysed vitamins (vitamin A, B-carotene, vitamin E and ascorbic acid) in diet of both groups was similar.

In comparison with Polish Dietary Reference Intakes the energy intake among overweight or obese girls was too low, similarly as the most analysed nutrients, mainly: calcium, magnesium, iron, zinc, thiamine and niacin.

In conclusion should be stressed, that adolescent overweight or obese girls in Poland decrease

their dietary intake in comparison with girls of normal weight. It could be due to the wish to reduce excessive body weight or due to underreporting of their actual intake.

The nutrient content in diet of studied overweight or obese girls is related to the risk of some mineral and vitamin undernutrition in this group and can cause the severe nutritional disturbances.

**Poster session | 2009-10-02 13:00**

**A-0032**

**DETECTION OF STUDENTS' CONCEPTUAL AND COGNITIVE PROBLEMS ON THE SUBJECT OF NUTRITION AND THE NECESSITY OF HEALTH EDUCATIONAL PROGRAMMES AT THE SCHOOLS**

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*Technical High School of Nafpaktos, Greece*

Aim: In the current consuming society the adoption of western type diet brings us face to face with a child who is possibly developing into a diabetic, cancer or heart conditioned adult. School can contribute to the configuration of alimentary behaviors through health educational programs, on the subject of nutrition. The aim of this study was to detect conceptual problems and cognitive voids of students and to prove the necessity of such programs in all levels of education.

Material-method: 200 students of the 1st Senior High School of Kastoria participated in the study. 47 of them had attended an educational health program on the subject of nutrition, 3 years before the study. A questionnaire of 13 open type questions was used. The students had to report their opinions about dietetic habits and the factors that influence them, the role of nutrition-religion and immigration, the impact of Mass Media on their dietetic and consumer behavior, the role and the impact of additives, new foods and GMO on our health. They also had to answer knowledge questions about balanced diet, food labels, additives, new foods and GMO. Then their opinion reports were categorized and their knowledge answers were marked. A descriptive analysis of the results followed.

Results: It became explicit, that students had a lot of conceptual problems, a confusion of terms and cognitive voids were observed. This was not expected since we referred to students at the age of 16-17 years, concerning a simple and daily subject. The fact that a very big percentage had no opinion on simple questions is terrifying. This fact was attributed in ignorance or indifference. Students which had attended educational health programs, in the field of nutrition, had low grades and a confusion of terms, too.

Conclusions: We concluded that the need of continuous obligatory implementation of health edu-

cational programs on the subject of nutrition is imperative in all the educational stages.

**Poster session | 2009-10-02 13:00**

**A-0034**

**AUDITING THE MULTI-DISCIPLINARY APPROACH TO OBESITY MANAGEMENT.**

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OBJECTIVE: Test the effectiveness of multi-disciplinary weight management clinics by comparing data collected from the clinic against NICE guidelines relating to weight loss and maintenance.

SUBJECTS: 114 patients who have attended the clinic for at least 12 months were randomly selected from an attendance book.

METHODS: A retrospective case controlled study was carried out on those randomly selected 114 patients. Data were extracted from the notes, pertaining to weight at baseline, three, six and twelve months, along with blood pressure readings at baseline and six months. Gender, age, height, reason for referral and co-morbidities were also collected. Percentage weight loss and weight loss in kg at six and twelve months from baseline, BMI and changes in blood pressure between zero and six months were calculated using excel programming. These manipulated data were then used to compare with the NICE guidelines of 5-10% weight loss within six months, a maximum of 0.5-1kg weight loss per week and weight maintenance attained within six to nine months. Differences in weight losses between gender, age and BMI were investigated, along with the clinical significance of weight loss in the form of statistical analysis of decreases in blood pressure. All statistical analysis was carried out in Minitab statistical programming.

RESULTS: 91.2% of the study population lost on average 14.8kg, relating to 6.9% of their initial body weight, achieving NICE guidelines. Those who achieved NICE guidelines attained maintenance more readily (87.7%) than those who exceeded them (70.8%). Females exceeded males and both extremes of age ranges outdid the middle-aged groups in all aspects of the audit, but no pattern was

found between BMI groups. Differences in blood pressure between baseline and six months were statistically significant ( $P=0.0000$ ) with a median decrease of 17/10mmHg.

**CONCLUSION:** All NICE guidelines were met within the multi-disciplinary clinic with maintenance more achievable if initial weight is lost slowly and steadily. Females, young age groups (20-29, 30-39yrs) and older age groups (60-69, 70-79yrs) achieved NICE guidelines more readily than males and middle aged groups (40-49, 50-59 yrs). All weight losses were seen to be clinically significant.

Poster session | 2009-10-02 13:00

A-0035

### **PROMOTING SUITABLE CHOICES OF PACKAGED PRODUCTS TO PREVENT CHILDHOOD OBESITY: FRONT OF PACK LOGO VS GUIDELINE DAILY AMOUNTS**

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**Objectives.** Several methods exist to educate consumers to choose packaged products: the most widespread are the front of pack nutritional logos and the Guideline Daily Amounts (GDA). We assessed which of the two systems could be more effective, according to health professionals, to guide children and parents of Piedmont (an Italian region) to the appropriate choice of snacks and so to prevent overweight.

**Materials/methods.** We conducted focus groups on health professionals of the Health Departments of Preventive Nutrition in Piedmont (SIAN Services). We compared GDA vs logos placed on the packs of healthy products by UK (traffic-lights), Finland (heart), Sweden (key), New Zealand (thick), Canada (health-check), France (nutritional-cursor).

**Results.** 34 of the 36 health professionals of SIAN Services were interviewed (11 of the 13 regional services were represented). 71% of interviewed professionals (24/34) chose the traffic-light, 20% (7/34) the French cursor, 9% (3/34) another logo; none chose the GDA. Among the reasons that led to the choice, the most frequently reported, were clarity and understanding; most of them said the logo seemed a more effective method of communication than GDA because it is simpler and it is a picture, so can be easy to understand for everyone, even for people who have reading troubles. Moreover, among the different logos, the traffic-light seemed

the most effective because it is universally understandable, even by children.

**Conclusions.** In Italy, the Confederation of Food Industries (Federalimentare) promotes the spreading of GDA on packaged foods. However, our data agree with those of other studies, suggesting that the GDA are a less efficient communication system than the logo. The Piedmont Region Department of Hygiene and Public Health (PRDH) has structured a database containing the nutritional values and the ingredients reported on the labels of the 641 more widespread snacks among children (sales data derived from a marketing agency). The database is available online to all professionals of Piedmont SIAN Services and in the next months a green traffic-light will be matched to every product that meets the nutritional parameters recommended by the PRDH expert panel. Subsequent checks on effectiveness and impact on consumers have been planned.

Poster session | 2009-10-02 13:00

A-0036

### **FIGHTING THE INTAKE OF UNHEALTHY PACKAGED SNACKS BY READING THE NUTRITIONAL LABEL. THE PIEDMONT REGION PROMOTES EDUCATIONAL TOOLS FOR SCHOOLS.**

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**Objectives.** An epidemiological study performed in 2008 in the whole Piedmont (an Italian region) on a representative sample of 7749 children 8-9 years-old (OKKIO alla salute) showed that the snack habit is widespread: 94% of children eat a mid-morning snack and 73% choose a packaged snack (especially baked cakes, which are 30% of snacks). Since 83% of the chosen snacks are hyperenergetic and hyperlipidic foods and might promote obesity, the aim of our study has been to assess whether among the packed foods you can find some suitable choices. If yes, a second aim has been to perform some tools in order to promote informed choices by consumers by reading the nutritional label.

**Materials/methods.** A marketing agency gave us data on the products targeted to children and very widespread in Piedmont (641 in total). For each food we assessed the nutritional label (presence, nutritional values per 100 grams/per serving, ingredients)

and his compliance to limit values of calories and fats that would ensure a healthy snack (Kcal <150, lipids <5 g).

**Results.** 90% of the examined products have the nutritional label. We found many products that comply with the limit values per serving of both calories and fats among the crunchy biscuits (96%) and crackers (89%); few compliant foods were found among baked cakes (17%) and ice-creams (16%), none among the chocolate snacks and crisps and pretzels.

**Conclusions.** Reading the label is important in order to choose suitable products especially for baked cakes, that are the packaged snacks preferred by children. To help consumers choices, we printed an atlas that will be spread to teachers in the whole Piedmont Region; the atlas consists of sheets containing a picture of the recommended serving and 2 nutritional values (calories and lipids) that the consumer should read on the label, with their maximum recommended limits. At the same time we structured an online database for health professionals with an health symbol (green traffic-light) matched to each suitable product. We hope in the future to find agreements with manufacturers to put the health symbol also on the labels of healthy products.

Poster session | 2009-10-02 13:00

A-0037

### KEEP AN EYE ON SERVINGS. TOOLS TO PROMOTE CHOOSING OF THE SUITABLE SERVING OF UNPACKAGED SNACKS TO PREVENT OBESITY IN CHILDREN

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**Objectives.** The consumption of high energy dense snacks is one of the risk factors for childhood obesity. An epidemiological study performed in 2008 in the whole Piedmont (a region in Italy) on a representative sample of 7749 children 8-9 years-old (OKKIO alla salute) showed that 73% of the mid-morning snacks eaten by children were packaged snacks; so the Piedmont Region performed some tools in order to promote informed consumers choices by reading the nutritional label. However 27% of the eaten snacks were unpackaged; since these products meet the recommended limit values for a snack (Kcal < 150, lipids < 5 g) depending on the eaten serving, the aim of our study has been to promote informed choices by consumers even about the recommended servings of unpackaged snacks.

**Materials/methods.** We conducted focus groups on teachers, in schools belonging to two health departments (ASL TO 3 and ASL TO 4) in the province of Turin. We asked them what were the methods they thought to be more appropriate to give guidance to children and their parents to the recommended servings.

**Results.** To represent how to rotate weekly the recommended snacks, the teachers suggested to structure a wheel. To give an idea of the recommended serving, the strategy identified as the most appropriate by the teachers was to prepare fact sheets with the image of the recommended serving, compared to the volume of reference of an object of common use of standard size. So, the recommended serving of bread was compared with the volume of a deck of cards, the serving of chocolate with a tape-measure, the serving of ham with a floppy disk, the serving of fruit with a tennis ball, etc.

**Conclusions.** Were prepared some fact sheets, collected in an atlas, which will be spread in all schools of Piedmont. Collaboration with teachers has helped to organize the materials according to their needs and to plan an integrated path about health and education for a wide spreading throughout the region of these educational tools.

Poster session | 2009-10-02 13:00

A-0038

### ESTIMATION OF DENSITY OF LIVER BY DATA TRANSIENT ELASTOGRAPHY IN PATIENTS WITH NON-ALCOHOLIC FATTY LIVER DISEASE TREATED WITH LOW-CALORIE DIET

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**Introduction:** Non-alcoholic fatty liver disease (NAFLD) is a condition often associated with obesity and insulin resistance (IR) which leads to development of non-alcoholic steatohepatitis, liver fibrosis and cirrhosis. Decrease in body weight is one of treatment methods for this disease. **Aims:** To estimate efficiency of low-calorie diet on non-alcoholic fatty liver disease by means of liver elastography.

**Methods:** 36 adults (45,96±3,07 y.o., range 26-59 y.o.) with obesity (BMI=36,41±2,88 kg/m<sup>2</sup>) were enrolled in this study. All patients received treatment with low-calorie diet with caloric content 2000-2200 kcal/day. BMI, HOMA-IR index were assessed and liver elastography was performed before and 3 months after the therapy in all patients.

**Results:** After 3 months of treatment with a low-calorie diet, reduction of body weight was 9,86±3,04 kg (p=0,02), HOMA-IR index decreased on 4,08±0,75 (p<0,01), liver density decreased from 8,66±2,1 to 5,40±1,96 kPa (p=0,81).

**Conclusions:** Low-calorie diet is an effective method of decreasing of liver density in patients with non-alcoholic fatty liver disease.

Poster session | 2009-10-02 13:00:00

A-0039

### INTRAGASTRIC BALLOON IN THE TREATMENT OF PATIENTS WITH MORBID OBESITY

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The aim of the present study was to determine effect of the bioenterics intragastric balloon (BIB) to promote weight loss.

**Materials and methods.** From January 2003 BIB was used for 51 patients with morbid obesity. Mean age of patients - 38 years (range, 35-45 years); 13 patients were male and 38 patients were female. Mean weight was 169 kg (range, 95-220 kg), mean body mass index (BMI) 52 (35-70) kg/m<sup>2</sup>. Indication for BIB therapy were preparation for bariatric surgery in 5 patients with BMI ≥ 50 kg/m<sup>2</sup>, and as independent therapy of the morbid obesity for 46 patients,

BMI ≥ 30 kg/m<sup>2</sup>. For all patients balloon insertion and removal are performed under local anesthesia (mouth spraying of 10% solution of lidocaine). Gastrointestinal endoscopy was used to detect possible contraindications, before balloon insertion. The balloon position in the fundus of the stomach was controlled by endoscope, and inflated by injecting of saline (550 ± 70 ml) with 10 ml methylene blue. The BIB have been removed after 6 months, because beyond this period, the risk of spontaneous balloon deflation increases.

**Results.** In 4 patients BIB was removed during first 10 days of treatment, because of digestive intolerance. During six months after BIB insertion, the mean weight loss was 23 kg (range 14-38 kg), BMI decreased mean 5,3 kg/m<sup>2</sup> (range 0,8-10,6 kg/m<sup>2</sup>). Abdominal pain after the week following BIB insertion was in 5 cases (10%). In 1 (2%) patient was ulcer of stomach, treated by proton pump inhibitors.

**Conclusion.** BIB is the safety and miniinvasive procedure for treatment obesity, and also helped to prepare superobese patients for bariatric surgery. Candidates for BIB must understand that this method is a temporary aid to promote weight loss.

Poster session | 2009-10-02 13:00

A-0040

### AN AUDIT OF PATIENT ELIGIBILITY FOR BARIATRIC SURGERY AND ECONOMIC IMPACT IN A PUBLIC FUNDED HEALTH SYSTEM

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**Aims:** Obesity is a rapidly increasing phenomenon with 25% of the adult population classified as obese. Bariatric surgery produces significant weight reduction in addition to proven healthcare-associated cost savings. This study aims to assess the characteristics of patients referred for bariatric surgery, their suitability for surgery according to UK and European guidelines and the potential economic impact.

**Methods:** A retrospective analysis of cases referred for consideration of bariatric surgery to an upper gastrointestinal surgeon in a large district hospital in the UK over a three year period was performed.

**Results:** Data was obtained for 48 patients referred during this period. The mean age of patients was 42 years with females representing 82% of the study group. The mean BMI was 53.2 kg/m<sup>2</sup>. All subjects had tried persistent dieting and lifestyle modifications and 94% had trialled at least one weight reduction drug. According to national UK guidelines 89% of referred patients fulfilled criteria to be considered for bariatric surgery, and similarly when Euro-

pean guidelines are applied 95% are eligible for surgery. All eligible patients were referred to regional government for consideration of financial funding for surgery but to date only one patient has undergone weight reduction surgery. We estimate that if all eligible patients in our region who meet UK and European criteria underwent surgery there would be healthcare cost savings of over UK STG £3.6 million (EURO €4.2 million) over a ten year period.

Conclusion: Obesity represents an increasing burden on health services. The role of surgical intervention is proven with national UK and European criteria for patient selection well established. We demonstrate that although the majority of referred patients in our region meet such criteria very few are offered surgery despite potential significant cost-savings over the medium to long term. The availability of bariatric surgical services in publicly funded healthcare systems should be expanded to improve the health of patients and reduce the financial burden of obesity-related disease.

Poster session | 2009-10-02 13:00

A-0041

### VASCULAR DENSITY OF ABDOMINAL ADIPOSE TISSUE IN METABOLICALLY HEALTHY OBESE SUBJECTS

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Objectives: Enlargement of adipose tissue in obesity is followed by hypoxia which leads to insulin resistance and type 2 diabetes via alteration in the secretion of adipokines and adipocyte differentiation (1). The aim of our study was to analyze vascular density of abdominal adipose tissue in metabolically healthy obese individuals.

Methods: Subcutaneous and omental fat biopsies were obtained from 25 overweight or obese (BMI: 31.24±3.23 kg/m<sup>2</sup>) premenopausal women who underwent elective abdominal operation. Sections were stained using Novelli method and volume density of blood vessels was determined by stereological analysis. According to values of HOMA-IR, triglycerides, total cholesterol, LDL- and HDL-cholesterol patients were divided into two groups: metabolically healthy and metabolically obese (2). Differences in volume density of blood vessels between groups were analyzed.

Results: Metabolically healthy women had higher volume density of blood vessels in visceral abdominal depot (6.22 vs. 4.12%), which correlates with smaller adipocyte size. At the same time, vascular density was lower in subcutaneous abdominal adipose tissue but the difference was not statistically

significant.

Conclusions: Our results point to the important role of visceral adipose tissue in pathogenesis of metabolic disturbances in obesity. Vascular density changes are morphological represents of profound functional alterations caused by hypoxia.

References:

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- (2) Karelis AD, St-Pierre DH, Conis F, Rabasa-Lhoret R, Poehlman ET. Metabolic and body composition factors in subgroups of obesity: what do we know? *J Clin Endocrinol Metab* 2004; 89(6): 2569-75.

Poster session | 2009-10-02 13:00

A-0042

### OBESEITY AND CARDIOVASCULAR RISK FACTORS

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Objectives: We've compared the impact of the Cardiovascular Risk (CVR) treatment in a high risk population according with their Body Mass Index (BMI).

Subjects: There were studied 84 patients (M-79,8%; W-20,2%), with an average age of 66,8 years and divided in 3 groups: G1 with BMI<25 (17 patients); G2 with BMI 25 to 29,9 (41 patients) and G3 with BMI >= 30 (26 patients).

Methods: Also were analyzed other variables such as: antecedents (Diabetes; CAD; AHT; Dyslipidemia; Smoking); Blood Pressure; Abdominal Perimeter; Laboratory Analysis (glycemia; urea; HgA1c; lipids) and Current Treatment (anti-platelet drugs; anti-hypertensives; anti-dyslipidemics; anti-diabetics; coronary surgery and coronary angioplasty).

Results: G1: BMI-23,1; Age-70,6 years; CAD-70%; BP-136,7/75,2mmHg; Glycemia-145,2mg%; lipids (TC-155,8mg%; HDLc-45,8mg%; LDLc-80,3mg%; TG-136,7mg%; Cardiovascular Risk-18%; G2: BMI-27,2; Age-69,5 years; CAD-60%; BP-138,3/76,8mmHg; Glycemia-120,3mg%; lipids (TC-164,3mg%; HDLc-46,5mg%; LDLc-91,4mg%; TG-126,0mg%; Cardiovascular Risk-18%; G3: IMC-32,5; Age-60,1 years; CAD-50%; BP-137,0/80,5mmHg; Glycemia-117,9mg%; lipids (TC-160,0mg%; HDLc-42,0mg%; LDLc-87,3mg%; TG-144,3mg%; Cardiovascular Risk-18%.

- Conclusions:
1. Age is an important independent risk factor of CAD.
  2. Obese patients although having a bigger cardiovascular risk factor association, when submitted to intensive medic treatment are at the same CVR level than the non obese population

Poster session | 2009-10-02 13:00

A-0046

### SHOULD A BMI THRESHOLD BE INCORPORATED INTO SCREENING TOOLS FOR OBSTRUCTIVE SLEEP APNOEA?

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Introduction: Obstructive sleep apnoea (OSA) is a disease of increasing importance with both neurocognitive and cardiovascular sequelae. Obesity is a major risk factor for OSA. Despite this, we have observed patients attending our Tertiary Referral Bariatric Surgery Unit often present with previously undiagnosed yet symptomatic OSA.

Methods: To investigate the incidence of undiagnosed OSA in a morbidly obese population (BMI > 40 kg/m<sup>2</sup>), we investigated all those patients presenting for bariatric surgery during a 4 week with no prior diagnosis of OSA. Investigation for OSA was by combination of Epworth Index Score and in-patient sleep studies. 28 patients were identified (17 females, 11 males: mean age 45.0 years, range 27.2 - 49.7 years. Mean weight 144.3kg. BMI 51.2 kg/m<sup>2</sup>).

Results: OSA was diagnosed in 14 cases (50 %). Previously undiagnosed OSA was much more common in males than females (males 72.2 % v females 35.2% p<0.001). Weight/BMI of patients with OSA was greater (males: average weight with OSA 159.8 kg, BMI 53.2 v 141.9kg, BMI 46 without OSA; females: with OSA 156.9kg, BMI 59.8 v 132.0 kg, BMI 48.0 without OSA, p<0.05).

Using a cut-off of BMI > 50 kg/m<sup>2</sup> as a screening criteria for OSA would give positive predictive value of 66.7% and a negative predictive value of 91.0%.

Conclusions: OSA is significantly under-recognised in the morbidly obese, particularly amongst males. A cut-off BMI of 50kg/m<sup>2</sup> is a possible adjunct to existing screening tools for OSA.

1. Conflict of Interest: None

2. No funding received from charitable grants or pharmaceutical companies to support the work embodied in this abstract.

Poster session | 2009-10-02 13:00

A-0047

**OBESITY AND BONE DENSITY IN UKRAINIAN POSTMENOPAUSAL WOMEN**

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Aim. To evaluate the influence of obesity on bone density in postmenopausal women.

Materials and methods. There were examined 245 postmenopausal women 50-80 years old (average age - 61,4±0,5 years). The measurements of anthropometrical characteristics (height, mass) were measured; then body mass index (BMI) was calculated. BMI was classified as normal ( $\leq 24,9$  kg/m<sup>2</sup>), overweight (25-29,9 kg/m<sup>2</sup>), obese (30-34,9 kg/m<sup>2</sup>), and very obese ( $> 35$  kg/m<sup>2</sup>). Patients were divided into two groups depending on BMI: group A (BMI 18,5-29,9 g/cm<sup>2</sup>) - 62 non-obese women (average age - 60,5±1,2 years, average BMI - 23,0±0,2 g/cm<sup>2</sup>), group B (BMI 30-39,9 g/cm<sup>2</sup>) - 183 obese women (average age - 61,9±0,6 years, average BMI 30,6±0,3 g/cm<sup>2</sup>). Bone mineral density (BMD), T- and Z-scores of the spine (L1-L4), hip (femoral neck, trochanter and total femur), and forearm (ultradistal, midforearm) were determined by means of Dual-energy X-ray absorptiometer "Prodigy" (GE Medical systems, 2005).

Results. The groups of women were age-matched. There was a statistical significance in the anthropometrical characteristics between two groups ( $p < 0,000$ ): the obese women had higher weight and BMI than non-obese women. All indexes of different skeletal areas measured by DXA in group A (non-obese women) were significantly lower ( $p < 0,001$ ) compared with the data of group B (obese women): total body - BMD: 1,012±0,01 g/cm<sup>2</sup> and 1,081±0,01 g/cm<sup>2</sup>; spine (L1-L4) - BMD: 0,947±0,02 g/cm<sup>2</sup> and 1,049±0,01 g/cm<sup>2</sup>; femoral neck - BMD: 0,794±0,01 g/cm<sup>2</sup> and 0,872±0,01 g/cm<sup>2</sup>; trochanter - BMD: 0,696±0,01 g/cm<sup>2</sup> and 0,799±0,01 g/cm<sup>2</sup>; total femur - BMD: 0,846±0,01 g/cm<sup>2</sup> and 0,953±0,01 g/cm<sup>2</sup>; ultradistal forearm - BMD: 0,299±0,01 g/cm<sup>2</sup> and 0,347±0,01 g/cm<sup>2</sup>; midforearm - BMD: 0,586±0,01 g/cm<sup>2</sup> and 0,616±0,01 g/cm<sup>2</sup>, accordingly. The rate of osteoporosis of different skeletal areas was higher in non-obese women in comparison with obese women (spine (L1-L4): 43,5% vs 17,5%; femoral neck: 19,4% vs 4%; total femur: 14,5% vs 2,7%; midforearm: 33,8% vs 20,7%).

Conclusion. The findings confirm the occurrence of higher BMD in obese women. The obesity has a protective effect on bone density in postmenopausal women.

A-0048

**OSTEOPENIC SYNDROME AMONG CHILDREN AND TEENAGERS WITH OBESITY**

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Background. Presently up to 25% teenagers in the developed countries have increased body mass, and 15% suffer from obesity. They often have bone and muscular diseases and osteopenic syndrome (E.V. Bol'shova, 2008). In deference to WHO recommendations, body mass was estimated by means of the body mass index (BMI) percentile tables (Himes J.H., 1999)

Aim of the research: study of obesity and osteopenia frequency among children and teenagers, resident in the settlement Mashevka, Poltava area, Ukraine.

Materials and methods: 211 schoolchildren aged 9-17 were examined; a questionnaire, anthropometry, objective examination by a pediatrician and orthopedist, ultrasonic densitometry (vehicle Achilles+ (Lunar Corp., Medison, WI)) with estimation of Z-score criterion were conducted.

Results: A basic group (BG) included 16,1 ± 2,6% examined, 11,8% of them had BMI of 85 - 95 percentile, over 95% percentile - 4,3%. There were 177 schoolchildren with BMI from 15 to 85 percentile in the control group (CG). 57,9% of the boys (CG) had increased body mass, 42,1% - obesity. 93,3% of the girls from the BG had surplus body mass. In both groups the osteopenia frequency was identical (14,7% against 16,6 ± 2,6% in CG). In the BG the rate of boys' sexual development was characterized by a slow onset in the age of 10 and passing ahead in the age of 13-14 ( $p > 0,05$ ), by speed-up sexual development of girls, 33,3% of them had algodismenorea.

Conclusions: Frequency of osteopenia registration did not depend on body mass. Rates of children sexual development with BMI 85 percentile exceeded the indexes of CG, about one-third of girls had problems with menstrual function.

Poster session | 2009-10-02 13:00

A-0049

**ASSESSMENT OF OSTEOPOROSIS RISK FACTORS IN OBESE POSTMENOPAUSAL WOMEN**

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The aim of this study was to evaluate the osteoporosis risk factors in obese postmenopausal women in comparison with non-obese postmenopausal women.

Materials and methods. There were examined 245 postmenopausal women 50-80 years old (average age - 61,4±0,5 years). The basic information of every patient, such as age, height, weight (body mass index (BMI) was then calculated), presence of diagnosed osteoporosis or fracture after a minor fall in parents of a patient, presence of fracture after a minor fall in patient, loss of patient's height of more than 3 cm, occurrence of menopause before the age of 45 years, was obtained by a questionnaire (IOF's one-minute osteoporosis risk test). Patients were divided into two groups depending on BMI: group A (BMI 18,5-29,9 g/cm<sup>2</sup>) - 62 non-obese women (average age - 60,5±1,2 years, average BMI - 23,0±0,2 g/cm<sup>2</sup>), group B (BMI 30-39,9 g/cm<sup>2</sup>) - 183 obese women (average age - 61,9±0,6 years, average BMI 30,6±0,3 g/cm<sup>2</sup>).

Results. The groups of women were age-matched. There was a statistically significant difference of anthropometrical characteristics between the two groups ( $p < 0,000$ ): obese women had a higher weight and BMI than non-obese women. We did not observe a reliable difference of rate of the osteoporosis risk factors in obese women in comparison with non-obese women: presence of diagnosed osteoporosis or fracture after a minor fall in parents of a patient - 16% vs 15% (Chi-Square = 0,02;  $p = 0,87$ ); presence of a fracture after a minor fall in a patient - 18% vs 21% (Chi-Square = 0,36;  $p = 0,54$ ); onset of menopause before the age of 45 years - 17% vs 15% (Chi-Square = 0,02;  $p = 0,87$ ).

Conclusion. Results of this study did not prove a reliable difference of rate of the osteoporosis risk factors in obese women in comparison with non-obese women.

Poster session | 2009-10-02 13:00

Poster session | 2009-10-02 13:00

A-0051

## THE RELATIONSHIP BETWEEN BONE DENSITY AND OBESITY IN UKRAINIAN POSTMENOPAUSAL WOMEN

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The aim of this study was to evaluate the relationship between bone density and obesity in postmenopausal women.

Materials and methods. There were examined 245 postmenopausal women 50-80 years old (average age - 61,4±0,5 years). The measurements of anthropometrical characteristics (height, mass) were measured; then body mass index (BMI) was calculated. The patients were divided into the following groups depending on BMI: A) BMI (normal) = or<24,9 kg/m<sup>2</sup> (n=62); B) BMI (overweight) = 25-29,9 kg/m<sup>2</sup> (n=92); C) BMI (obese) = 30-34,9 kg/m<sup>2</sup> (n=64); D) BMI (very obese) = 35-39,9 kg/m<sup>2</sup> (n=19); E) BMI (extra obese) = or>40 kg/m<sup>2</sup> (n=8). Bone mineral density (BMD), T- and Z-scores of the spine (L1-L4), hip (femoral neck, trochanter and total femur), and forearm (ultradistal, midforearm) were determined by means of Dual-energy X-ray absorptiometer "Prodigy" (GE Medical systems, 2005).

Results. The groups of women were age-matched (A) age - 60,50±1,15 years; B) age - 62,11±0,82 years; C) age - 62,09±1,02 years; D) age 60,68±1,42 years; E) age 60,50±3,07 years (F=0,52; p=0,72)). BMD of different skeletal areas measured by DXA depending on BMI:

– BMD spine (L1-L4), g/cm<sup>2</sup>: A) 0,947±0,01 g/cm<sup>2</sup>, B) 0,989±0,02 g/cm<sup>2</sup>, C) 1,095±0,02 g/cm<sup>2</sup>, D) 1,138±0,04 g/cm<sup>2</sup>, E) 1,165±0,05 g/cm<sup>2</sup> (F=9,80; p<0,001);

– BMD total femur, g/cm<sup>2</sup>: A) 0,846±0,01 g/cm<sup>2</sup>, B) 0,909±0,01 g/cm<sup>2</sup>, C) 0,976±0,02 g/cm<sup>2</sup>, D) 1,053±0,03 g/cm<sup>2</sup>, E) 1,032±0,07 g/cm<sup>2</sup> (F=13,95; p<0,001);

– BMD total body, g/cm<sup>2</sup>: A) 1,012±0,01 g/cm<sup>2</sup>; B) 1,048±0,01 g/cm<sup>2</sup>, C) 1,103±0,01 g/cm<sup>2</sup>, D) 1,139±0,02 g/cm<sup>2</sup>, E) 1,160±0,05 g/cm<sup>2</sup> (F=14,69; p<0,001);

– BMD midforearm, g/cm<sup>2</sup>: A) 0,586±0,01 g/cm<sup>2</sup>; B) 0,591±0,01 g/cm<sup>2</sup>, C) 0,632±0,01 g/cm<sup>2</sup>, D) 0,666±0,02 g/cm<sup>2</sup>, E) 0,656±0,02 g/cm<sup>2</sup> (F=4,67; p<0,001).

Weight and BMI had a positive impact on BMD described by a linear model:

– BMD (spine (L1-L4))=0,570+0,006\*Weight; r= 0,43; t=7,42; p<0,000

– BMD (spine (L1-L4))=0,605+0,146\*BMI; r= 0,38; t=6,39; p<0,000

– BMD (femoral neck)=0,560+0,004\*Weight; r= 0,39; t=6,64; p<0,000

– BMD (femoral neck)=0,603+0,009\*BMI; r= 0,32; t=5,25; p<0,000

– BMD (midforearm)=0,436+0,002\*Weight; r= 0,30; t=4,96; p<0,000

– BMD (midforearm)=0,463+0,005\*BMI; r= 0,25; t=3,93; p<0,000

Conclusion. The findings confirm occurrence of higher BMD at different skeletal areas measured by DXA in obese women. Weight and high BMI had their positive impact on BMD. Thus, the obesity is considered a protective factor for low bone density.

Poster session | 2009-10-02 13:00

A-0052

## PROGRAM OF NON-COMMUNICABLE DISEASES PREVENTION THROUGH OBESITY TREATMENT.

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Aim: Body weight reduction through lifestyle modification (diet, physical activity, stress management) in obese patients

Subjects: The studied group was composed of 45 patients with obesity or overweight (BMI 25-40 kg/m<sup>2</sup>) aged 18-55 years. Major criteria of exclusion were the presence of diabetes, unstable cardiovascular diseases, thyroid diseases, the use of medications that affect body weight. Patients were selected from 4 outpatients clinics (two of them were in small towns near Warsaw and two from Warsaw).

Methods: The program lasted 7 weeks. Three types of intervention were introduced: dietetic, psychological, exercises program. There were two individual meeting with dietitian. During the first one dietary intake was assessed by 24-recall, and individual dietary recommendations were given during the second one. Later each patients took place in two group meetings with dietitian (in the middle of program and in the last week it). The psychological part included 6 meetings with psychologist (once weekly, in 12 persons groups). The exercises program was realized in 12-persons groups twice or three times weekly, through 1,5 hour. Body weight and waist circumference were measured in the morning before breakfast at baseline, after six weeks of program duration and in the end of the intervention.

Levels of serum lipids, oral glucose tolerance test, TSH were measured at the beginning (patients

with abnormal TSH were excluded). In the end of the program serum lipids level were tested in each patients, and the oral glucose tolerance test was repeated when impaired fasting glucose or impaired glucose tolerance was found in the first examination. Before program each patient has made exercise test.

Results: At the beginning average body weight was 92,8 kg (69-120 kg). It was reduced by 4,75 kg (p<0.0001). The greatest weight loss was 11 kg. 33,3% patients reduced their body weight above 5%. Among 26 patients with obesity (BMI>30), 6 of them (23%) reached BMI complying with the overweight criteria. The waist circumference decreased averagely by 3,5 cm (p<0,0006).

In 11 persons (2 male and 9 female) the metabolic syndrome was diagnosed. At the program end 7 of them (63,6%) didn't meet with criteria of this syndrome, mainly through triglycerides level decrease and HDL-cholesterol level increase rehabilitation.

Average serum LDL-cholesterol and triglycerides level diminished by 15,8% (p<0,0001) and 26,4% (p<0,01) respectively. HDL-cholesterol level increased by 11,2% (p<0,01).

At the beginning of the program one man had impaired fasting glucose and after the program his fasting glucose level was normal.

Conclusions: "Program of non-communicable diseases prevention through obesity treatment" showed that weight reduction program including diet, physical activity and physiological enhancement can give satisfactory results.

Poster session | 2009-10-02 13:00

A-0054

## INDUCIBLE THERMOGENESIS IN SKELETAL MUSCLE: STIMULATION BY HIGH-FAT DIET IN POSTWEANING MICE

Vladimir Kus - T Prazak - P Brauner - M Hensler - O Kuda - P Flachs - P Janovska - D Medrikova - M Rossmeisl - J Jilkova - Z Drahotka\* - J Kopecky  
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Introduction and objectives: High-fat (HF) diet is known to be a strong obesogenic stimulus. Its effect can be counterbalanced by stimulation of energy expenditure and lipid oxidation in response to the meal. Aim of this study was to reveal whether muscle nonshivering thermogenesis could be stimulated by HF diet. The other aim was to support the hypothesis of leptin and AMP-activated protein kinase (AMPK) involvement in this mechanism.

Methods: Male mice of obesity-resistant A/J and obesity-prone C57BL/6J (B/6J) strains, born and maintained at 30 oC, were used. At 4 weeks of age, mice were randomly weaned onto a low-fat (LF) or HF diet. At the age of 6 weeks, indirect calorimetry and cold tolerance test were performed and tissues

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Térápás javallatok: 2-es típusú diabetes mellitus, amikor a diéta és az életmód változás nem eredményez megfelelő vércukor kontrollt.

Adagolás: Merckformin 500, 850, 1000mg filmtableta: monoterápia és kombináció más orális antidiabetikumokkal: kezdőadag felhőttének 2-3-szor 500mg vagy 850mg filmtableta naponta étkezés közben vagy után, 10-15 nap után a dózist a vércukorszint alapján kell módosítani. A maximálisan javasolt adag 3 g metformin naponta, 2-3 részre elosztva. Kombináció inzulinnal: Merckformin filmtablettát a szokásos adagban, naponta 2-3-szor kell adni, míg az inzulin dózist a vércukorszint alapján kell megállapítani. Merckformin XR adagja 1x500mg vagy 750mg XR retard tbl/nap, alkalmazható monoterápiában, más orális antidiabetikumokkal és inzulinnal kombinálva. 10-15 nap után a dózist a vércukorszint alapján kell módosítani. Maximális adag 2 g naponta. Merckformin XR 750mg retard tableta esetén 3 tableta. Az inzulin dózist a vércukorszint alapján kell megállapítani. Ellenjavallatok: túlérzékenység metformin-hidrokloriddal vagy bármely segédanyaggal szemben, diabéteszes ketoacidózis, laktát-acidózis, diabéteszes prekóma, veseelégtelenség vagy renális diszfunkció, akut állapotok, melyek megváltoztathatják a vesefunkciót, akut vagy krónikus betegségek, melyek szöveti hypoxiát okozhatnak, májelégtelenség, akut alkohol-intoxikáció, alkoholfizmus, szoptatás, terhesség. Merckformin XR 750mg retard tblt gyermekkorban nem javasolt. Mellékhatások: hányinger, hányás, hasmenés, hasi fájdalom, étvágytalanság. Ezek a nemkívánatos mellékhatások leggyakrabban a terápia indításakor jelentkeznek és a legtöbb esetben spontán oldódnak, májfunctió-elérések, toxikus hepatitis, mely a gyógyszer elhagyását követően megszűnik, laktát acidózis. Rendszeres vesefunkció ellenőrzés szükséges! Tárolás: legfeljebb 25 °C-on tárolandó. Megjegyzés: (+egy kereszt), II. csoport. Kizárólag orvosi rendelvényhez kötött gyógyszer (V). Forgalomba hozatali eng. száma: OGYI-E 8505/01-03 (Merckformin 500mg) OGYI-E 5157/01-03 (Merckformin 850mg) OGYI-E 8732/01-03 (Merckformin 1000mg) OGYI-E 9943/01-02 (Merckformin XR 500mg retard tableta) OGYI-E 5157/04-06 (Merckformin XR 750mg retard tableta) KÉRJÜK, OLASSÁ EL A RÉSZELETES ALKALMAZÁSI ELŐÍRÁST! Térítési díjak: Merckformin 1000mg ftableta 30x: Brutto fogy. ár: 574 Ft, Normatív támogatás: 263 Ft, Normatív Térítési díj: 311 Ft. Merckformin 500mg ftableta 30x: NT. Merckformin 850mg ftableta 30x, 60x, 100x: NT. Merckformin XR 500mg retard tableta 60x: NT. Merckformin XR 750mg retard tab. 60x: NT. Módosítások. www.cep.hu Levárás ideje: 2008-12-08. Merck Kft. 1113 Budapest, Bocskai út. 134-146. Telefon: 463 8100, Fax: 463 8174. Web: www.merckhu, E-mail: orvosinformacio@merckhu

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for in-vitro experiments, biochemical and gene expression analysis were collected.

Results: The A/J LF mice were cold-sensitive, while the A/J HF, B/6J LF and B/6J HF mice were cold-tolerant. Cold-sensitivity of the A/J LF mice was associated with low energy expenditure, which was normalized by HF diet. Only in A/J mice, oxygen consumption, total content and phosphorylation of AMPK, and AICAR-stimulated palmitate oxidation in soleus muscle was increased by the HF diet in parallel with significantly increased leptinemia. Gene expression data in soleus muscle of the A/J HF mice indicate a shift from carbohydrate to lipid oxidation.

Conclusion: Our results suggest a role of muscle nonshivering thermogenesis and lipid oxidation in the obesity-resistant phenotype of A/J mice and indicate that HF diet could induce thermogenesis in oxidative muscle, possibly by the leptin-AMPK axis.

Poster session | 2009-10-02 13:00

A-0055

### COMBINATION TREATMENT BY ROSIGLITAZONE AND N-3 LONG CHAIN POLYUNSATURATED FATTY ACID EXERTS ADITIVE EFFECTS AND PREVENTION AND REVERSAL OF OBESITY AND ASSOCIATED PATHLOGIES

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Introduction: Fatty acids of marine origin, i.e. docosahexaenoic and eicosapentaenoic acid (DHA and EPA, respectively) act as hypolipidemics, but they do not improve glycemic control in diabetic patients. Thiazolidinediones, like rosiglitazone, i.e. specific activators of peroxisome proliferator-activated receptor-gamma improve whole-body insulin sensitivity. We hypothesized that a combination treatment by a DHA and EPA concentrate (DHA/EPA) and rosiglitazone would provide, by complementary mechanisms, additive beneficial effects on dyslipidemia and impaired glucose tolerance (IGT) in obesity.

Methods: Male C57BL/6 mice were fed high-fat diet. The effects of DHA/EPA (replacing 15% dietary lipids), or rosiglitazone (10 mg/kg diet), or combination of both DHA/EPA and rosiglitazone on body weight, adiposity, metabolic markers and adiponectin in plasma, liver and muscle gene expression and metabolism were analyzed. Hyperinsulinemic-euglycemic clamps were used to characterize the changes of glucose homeostasis. The effects of the treatments were also studied in obese diabetic mice,

following the high-fat feeding.

Results: DHA/EPA and rosiglitazone exerted additive effects in prevention of obesity, dyslipidemia, and IGT, while suppressing hepatic lipogenesis and inducing adiponectin. The improvement of IGT and insulin-sensitivity was largely independent on fat accumulation, it reflected a synergistic effect of DHA/EPA and rosiglitazone on muscle glucose metabolism, while hepatic glucose output was decreased by DHA/EPA and not by rosiglitazone. The combination treatment even reverted obesity, dyslipidemia and IGT.

Conclusion: DHA/EPA and rosiglitazone may be used as a complementary therapies to counteract dyslipidemia and insulin resistance. The combination treatment may reduce dose requirements and hence the incidence of adverse side-effects of the thiazolidinedione therapy.

Poster session | 2009-10-02 13:00

A-0056

### BODY MASS AND COLORECTAL POLYPS - PRELIMINARY STUDY

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Introduction. The incidence of colorectal polyps and polyp-derived cancers is recently increasing worldwide. Aim of a study. To verify if the incidence of colorectal polyps is higher in patients with overweight.

Material and Methods. 422 patients were qualified to a study based on the colorectal endoscopy results. Colorectal polyps were revealed in 213 cases (group I); the remaining 209 patients were considered as a controls (group II). Anthropometric measurements (height, body mass and waist circumference) were taken and BMI was calculated in all the subjects.

Results. Average BMI and waist circumference in group I were significantly higher compared to those of group II (27.6 kg/m<sup>2</sup> vs. 26.5 kg/m<sup>2</sup>, p=0.016 for BMI, and 93.3 cm vs. 88.3 cm, p<0.001 for waist circumference, respectively). There were significant differences in average body mass (75.9 kg in group I vs. 72.8 kg in group II, p=0.03). Abdominal obesity was more frequent in group I compared to group II (69.5% vs. 60.8%, p=0.059). That difference was significant only for males with polyps compared to men of control group (64.1% vs. 48.6%, p=0.046), and remained unimportant for females (73.6% of abdominal obesity in group I vs. 67.2% in group II, p=0.28). In patients below 50 years of age significant difference between groups I and II was related to average body mass (88.7 kg vs. 74.3 kg, p=0.007), BMI (28.8 kg/m<sup>2</sup> vs. 25.3 kg/m<sup>2</sup>) and waist circumference (96.1 cm vs. 84.6 cm, p=0.007). In patients older than 50, in turn, there

was significant difference between groups I and II in average waist circumference (93.1 cm vs. 89.7 cm, p=0.016). The remaining averages (weight and BMI) did not differ markedly between those groups (p=0.07 and p=0.26, respectively). No significant differences in polyp quantity were found between group I patients with normal body mass (18.5≤BMI<24.9) and overweight (BMI>25); 1-2 polyps were found in 79.4% of those with normal weight and in 68.5% ones with overweight (p=0.096), whereas ≥3 polyps occurred in 20.6% and 31.5% , respectively (p=0.079).

Conclusions. The incidence of colorectal polyps is significantly higher in patients with abdominal obesity and overweight ones compared to those without the aforementioned conditions.

Poster session | 2009-10-02 13:00

A-0058

### OVERWEIGHT AND OBESITY IN SCHOOLCHILDREN IN CROATIA

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Objectives: The aim of this study was to investigate overweight and obesity in schoolchildren in Croatia.

Subjects: A cross-sectional study was carried out on representative sample of 11 234 schoolchildren in age 6.50 - 17.99

Methods: Body mass index (BMI) (kg/m<sup>2</sup>) was calculated from measured height and weight. International Obesity Task Force (IOTF) age and gender specific BMI cut off values were used to determine overweight and obesity<sup>1</sup>.

Results: Out of total number of 5 815 boys in sample, 1069 (18.38%) were overweight and 468 (8.05%) obese. Out of 5419 girls in sample, 834 (15.39%) were overweight and 307 (5.67%) obese. The highest overweight proportion was 23.42% in boys and 20.46% in girls in age group of 9.00-9.49 year. The lowest overweight proportion was 14.06% in age group of 14.00-14.49 in boys, 8.05% in age group of 17.00-17.99 year in girls. The highest obesity proportion was 12.27% in age group of 9.00-9.49 in boys and 11.98% in age group of 8.00-8.49 year in girls. The lowest obesity proportion was 4.58% in age group of 15.00-15.49 in boys, 1.32% in age group of 16.50-16.99 year in girls.

Conclusions: Data showed higher proportion of overweight and obesity in boys and the highest proportion of overweight in the same age group for boys and girls. This study was a part of research project: "Cardiovascular risks of school children and youth - intervention model development". The project will contribute in development of interventions for addressing childhood obesity.

Funding: Research project is funded by Croatian Ministry of Science, Education and Sport.

Competing interests: none declared.

References: 1. Cole TJ, Bellizzi MC, Flegal KM, Dietz WH. Establishing standard definition for child overweight and obesity worldwide: international survey. *BMJ* 2000; 320:1240-3; MeSH: children, body mass index, overweight, obesity

Poster session | 2009-10-02 13:00

A-0060

**REPEATED INTRAVENOUS GLUCOSE LOADS ELICIT BRAIN ACTIVATION CHANGES IN THE RHESUS MONKEY: AN FMRI STUDY**

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The underlying neural mechanisms of central control of feeding and metabolism has a fundamental role in neurophysiological research because related diseases such as diabetes mellitus and the metabolic syndrome put enormous and increasing costs on the health care systems of modern societies.

Unfortunately the pathophysiological mechanisms of these illnesses are not sufficiently understood yet. To identify some of the structures involved in the homeostatic regulation, an fMRI study has been designed in the rhesus monkey. In the present experiments, we aimed to localize brain activation changes following repeated intravenous glucose loads.

Two female macaque monkeys took part in the examinations. A Siemens Tim Trio 3T clinical MR scanner was used for the imaging process. A standard EPI sequence with was employed, the resolution achieved was 1,2x1,2x1,9 mm. After a 5 min baseline scanning period, 0.3 g/b.w.kg (10 ml 20% solution) D-glucose was injected intravenously and this procedure was repeated three times in every 15 minutes. Venous blood samples were taken every two minutes. A pharmacokinetic model was used in the data evaluation: we searched for correlation between the blood glucose levels and the brain activation/deactivation patterns employing the inde-

pendent component analysis technique (ICA). A significant change was found in the activation of the hypothalamus and in other limbic regions (e.g. the amygdala) that are also known as being elements of the so called central glucose monitoring neural network.

Our results may help to better understand the central regulation of glucose homeostasis. By further extending these studies, we aim to unravel some of the unknown pathophysiological mechanisms of related feeding and metabolic diseases and the new findings, thenafter, may contribute to developing better strategies for prevention and effective therapies.

Poster session | 2009-10-02 13:00

A-0061

**PRODUCTS PROMISED TO BE EFFECTIVE AGAINST OBESITY IN HUNGARIAN FOOD SUPPLEMENT DATABASE**

Lugasi Andrea (Andrea Lugasi - Éva Martos)

National Institute for Food and Nutrition Science

According to the Community legislation in EU member states food supplements can be on the market without pre-marketing authorization process. Leastways in some EU countries, including Hungary a simple notification procedure exists in order to know the number and type of the products on the market. Food supplements are foods which contain nutrients (vitamins and minerals), and other nutritionally or biologically active compounds in concentrated form and serve as supplements of the regular diet. Chemical composition and indicated area of usage are very different and poorly regulated. Since 2004, nearly 5000 food supplements have been notified in Hungary. The number of the products changes day by day because averagely four-five products are notified in every workday. Nowadays the numbers of active compounds occurring in foods supplements are over one thousand. Several medicinal plants and isolated compounds are promised to be effective against obesity or in fast weight loss. Compounds in food supplements promised to be effective against obesity can be classified according to their mechanisms of action as follows with some examples: -modification of energy metabolism - increased metabolism, increased energy release (synephrine from *Citrus aurantium*, caffeine from coffee bean, guarana or *Ilex paraguariensis*), -satiety feeling (dietary fibre, guar gum, psyllium seed husk) -inhibition of fat absorption (chitosan from lobster), -increased fat oxidation or decreased fatty acid synthesis (L-carnitine, hydroxy-citric acid from *Garcinia cambogia*, green tee extract, conjugated linoleic acid), -modification of carbohydrate metabolism (chromium, ginseng), -increased digestion (papain and other digestive enzyme from plants) - diuretics (caffeine, *Taraxacum officinale*, *Arctostaphylos uva-ursi*), -laxatives (*Cassia angustifolia*, *Rhamnus purshiana*). Dozens of products belonging

to each group can be found on the market. Among notified food supplements in Hungary about 5 % of the products are claimed by the producer or trader as effective in weight management. According to the community and national law, the trade name of a food supplement must reflect the main effective compounds of the product. Focusing only on the trade name, more than 650 (cumulated) products contain compounds listed above alone or in combination. In most products carnitine and ginseng can be found, than in decreasing order green tea extracts, caffeine/guarana/mate extracts, chromium, digestive enzymes from plant origin, hydroxy-citric acid/*Garcinia cambogia*, conjugated linoleic acid, chitosan, psyllium, and there are only a few products with synephrine/*Citrus aurantium*, guar gum, and so on. Diuretics and laxatives are not quantified here because the primary aim of using these plants is 'detoxification'. The effectiveness of most compounds used in weight management is poorly substantiated scientifically. The communication on their effects is very intensive but the EU law restricts to use words and phrases expressing the measure of weight loss. For obese people there is a big challenge to choose product that should be effective but actually there is no evidence in the literature that the use of food supplements alone would be an effective treatment of obesity, or, with other words physicians have never met patient losing weight only because of a food supplement.

Poster session | 2009-10-02 13:00

A-0064

**COMPLEX CHEMOSENSITIVITY OF NEURONS IN THE MEDIODORSAL PREFRONTAL CORTEX**

Bernadett Nagy - Sz. Papp - G. Takács - Cs. Szalay - D. Keresztes - B. Hideg - B. Faragó - L. Németh - T. Csulak - S. Hanna - Z. Karádi

Institute of Physiology and Neurophysiology Research Group of the Hungarian Academy of Sciences (HAS), Pécs University, Medical School, Pécs, Hungary

The mediodorsal prefrontal cortex (mdPFC), a major constituent of the forebrain limbic circuitry, plays important roles in the central regulation of feeding. Little is known, however, about the complex chemosensitivity of neurons located in this area. The purpose of our study, therefore, was to elucidate neurochemical properties and taste responsiveness of mdPFC neurons. Particular emphasis was put on clarifying their participation in the forebrain glucose-monitoring (GM) neural network, their dopamine (DA) sensitivity and their responsiveness to various taste solutions.

To do so, extracellular single neuron activity of the mdPFC of male Wistar rats was recorded by means of tungsten wire multibarreled glass microelectrodes during 1) microelectrophoretic administration of various chemicals, and 2) gustatory stimulations (with solutions of the five primary quali-

ties and orange juice as a complex taste).

One fourth of the neurons tested changed in activity in response to the microelectroostotic application of D-glucose, i.e., these cells were identified as parts of the forebrain GM neural network. Thirty percent of these chemosensory cells displayed facilitation, and 70% of them inhibition to the glucose administration. Almost one fourth of all neurons tested exhibited DA responsiveness, the inhibitory and excitatory firing rate changes were recorded in the same proportion. Gustatory stimulations elicited activity changes in 37% of the mdPFC neurons. Most frequently the salty, sour and umami taste stimuli resulted in firing rate changes, and the majority of the gustatory cells were excited or inhibited by more than one tastant.

The convergence of both endogenous and exogenous chemical signals appear to be a major functional characteristic in the mdPFC. The local neurons here, especially the GM ones, process complex chemosensory and other information, and thus, play significant integratory role in the central feeding control.

Supported by: Health Care Scientific Council (ETT 315/2006), OTKA K 68431, NKTH-RET-008/2005 MEDIPOLIS and HAS

**Poster session | 2009-10-02 13:00**

**A-0065**

**PYROGENIC BUT NOT ANOREXIGENIC AND ADIPSOGENIC EFFECTS OF INTERLEUKIN-1BETA IS MEDIATED BY CYCLOOXYGENASES IN THE NUCLEUS ACCUMBENS OF THE RAT**

Gábor Takács - Cs Szalay - B Nagy - B Hideg - T Csulak - S Hanna - D Keresztes - B Faragó - L Németh - Z Karádi

*Institute of Physiology and Neurophysiology Research Group of the Hungarian Academy of Sciences (HAS), Pécs University, Medical School, Pécs, Hungary*

The nucleus accumbens (NAcc), an important basal forebrain area, has a central integratory function in the control of feeding and metabolism. In extracellular single cell recordings we obtained evidence for a direct effect of the primary cytokine interleukin-1beta (IL-1b) on neurons of the NAcc. To elucidate the possible homeostatic role of IL-1b in this structure, a single bilateral microinjection of the cytokine was administered into the NAcc of adult male Wistar rats. Short-term (2h) food intake (FI), water intake (WI) and body temperature (BT) were measured after the IL-1b administration. The postulated involvement of prostaglandin mechanisms in these functions was tested by pretreatment with the cyclooxygenase (COX)-inhibitor paracetamol (P) in two different (low and high) doses. In a separate group of animals, plasma levels of insulin and leptin were measured after the cytokine treatment.

Short-term FI and WI decreased significantly

after the IL-1b microinjection into the NAcc, and the administration of both doses of P failed to prevent these anorexigenic and adipogenic effects. A remarkable hyperthermia was also observed in the cytokine treated animals compared to control (CO) and P+CO rats. However, the pyrogenic effect of IL-1b in the NAcc was prevented by the administration of the high dose of the COX-inhibitor. Preliminary data indicate that the plasma insulin concentration tends to elevate after the cytokine administration. These results provide evidence for an important role of the NAcc IL-1b processes in the central control of homeostasis. Our new data suggest that the pyrogenic, but not the anorexigenic and adipogenic effect of the cytokine is mediated by COX mechanisms in the NAcc.

Supported by: Health Care Scientific Council (ETT 315/2006), OTKA K 68431, NKTH-RET-008/2005 MEDIPOLIS and HAS.

**Poster session | 2009-10-02 13:00**

**A-0110**

**THE USE OF DUAL ENERGY X-RAY ABSORPTIOMETRI FOR THE EARLY DIAGNOSTICS OF OSTEOPOROSIS AT THE PRESENCE OF METABOLIC SYNDROME**

E. Giorgadze - Sh. Janjgava - L. Uchava - M. Tsagareli - M. Lomidze - N. Svani - N. Nozadze - T. Bakhtadze - K. Asatiani  
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Background: Metabolic syndrome is an important problem of modern medicine. It is well known that metabolic syndrome affects a number of organs and metabolic pathways. Besides other endocrine disturbances many studies have described the decrease of bone mineral density and microarchitectural changes at the presence of metabolic syndrome. The excess levels of leptin attributable to metabolic syndrome can be linked to poor balance of bone remodeling and therefore decrease in bone mineral density (BMD).

Subjects and Methods: The aim of our study was to reveal the decrease of BMD- measured by DEXA - in 58 patients - 16 men and 42 women with diagnosis of metabolic syndrome at the age range 24-68 years. Patients have enrolled according to anamnesis and objective data. BMD was measured in AP Spine and Dual Femur positions.

Results: Normal bone density (NBD) (T score above -1,0) was found in 20% of cases, osteopenia (T Score -1,0-1,5) in - 44%, and osteoporosis T score -2,0 and above in 36%. Dual Femur Densitometry revealed osteopenia (in ward's and trochanter regions) in 38% of cases and NBD in 21%.

Conclusions: It is informative to investigate skeletal system of patients with the onset of metabolic syndrome in order to prevent fractures and administer timely treatment. The leptin concentration dec-

rease could be an important parameter as a marker of effective outcomes of metabolic syndrome therapy. DEXA evaluation of skeletal system is very supportive to receive information about the quality and quantitative changes in BMD, particularly in patients with musculoskeletal complaints at the onset of metabolic syndrome.

**Poster session | 2009-10-02 13:00**

**A-0111**

**MICROALBUMINURIA AND ARTERIAL HYPERTENSION RELATIONSHIP IN OBESE CHILDREN WITH METABOLIC DISORDERS**

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Microalbuminuria (MA) is the important risk factor for kidney diseases, endothelial dysfunction and CVD in adults. There are scanty data about MA as an early prognostic index of metabolic complications in obese children. Aim: To evaluate the microalbuminuria in obese children in relationship to the elements of metabolic syndrome (MS) (NHANES III definition), insulin resistance and prediabetes criteria. Patients and methods: Study comprised 50 obese children (23girls; 27boys); age 13.5±2.8, BMI x±SD=29.78±3.62 kg/m<sup>2</sup>, Relative BMI=157.1±18.2%. Investigations included: anthropometric parameters, OGTT with glucose and insulin levels, lipids profile, 24-hour collection of urine albumin excretion (UAE), clinical BP measurements and ambulatory blood pressure monitoring (ABPM) with the analysis of mean values and indexes of systolic (SBP) and diastolic (DBP) blood pressure. HOMA-IR, QUICKI and FIGR (fasting insulin to glucose ratio) were calculated. Results: In the study group 16 patients presented hypertension (HT) (32%), 17 - prediabetes (IFG/IGT) (34%), 35 - HOMA-IR>3 (70%), the criteria of MS fulfilled 20 patients (40%). Mean value of UAE was 29.99±62.19 mg/24hrs (range 5-300). MA (UAE>30mg/24hrs) was found in 8 children (16%) and 6 of them had HT. In patients with HT UAE was higher in comparison to patients with normal BP (68.23±100.45 vs 12.00±10.64; p=0.002). In patients with MS, insulin resistance and/or prediabetes UAE was similar to children without these disorders. Patients with UAE above the median value (> 9.8 mg/24 hrs) revealed higher triglycerides (p=0.02), TG/HDL ratio (p=0.02), uric acid (p<0.05), FIGR (p=0.04) and 24 hrs values of SBP (p=0.06). UAE showed the positive correlations with mean SBP (r=0.27, p<0.05), SBP load (r=0.29, p=0.04) and SBP index (r=0.34, p=0.01) in ABPM. There was no correlation between UAE and the results of occasional BP measurements. In the multifactorial analysis we found the mean SBP in ABPM (p=0.01) and FIGR (p=0.02) to have the strongest

influence on UAE in the study group. Conclusions: 1. Systolic blood pressure is the strongest factor that influences the urine albumin excretion in obese children. 2. Microalbuminuria could indicate the presence or the risk of arterial hypertension in children and adolescents with obesity. (MNI SW N407 057 32/2522)

Poster session | 2009-10-02 13:00

A-0113

### LEPTIN AND ENERGY HOMEOSTASIS IN RATS ON HIGH-FAT DIET OR CALORIE-RESTRICTION

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Aims: Weight gain of middle-aged and anorexia/cachexia of aging populations are two general trends in long-term body weight (BW) regulation. Peptidergic regulation may be involved. Leptin acts in the arcuate nucleus: suppressing anabolic and stimulating catabolic peptide activities. By middle-age, leptin-responsiveness decreases, possibly in connection with age-related obesity. However, body composition may also influence leptin-sensitivity or leptin-resistance. Here the effects of body composition vs. age are analyzed regarding responsiveness to central leptin administration in young and middle-aged rats.

Subjects: Male Wistar rats of different nutritional status: 2- or 6-months-old normally fed (NF2 or NF6; 282±15 or 456±13 g; standard powdered chow ad libitum), 6-months-old obese (HF6; 621±13 g; 60% fat-calories in food) or 6-months-old calorie-restricted (CR6; 364±5 g; 2/3 of normal = 16 g/day powdered chow) rats.

Methods: Energy homeostasis parameters measured: core temperature (Tc), spontaneous activity, heart rate (HR), with feeding frequency (FF) and feeding duration (FD) were analyzed in rats with 7-day-long (1 µg/h) intracerebroventricular infusion (Alzet minipump) of leptin. For statistical analysis repeated-measures ANOVA and one-way ANOVA with Scheffe's post hoc test were used.

Results: At infusion-ending BW decreased by 8.6%, 10.2%, 5.6%, and 0.1% in NF2, NF6, HF6 and CR6 rats, respectively. After 3-days, FI decreased by ca. 50% in the NF groups, 34% in HF6 and none in CR6 rats. The leptin-induced changes of FF and FD were similar, except for the low initial values in HF6 rats. During the leptin infusion, the daily Tc minima increased in all groups, most significantly in the CR6 group. ACT was very low in CR6 animals, but did not show significant increase in any group. The daily HR minima increased significantly in all groups, particularly in the CR group.

Conclusions: In 6-months-old rats HF-obesity rather than age contributed to the decreased leptin responsiveness. Similarly to obese rats, food-restricted

animals exhibited a virtual leptin-resistance: leptin had no effect on FI. However, this possibly results from low responsiveness to anorexigenic peptides or enhanced responsiveness to orexigenic ones. In contrast, these rats showed extreme leptin-sensitivity regarding changes in the thermoregulatory parameters of energy balance (Tc and HR). (OTKA-49321)

Poster session | 2009-10-02 13:00

A-0115

### EFFICIENCY OF ELIMINATION DIET BASED ON RESULTS OF FED TEST (FOOD ENVIRONMENT DRUG TEST) IN PATIENTS WITH OVERWEIGHT

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The aim : to estimate efficiency of FED test in patients with overweight during of one year.

Material: 80 patients had been included in our research. Middle age made 32±2,5 year, women - 48, men - 32.

Methods: to all patients have been carried out FED test, foods which for 3 and 6 months were excluded from a diet were determined. Before research to patients defined weight of a body, height, calculated an body-mass index (BMI), Broca's index, quantity of fat - device OMRON BF 500; parameters were estimated each 3 months during of one year

Results: patients had been distributed on three groups. In the first group was 18 person, BMI did't exceed 25; in the second - 38, BMI within the limits of 26-30, in a third - 24, BMI exceeded 30. After 6 months carried out research FED test and observance of a diet, we had been received positive results in the second and third groups. At 30 patients in the second group the weight was completely normalized, BMI did not exceed 25, in 6 - BMI was within the limits of 26-28. In third group in 10 patients BMI was lower 26, and at 11 was within the limits of 26-28. In 5 patients who were not following to the recommendations, parameters of weight have not been changed.

Conclusion: FED test is an effective method in patients with overweight, which gives proof effect of normalization and stabilization of weight long time after carrying out of research

Poster session | 2009-10-02 13:00

A-0118

### ADIPONECTIN LEVEL AFTER SUPPLEMENTATION WITH-N3 POLYUNSATURATED FATTY ACID IN MODERATELY OBESE WOMEN

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Objective: Polyunsaturated fatty acids of fish origin may influence the outcome of weight management regimens. The effect of eicosapentaenoic (EPA) and docosahexaenoic (DHA) acids can be related to the change of peptides regulating food intake and to changes in gene expression of lipogenic or lipolytic enzymes in adipose tissue.

Methods: 24 moderately obese women (BMI 35.6±3.6 kg/m<sup>2</sup>) underwent 3 months of weight management. Subjects were randomized into 2 groups. Polyunsaturated fatty acid concentrate of fish origin (FO) 8 g/day was added to diet in group 1. In group 2 placebo was added (PL, canola oil) in the same dose. Body composition, fatty acid composition of serum and adipose tissue lipids, level of peptides regulating food intake and mRNA expression of enzymes from subcutaneous adipose tissue were measured.

Results: The average weight loss was not significantly different between the groups. However borderline significant higher fat loss (p<0.10) in FO group in comparison with PL was found. Levels of EPA, DHA and total n-3 fatty acids were significantly increased in serum lipids in FO group. Significant positive correlation of initial DHA in phospholipids with change in plasma adiponectin (r=0.437, p<0.05) was found. Significant negative correlation of change in sum n-3 fatty acids in phospholipids was found with baseline sum n-3 in phospholipids (r=-0.671, p<0.05) only in group treated with polyunsaturated fatty acids (FO group). Levels of total n-3 fatty acids significantly lower increase in subjects with their initial higher levels (r=-0.643, p<0.05).

Conclusion: The results suggest higher intake of n-3 fatty acids in diet may influence adiponectin level predominantly in subjects with initial low concentration of n-3 fatty acids in serum phospholipids. Higher intake of EPA/DHA enhanced mitochondrial β-oxidation. It could explain lower increase of n-3 fatty acids in subjects with their higher initial level.

Supported by the grant NS/9830-4 IGA Ministry of Health, Czech Republic

Poster session | 2009-10-02 13:00

A-0120

### COMPARATIVE MEASUREMENTS OF FAT MASS USING VARIOUS DEVICES

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Objectives. For the wider acceptance of bioimpedance methods for the measurement of fat mass validations of these devices are needed. Aim of our

study was to compare 3 different equipments with a reference method.

**Subjects and methods.** Fifty-six edema-free patients with wide BMI range (20-58, median 33 kg/m<sup>2</sup>) - 14 men and 42 women with mean 49.9 ys of age - were included in the study. Biospace InBody 8.0 was the reference device to which a 4-lead, multi-frequency one (Bodystat Quad 400), and 2 commercial ones (Omron BF 300 and Korona KFW 4021) were compared applying Pearson-correlations and Bland-Altman analysis.

**Results.** The data obtained by all the 3 devices showed strong correlations with those measured by InBody 8.0. The standard deviations in case of Korona KFW 4021 were even in every BMI quartiles, while the Bodystat Quad 400 and Omron BF 300 in the higher and lower BMI ranges, respectively, were less reliable. The directly measured waist to hip ratios significantly correlated to the values calculated by the InBody 8.0.

**Conclusions.** All the 3 tested equipments are appropriate for the fat mass measurements in the daily routine. However, significant differences may exist between them.

**Poster session | 2009-10-02 13:00**

**A-0121**

**RELATIONSHIP OF ADIPOKINES AND NON-ESTERIFIED FATTY ACID TO THE INSULIN RESISTANCE IN NON-DIABETIC INDIVIDUALS**

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**Background:** altered secretion of adipokines and non-esterified fatty acid (NEFA) seems to play a pivotal role in the abdominal obesity-related insulin resistance.

**Aim:** to investigate semi-quantitatively what impact of serum NEFA, interleukin-6 (IL-6), tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ), leptin, adiponectin and resistin levels have on insulin resistance measured by homeostasis model assessment (HOMA-IR). **Material/Subjects.** Seventy four Caucasian subjects forming 3 age-, and sex-matched groups were included into the study (Group 1 and 2: non-diabetic obese patients, n= 25 with BMI: 28 - 39.9 kg/m<sup>2</sup>, n=25 with BMI  $\geq$  40 kg/m<sup>2</sup>, respectively, and Group 3: 24 healthy, normal weight control subjects). **Methods:** serum levels of NEFA and adipokines as well as other metabolic variables including HOMA-IR were measured.

**Results:** HOMA-IR was correlated positively with BMI, waist circumference, serum NEFA, leptin, IL-6

and TNF- $\alpha$  levels, while negatively with adiponectin, with no significant association to resistin. In multiple regression analyses, of these factors leptin was a strong, IL-6 and adiponectin were weak independent predictors of HOMA-IR, while the others were not significant determinants of HOMA-IR. However, even together they explained only 35-36% of variance of HOMA-IR.

**Conclusions:** Although insulin resistance shows associations with many of the investigated parameters, of these only serum level of leptin, and in lesser degree IL-6 and adiponectin are independent determinants of the severity of insulin resistance. Moreover, even together they explain only a minority of variance of insulin resistance.

**Poster session | 2009-10-02 13:00**

**A-0135**

**COMPOSITION OF FATTY ACIDS IN SUPPLEMENTS WITH OIL OF SEA BUCKTHORN, AMARANTH, PUMPKIN AND SAW PALMETTO**

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**Objective:** Dietary supplements with plant oils are frequently used as a support in the treatment of a number of diseases. Exogenous polyunsaturated fatty acids (PUFA) have antiatherogenic and antithrombotic effect, resulting from their complex action on plasma lipoproteins, fluidity of membranes, function of membrane enzymes and receptors, modulation of the eicosanoid production, regulation of blood pressure and metabolism of minerals. Along with numerous products containing evening primrose oil and soya lecithin, FA composition in less frequent supplements based on extracts of sea buckthorn (*Hippophae rhamnoides*), amaranth (*Amaranthus* sp.), pumpkin (*Cucurbita pepo*) and saw palmetto (*Serenoa repens*) was the topic of our study.

**Materials:** Tested formulas were purchased in pharmacies and shops with health nutrition in Prague.

**Methods:** Fatty acids were transferred to methyl esters and analyzed by capillary gas chromatography. Results are expressed in molar %.

**Results:** Precursor of PUFA n-6 is linoleic acid (LA), most important metabolic products being g-linolenic and arachidonic acids. Precursor of PUFA n-3 is  $\alpha$ -linolenic acid (ALA), with most important products eicosapentaenoic and docosahexaenoic acids. Content of LA in sea buckthorn varied between 34 and 38%, content of ALA between 26 and 38%, in amaranth content of LA varied between 45 and 50%, that of ALA between 0.5 and 1.5% LA. The respective contents of LA and ALA were in pumpkin 45-56% and 0.2-0.5%, in saw palmetto 44-48% and 4-7%. Sea buckthorn is used as a support in cardiovascular and cancer therapy, as well as in the treatment of gastrointestinal ulcers, liver and skin

disease. High content of phytosterols, carotenoids and vitamins fortifies its medical effect. Amaranth is characterized by the high content of squalene, which has hypolipidemic effect and strengthens immune system. Phytosterols in the oil of pumpkin have, in combination with LA, beneficial effect in lipid-associated disorders and prostate hyperplasia. Saw palmetto has positive effect on reproductive and urinary system, as well as on mucous related problems. This effect is supported by high content of phytosterols and flavonoids.

**Conclusions:** Beneficial effects of the discussed supplements are derived from the high content of essential FA, phytosterols, carotenoids, flavonoids and vitamins.

Supported by the research project MSM 0021620820.

**Poster session | 2009-10-02 13:00**

**A-0146**

**THE METHOD OF TREATMENT THE OBESITY PATIENTS BY THE COMPUTERIZED FRAGMENTARY IMAGES IN THE INTERNET**

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*Research Laboratories VVL*

The method of treatment the obesity patients by the computerized fragmentary images which includes bioelectromagnetic, chakratic tuning of patient's organism and handling of patient's memory by contiguous alternation of bio-electro-magnetic holographic image with radioesthesiology frequencies of person's condition, which is notable that, they treat the patient's memory with computerized fragmentary images with the frequencies of:

1. sleep condition of delta rhythms 1.5-3 Hz (American Academy of Sleep Medicine and the Sleep Research Society. Further information about this study can be found on the Internet at <http://www.journalsleep.org/>)

2. pancreas with 1.5-12 Hz (M. J. Griffin, "Handbook of human vibration")

3. beta rhythm to calm a nervous system about 15-30 Hz (Alan E. Smith, "Unbreak Your Health: The Complete Guide to Complementary & Alternative Therapies") and each fragment ranges with one of the brain's rhythm, and the rate of images frequency describes by numbers correspondingly to the Fibonacci's number range or by number range of the Golden cut (C. film about neuroencoding on [www.bioenergetic-devices.com](http://www.bioenergetic-devices.com))

**Poster session | 2009-10-02 13:00**

**A-0147**

**LIFE GUIDE - LEAD YOUR LIFE!**

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Aim of study: Life Guide System is a program - includes mental and physical health components - with new approach, which emphasize prevention and the development of harmonious life. Our aim is achieve - with help of conscious approach - qualitative change in eating habits of the population and do the regular physical activity to the part of their lives. We want to set realistic and available aim that the overall proportion of obese people also reduce to the level of EU standards.

Method: Life Guide Lifestyle Program includes:

1. Life Guide diagnostic test: with measurements by professional body analyzing device (Tanita BC-545) take exact datas for current physical condition (fat- and muscle-percent, bone, fluid, BMR, etc.).

2. Life Guide personal physical trainer and nutrition advising program: Our computerized system - developed years of research - forms the personalized nutritional and exercise plan with the personal physical body datas - recorded during the measurement.

Survey: from defined data of the diagnostic test: body fat- and fluid percent - age and gender brake-down

Results: The research period of the reference population: January 2008 - December 2008. Number of participants in the research: 785 people: 263 men and 522 women (Age: 18-30 years - 206 persons, 30-40 years - 304 persons, 40-59 years - 245 persons, 60 + years - 30 persons) Women: overweight and obese: 253 persons (48.4%)

Men: overweight and obese: 150 persons (57%) Total number of the overweight or obese persons: 403 (51.3%).

Women: under percent of normal fluid: 256 persons (49%)

Men: under percent of normal fluid: 121 persons (46%)

377 persons have their fluid percent under the normal level (48%).

Discussion, conclusions : The various non-union health-care programs trying to change the health's critical state of the population. With a few success. The rate of obese people, or the „fatten-back” people of even different diet programs is increasing. Our country's physical and mental health status is described as disastrous, cause low fluid intake, sedentary lifestyle, consumption of fatty foods, aswell irregular meals and lack of basic physiological knowledge.

Life Guide Lifestyle Program offer a solution for this -unfortunately national problem.

Life Guide Lifestyle Program - through follow the personalized nutrition and exercise plan - normalizes the amounts of fat and fluid, determines the optimal feeding frequency and quantity, makes traceable protein and carbohydrate, calculates the recommended calorific value, aswell improve the heart and the vascular condition with the recommendations of aerobic exercise plan. We suppose, that the Life Guide Lifestyle Program is a real and accessible solution for the effective li-

festyle-change of the population - thanks to the widespread penetration of the Internet, the country-wide developed network of consultants, the traceability of the body, the computer database management, the specific improvements, the regular trainings, the achievable and traceable lifestyle-proposals, and the motivation system - can measure in wherewithal aswell.

Poster session | 2009-10-02 13:00

A-0151

### ANALYSIS OF SHORT-TERM BAROREFLEX SENSITIVITY IN PCO SYNDROME AND OBESITY

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Patients: Our study involved 8 patients with polycystic ovarian syndrome (PCO) and 7 patients with obesity ((BMI>35). The lack of diabetes and hypertonia was confirmed in all patients (75 g OGTT,3xRR).

Methods: Continuous RR and ECG was monitored with a Finometer and data was analysed with BRS analysing software taking systolic RR values into account. We calculated up and down BRS and  $\alpha$ -index at low (aLF:0,004-0,15 Hz) and high frequency (aHF:0,15-0.4 Hz) having the patients in lying and ortostatic position and determined the ratio of aLF/aHF in both postures. Results were compared to healthy, age matched patients.

Results: PCOS group: The BRS results not differ from the healthy population one's. Th LF and LH/HF was higher int he PCO group than in the healthy subjects. The  $\alpha$ -index, up- and down BRS was lower in both group after standing up. In PCOS the aHF ( $p=0,03$ ) and down BRS ( $p=0,042$ ) was significantly lower.

Obese subjects: BRS is not different in obese patients from the healthy subjects. In lying position the aHF, aLF results were higher in obese. After standing up both were decreased in comparison to the control population.

After standing up the  $\alpha$ -index, and also the up- and downBRS were lower in both group (in controls: up BRS ( $p=0,045$ ),downBRS ( $p=0,042$ ) was significantly lower).

Conclusions: The short-term cardiovascular adapation is damaged in patients with polycystic ovary syndrome and obesity independetly of the BMI and age.

In PCOS the sympathovagal balance is switched to the sympathetic tone.

In obese patients in lying position we observed some sympathetic and parasympathetic tone too. In active orthostasis we found increased sympathetic tone, and no change in parasympathetic tone after standing up but elevation is the sympathetic tone. The cause of the elevation of the parasympathetic

tone in lying position by obese patients could be the highres intrathoracal pressure which decreases after standing up.

Poster session | 2009-10-02 13:00

A-0155

### ALLELE FREQUENCY DISTRIBUTION DATA FOR D16S3096 AND D16S2624 IN FOUR ETHNIC GROUPS IN RELATION WITH METABOLIC SYNDROME: TEHRAN LIPID AND GLUCOSE STUDY

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\*\*\*\*Biotechnology Research Centre, Pasteur Institute of Iran, Teheran, Iran

Variation in drugs resistance and susceptibility to special disease may relate to the different allele frequencies of the variants at population level. This study analyzed the allele frequency of 5 STRs loci including D16S3096 and D16S2624 on a representative sample of 563 individuals from Tehran from four different ethnic groups in Iran. In this sample, 130 individuals were affected with metabolic syndrome. Allele frequency, PIC values, observed and expected heterozygosity, discrimination power, matching probability, power of discrimination, power of exclusion and paternity index were calculated for the whole sample. No significant deviation in observed allelic frequencies from Hardy-Weinberg equilibrium was found for all the studied markers. The most hetrozygote marker in total population and in different ethnic groups was D16S2624. The power of discrimination ranged from a minimum of 0.798 for D12S96 locus in Azeri group to a maximum of 0.924 for D16S3096 locus in Persian group. The most significant findings of this study is reporting allele frequency of some STRs in chromosome 16 for the first time in Iran, and observed differences between subjects affected with metabolic syndrome as opposed to subjects in the control group.

Poster session | 2009-10-02 13:00

A-0156

### STUDY ON EFFECTIVENESS, COMPLIANCE AND ADHERENCE OF NUTRITIONAL THERAPY AN PHYSICAL THERAPY IN OBESITY MAMAGEMENT

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Aim&objectives:

The primary goal of this study was to identify the most effective methods and with the best long term adherence to combat and prevent overweight and obesity. A secondary goal was to evaluate the incidence of obesity in Romania-Galati county.

Subjects: In the first stage we examined 4547 subjects, 1966 males (43,23%) and 2581 females (56,77%) from Galati county.

In the second stage we enrolled 120 obese and overweight females divided in three homogeneous groups.

Methods: In the first stage we used Physical Activity, BMI, Harris-Benedict and Ruffier Indices, anthropometric data in order to select the subjects for the second stage.

In the second stage we selected 120 females aged between 16 and 45 with BMI over 27kg/m<sup>2</sup> and no comorbidities.

In the second stage experiment we made 3 homogeneous groups of 40, each group with different approach of obesity therapy: group-A - nutritional therapy; group-B physical therapy; group-C nutritional and physical therapy.

Results:

- the percentage of obese and overweight people in Galati county is 29% and it's under average percentage reported for EU population by WHO;
- more than a third of Galati population is sedentary or very sedentary;
- the maximum level average weight is reached between ages of 55 and 59.

II:

- the average values of BMI decreased in all three groups;
- the largest difference was recorded in groupC from an average of 29,6 to 24,6, followed by the groupB from an average of 28,6 to 24;
- comparing the percentages of subjects who are at the end of the experiment with normalweight, groupB obtained the best results starting from 27.5%-72.5% overweight-obese and reaching 17,5%-2,5%-80% overweight-obese-normalweight compared with groupC with initial values of 50%-50% overweight-obese and final values 22.5%-7.5%-70% overweight-obese-normalweight and groupA with initial values of 50%-50% obese-overweight and 5%-50%-45% obese-overweight-normalweight.

Conclusion:

- The most effective and with the best long term adherence method for combating obesity in Galati county is physical therapy
- while groupC had the greatest changes in some subjects, the fact that 30% of subjects have't dropped below 25 points BMI shows that adherence to the method applied to the groupC is low

Poster session | 2009-10-02 13:00

A-0157

## ENDOTHELIAL DYSFUNCTION AND HYPOADIPONECTINEMIA IN OBESE INSULIN RESISTANT PATIENTS

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Insulin resistance (IR) is associated with a decreased vasodilator response, but adiponectin might be a potent endothelial protective molecule which is markedly downregulated in association with obesity-linked diseases including coronary artery disease (CAD) and type 2 diabetes mellitus (T2DM). The study aimed to evaluate relationships between adiponectin levels and endothelial dysfunction indexes (ET-1, sICAM-1, sVCAM-1, sE-selectin and endothelial-dependent vasodilatation) in insulin resistant T2DM patients with and without CAD. Patients and methods: Obese T2DM patients with IR were divided into two groups: 24 patients with CAD and 24 patients without CAD (all patients were without insulin therapy and pronounced diabetic complications or other systemic disease; nonsmokers). 24 healthy subjects were selected as controls (C). The study groups were matched for age and sex. IR was measured by HOMA-IR method, but serum adiponectin, sICAM-1, sVCAM-1, sE-selectin were measured by xMAP technology (Luminex-200 analyzer) and ET-1 was measured by ELISA. In order to evaluate cutaneous endothelial-dependent vasodilatation, we recorded the response to transcutaneous administration 1% acetylcholine in laser Doppler flux (PeriFlux 4001, Perimed) in the hand (ACH). Results: Only CAD group demonstrated a significant diminution in ET-1, sICAM-1, sVCAM-1, and sE-selectin levels, and also a decrease in ACH compared to C group (p<0.05), but the level of adiponectin was decreased in both patient groups in comparison with C group (p<0.01). Only the concentration of adiponectin and ET-1 correlated with HOMA-IR indexes (p<0.01).

Conclusion: Our findings show that obese insulin resistant T2DM patients with CAD have abnormal indexes of endothelial function and hypoadiponectinemia.

Poster session | 2009-10-02 13:00

A-0159

## THE ASSOCIATION OF SOME GENE POLYMORPHISMS (APOE, CETP, LPL) AND OBESITY, HYPERLIPIDEMIA IN MIDDLE-AGED RUSSIAN MEN .

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Institute of Physical Chemical medicine, Moscow, Russia

The aim of this study was to investigate the association between polymorphism gene lipid metabolism and risk factors (obesity, hyperlipidemia, smoking) and plasma lipid level.

We selected single-nucleotide polymorphisms (SNPs) in the cholesterol ester transfer protein (CETP), lipoprotein lipase (LPL), apolipoprotein E (APOE) in patients with ischemic heart disease.

METHODS: This study involved 120 patients of ischemic heart disease and 133 non-related healthy controls. The polymorphisms of in was analyzed using PCR-restriction fragment length polymorphism analysis in these patients, and also was analyzed the clinical, biochemical data. The correlation of these polymorphisms with lipid profile (total cholesterol, low-density lipoprotein cholesterol, high-density lipoprotein cholesterol and triglycerides) in the patient group was determined.

RESULTS: A similar distribution of genotype frequencies in ischemic heart disease patients and healthy controls was found. Allele E4 and genotype APOE3/4 was associated with ischemic heart disease (p=0,04; OR=2,89 [95% confidence interval [CI] 1,36-4,89]. Genotype APOE3/3 was significant in control group (p=0,04; OR=0,51 [95% confidence interval [CI] 0.26-0,89]. Genotype APOE3/4 was associated with total cholesterol and low-density lipoprotein cholesterol (p<0,05). However, genotype APOE 3/4 and alleles E4 no significant correlation between lipid level and risk factors in groups. There were no significant differences in allele and genotypes frequencies of the LPL and CETP genes between control and study groups (p>0,05). There were no significant correlation between lipid level and risk factors and LPL and CETP genotypes.

CONCLUSION: Allele E4 and genotype APOE3/4 was associated with ischemic heart disease and myocardial infarction in middle-aged Russian man. Allele 4 and APOE 3/4 was not associated with obesity. Genotype APOE3/4 was associated with lipid level (total cholesterol and low-density lipoprotein). Polymorphism LPL and CETP genes was not associated with ischemic heart disease and risks factors, lipid level.

Poster session | 2009-10-02 13:00

A-0161

## ASSOCIATION OF ANXIETY AND DEPRESSION DISORDERS WITH WEIGHT AND WEIGHT GAIN IN YOUNG WOMEN

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The aim was to evaluate the relation between anxiety/depression disorders, weight and weight gain in young women.

Methods: 95 young women were recruited (18-38 y.o.): 45 women had normal weight and 50 were overweight, including 34 pts with obesity (BMI>30kg/m<sup>2</sup>). All had normal weight (BMI<25kg/m<sup>2</sup>) before pregnancy and postpartum period>5 years. Anthropometric parameters and serum leptin levels (ELISA) were measured. Center for Epidemiologic Studies Depression Scale (CES-D), V. M. Bekhterev Research Institute's Depression Scale. Zung self-rating anxiety scale (SAS) were used to assess the depression and anxiety levels. Data of GWGs were collected retrospectively from medical records and self-reported.

Results: Depressive symptoms were defined as CES-D score of 16 or higher and V. M. Bekhterev Research Institute's Depression Scale of 50 or higher. 15.4% pts suffered from current depressive symptoms. Women with depression symptoms had significantly higher gestational weight gain (16.04±3.38 vs 13.88±3.32 kg; p=0.01). Women with depression or anxiety symptoms (24.2%) had significantly higher BMI (30.38±5.62 vs 26.20±3.99 kg/m<sup>2</sup>), waist circumference (WC) (88.27±16.99 vs 78.29±11.45 cm), waist/hip ratio (0.83±0.08 vs 0.76±0.07) and gestational weight gain (16.07±3.36 vs 13.62±3.22 kg), greater likelihood of obesity (63% vs 29%) and hyperleptinemia (76% vs 46%) if compared with women without mental disorders (p<0.01). Overweight and obese women had significantly higher anxiety levels than normal weight women (0.41±0.057 vs 0.38±0.026; p<0.01). Depression/anxiety symptoms were associated with BMI, WC, waist/hip ratio, gestational weight gain, obesity and hyperleptinemia.

Conclusions: Anxiety/depression disorders are related to obesity, abdominal obesity, and gestational weight gain in young women. Overweight and obese young women are at risk for elevated anxiety. We suggest that depression/anxiety disorders may be capable of causing excessive weight gain during pregnancy and weight gain later in life, which may lead to obesity and excess risk for cardiovascular disease and diabetes.

Funding: Presidential Grant RF MK-6368.2008.7

References:1.Everson-Rose S, Lewis TT, Karavolos K. Depressive symptoms and increased visceral fat in middle-aged women. *Psychosom Med* 2009; 71(4):410-416.

Poster session | 2009-10-02 13:00

A-0162

### LEFT VENTRICULAR HYPERTROPHY AND OTHER STRUCTURAL CARDIAC ABNORMALITIES IN ADOLESCENT GIRLS AND

## YOUNG WOMEN WITH OBESITY

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The aim of the study was to determine early structural cardiac abnormalities in adolescent girls and young women with obesity.

Methods: We recruited 60 young females (adolescents and young women, aged 14 to 25 y.o.): 40 pts with obesity (body mass index (BMI) 35.2±4.7kg/m<sup>2</sup>, range 30.85 to 46.48 kg/m<sup>2</sup>) and 20 pts with normal weight (20.1±2.4 kg/m<sup>2</sup>). Anthropometric parameters and blood pressure were measured. Echocardiography measurements were performed by single observer, and included M-mode left ventricular (LV) dimensions, 2-dimensional LV mass (LVM), Doppler diastolic flows. LVM was indexed to height.

Results: Obese subjects had significantly higher following echocardiographic parameters: left atrium diameter (3.4±0.4 vs 2.9±0.3 cm), right ventricular size (2.4±0.5 vs 1.9±0.4 cm), LV end-diastolic diameter (4.9±0.3 vs 4.5±0.3 cm), interventricular septum (0.89±0.1 vs 0.76±0.1 cm), LV posterior wall thickness (0.93±0.1 vs 0.76±0.1 cm), LVM (179.3±30.7 vs 117.4±22.0 g) and LVM index (45.1±6.0 vs 30.4±6.5 g/m<sup>2</sup>.7) than lean subjects (p<0.01). 34,6% pts with obesity had left ventricular hypertrophy (LVM index>47g/m<sup>2</sup>.7). LV geometric changes were diagnosed only in obesity group, but not in normal-weight group. Eccentric LV hypertrophy was the most commonly encountered LV geometric change in young females with obesity (28.6% vs 6% for concentric LV hypertrophy and 2% for concentric remodeling). LV hypertrophy correlated with body mass index (r=0.51), waist circumference (r=0.31), hypertension (r=0.27) (p<0.05).

Conclusion: Eccentric LV hypertrophy was the most frequent LV geometric change in adolescent girls and young women with obesity. This study has demonstrated the presence of pre-clinical abnormalities of cardiac structure in adolescent girls and young women with obesity, despite young age, and highlights the potential high cardiovascular risk occurring in obesity.

Funding: Presidential Grant RF MK-6368.2008.7

Poster session | 2009-10-02 13:00

A-0164

### EFFECT OF WALKING PROGRAM USING UNSTABLE FOOT WEAR ON THE CHANGE OF BODY WEIGHT AND BODY FAT MASS IN OBESE PATIENTS

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Aim : Lifestyle modification is the base of obesity management. Ordinary physical activity is usually blocked by the circumstances, so it would be useful to give possibilities to do it without sports-ground and partner. For this aim the brisk walking is suitable. Unlike running, it does not cause difficulties for the joints of the lower limbs. The prevalence of osteoarthritis is very common in obese patients, there for walking is very difficult for them. The Masai Barefoot Technology (MBT) gives some possibilities for the correction of orthopaedic deformities and to relieve the walking. Our aim was to examine whether wearing unstable footwear (MBT) at brisk walking program with low calorie diet was able to diminish body fat mass, body weight and increase walking distance.

Material and methods: 22 adult persons (10 men, 12 women) after wearing MBT shoes during 3 month for adaptation. Age: 51.67Y (SD: 10.52, median: 52). In the study there were 15 obese and 12 normal weight persons. Their energy intake content was decreased by 500 kcal/day versus before the treatment. The brisk walking program was controlled by Omron HJ-113 step counter. The body weight and fat body mass was determined by InBody720 bioimpedance instrument. The duration of the study was 12 weeks.

Results: The mean of daily walking distance increased significantly (p=0.00) from 3.66 km/day (SD: 1.83) to 6.63 km/day (SD: 1.92) it means +45.44%. The body mass reduced significantly (p=0.00) from 98.74 kg (SD: 21.63) to 93.08 kg (SD 20.06). The fat body mass of obese persons reduced from 42.0 kg (SD: 13.91) to 37.18 kg (SD: 11.64), (p<0.01). The mean of the difference was -4.62 kg. The BMI decreased from 34.81 kg/m<sup>2</sup> (SD: 6.42) to 32.76 kg/m<sup>2</sup> (SD: 5.57), (p<0.01), the difference -5.6%. The body weight did not change significantly in normal body weight persons.

Conclusion: The brisk walking program using unstable foot wear (MBT) increases the daily walking distance. The body weight, the body mass index and the fat body mass decreased significantly. The physical activity and the low calorie diet were together responsible for our results. We recommend our method for the long term weight management.

Poster session | 2009-10-02 13:00

A-0165

### INCIDENCE OF EATING DISORDERS IN OBESITY

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Aim: The relationship between eating disorders and obesity can support the therapy of obesity. As a result of stress, people who follow chronic slimming

diets often stop self-restraint and go into an extreme eating. Obese people often have binge eating in a negative life situation. The aim of the research is to reveal the presence of emotional, uncontrolled and restrained eating and the night eating syndrome of obese people.

Method: Quantitative, cross section research. The sampling method was not random. The planned number of the people analysed was 160. The criterion of selection was BMI > 25 and patients with diagnosed diabetes mellitus were excluded.

Research method: Night Eating Syndrome Questionnaire (NESQ), Three-Factor Eating Questionnaire (TFEQ) with additional questions on social support and socio-demographic background. The data were processed by MS Excel programme and statistical analysis was carried out by T-test.

Results: In the analysed model (n=152, 43 men, 109 women) the average age was 53 years and the average BMI was 38. The NES affects 5 people (with the wider limit). The restraint eating ( $p = 0,008$ ) and the emotional eating ( $p < 0,001$ ) showed significantly higher result among men.

Uncontrollable eating habits among those with a BMI lower than 30 was significantly higher ( $p < 0,001$ ) than among those with a BMI higher than 40.

Conclusion: Although the research is not representative, the results show that pathological eating disorders can lie in the background of obesity, which could be treated by several stress management methods, self-observation or effective social and professional support.

Keywords: eating disorders, obesity

Poster session | 2009-10-02 13:00

A-0168

### SHADOWING OF GLITAZON TREATMENT OF OBESE DIABETIC PATIENTS

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The object of our examination is shadowing the glitazon treatment of diabetic patients with special attention to liquid retention.

We observed altogether 93 people suffering from diabetes type 2, 40 male and 53 female patients. The average span of life of the males is 63,0, that of the women's is 64,6 years. The duration of the examination was 30 months that started at the beginning of 2007. Beside the diet the patients were treated with glitazon combined with metformin and/or sulphanylurea. 33 men and 50 women were given rosiglitazon started with 4 mg on a daily then raised to 8 mg. 10 patients were treated with pioglitazon, 7 men and 3 women, each took 30 mg daily.

The examination was carried out with an Italian (Akern Srl) BIA-101 Body impedance analyzer equipment, that is suitable to - with a Bodycomp V.8 softver - measure the following parameters: body cell mass kg and % (BCM) total body water litre and % (TBW) extracellular water litre and % (ECW) fat mass kg and % (FM) fat free mass kg and % (FFM) extracellular-mass kg and % (ECM) basal metabolic rate (BMR) hidration of fat free mass

The measurements were carried out in 3-6 months. The average of the BMI, FFM hidration and fat-mass (FM) measured at the beginning and at the end of the examination has been compared according to the gender and therapy. The results are the following:

In case of Rosiglitazon-treatment:

BMI kg/m<sup>2</sup> FFM hidration % fat mass (FM) %  
male 33,38 - 33,67 + 0,87 % 76,40 - 76,86 + 0,60 %  
30,48 - 26,28 -13,77 %  
female 35,21 -35,83 + 1,76 % 78,14 - 78,74 + 0,76 %  
44,38 - 41,80 - 5,81 %

Because of growing of hidration in case of 10 female patients the treatment had to be given up Beside Pioglitazon-treatment (because of the small number of patients we decided not to group them according to gender) there were altogether 7 patients who had been given only pioglitazon from the beginning (6 male, 1 female)  
BMI kg/m<sup>2</sup> FFM hidration % fat mass (FM) %  
31,72 - 33,37 + 5,20 % 77,37 - 77,67 + 0,38 % 31,15 - 28,64 - 8,05 %

Because of growing of hidration in case of 1 female patient the treatment had to be given up  
Consequences drawn from the results: The BMI and the hidration of fat free mass grew in case of both glitazon, however the percentage proportion of

body fat mass reduced. This points to the fact that foremost the liquid retention might have a role in the grow of body mass. We consider great importance of the shadowing of this - beyond measuring body weight - to ensure the safety of the therapy. Due to the disproportionate case- number comparing the 2 glitazons could not been carried out.

Poster session | 2009-10-02 13:00

A-0169

### THE INFORMATION RATE OF FOOD LABELS IN NUTRITION OF OBESE PEOPLE

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Introduction: Foodstuff choice is an important factor in prevention and therapy of obesity. Food labels assist us to choose the right alternative. Objective: Our aim was to survey reading of food label facts and compare the healthy ( $18.5 < \text{BMI} < 25.0$ ) and the overweight ( $25.0 \leq \text{BMI} < 30.0$ ) - but health-conscious (non-representative) groups based on their body mass index (BMI) (WHO, 2007).

Participants and methods of survey: The visitors of event „World Heart Day 2009” in Budapest were questioned. We monitored the height and the weight for BMI of the 344 people (26.7% male, 73.3% female) over 18 years (mean-aged  $55.0 \pm 15.2$  years) with anonymous, volunteer and self-fill-out questionnaire. The analysis was carried out by comparison of 95% confidence intervals and unpaired t-test.

Results: Most of the adults read the price of the product and expiration date in both categories (price 61.8, 68.8, 67.4%, expiration date 64.3, 63.8, 63.0%), significant deviation ( $p < 0.05$ ) was not found in relation to the weight. Among people with healthy weight, the ones who always read the information about the constituents of the foodstuff (32.5% vs. 26.2%, 19.6%,  $p < 0.05$ ) and nutrient content (22.3% vs. 14.9%, 13.0%,  $p < 0.05$ ) were significantly more. The overweight persons usually read the nutritional values (38.3%) and the constituents of the foodstuff (33.3%), and on the other hand the obese ones usually watch the constituents of the foodstuff (45.7%) but they read the nutritional values (37.0%) only sometimes. People with optimal weight rarely pay attention for the net weight (31.8%); however the overweight (31.9%) and obese persons (32.6%) watch this information sometimes.

Conclusion: The number of obese people increases year to year in Hungary; consequently we need to apply every possible measure for the prevention. The conscious nutrition is part of healthy life, and reading and watching of food labels are part of conscious nutrition, thus the education of customers about food labels is imperative. Label reading and label interpretation are at less than satisfactory level even among health-conscious people: 12.4% of the

population never look at any information on a label, 23.9% just looks at one piece of information (in the half of the cases it is the price of the product and in the remaining cases it is the best before information). We must warn the overweight and obese people in the course of their diet therapy that the nutrition intake has both qualitative and quantitative characteristics, and they need to pay attention to both of them to achieve an efficient and effective weight reduction.

Poster session | 2009-10-02 13:00

A-0170

### THE RESULTS OF THE THE BIGGEST LOSER IN HUNGARY

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Background: Mass media gets bigger and bigger part in the Modern World with its shows and reality shows. In 2007 a new reality show was started in Hungary that divided the public opinion and also the experts, questioning its real aim and result. Its title was „A nagy fogyás” (The Biggest Loser). Extremely obese people took part in the show mostly. At first they competed in groups and then individually. The person who lost the most won the competition. Hungary is not the first country where the fight of these people against the kilograms was broadcasted. The prize in the semi final was a car, in the final an apartment and an exotic holiday, the public prize an infrasauna. Object: The aim was to show the results of the competition as a dietitian, and to look for an answer for the basic question: is the real winner the person who lost the most?

Methods: The two teams participated in two complex (diet, physical activity and psychological guidance), but different lifestyle programmes (Norbi Update, Alexandra Weight Control). The spectators could follow-up weekly the loss of weight. There were many significant differences in the diet of the two groups, both qualitative and quantitative ones (energy-, fat- and carbohydrate intake). To analyse the details, we determined mean values of the groups, the distribution, the minimum and maximum values and the dimension of the variation. Data were analysed using the 95% confidence intervals comparison and unpaired t-test.

Setting: The 6-6 participants of the two groups (n=12).

Results: The mean of the starting body weight (n=12) was 138.2±37.8kg (median: 140.4kg). The person with the biggest loss lost 90.6kg during the 5 months that means a reduction of 46.8%. The mean value of the weight loss (n=11) was 43.6±20.6kg (median: 36.7kg), that means a loss of 29.9±9.8%

(median 27.9%) of the initial weight. The mean body weight was 98.8±27.7kg (median: 92.6kg) at the end of the show. The mean of the weekly weight loss was 3.2±1.7kg (median: 2.7kg). The Red team had an average of 4777±524kJ (median 4935kJ, 1143±125kcal, median 1181kcal) energy intake, while in the Blue team this was 6703±1595kJ (median 6601kJ, 1604±382kcal, median 1579kcal). The protein intake was 83±12g, the fat intake 43±13g, the carbohydrate 114±25g in the Red team. The Blue team had a 86±21g protein, a 66±26g fat and a 180±33g carbohydrate intake. The measurements of the physical activity were not recorded.

Conclusions: Based on the analyses of the menus, the intake of energy and macronutrients was not free of extremities, present as very low energy-, and high protein and fat intake. Although the players had to sign a confidence agreement, the life of them is known from the media. There are some of them who are fatter than at the beginning of the show. The show, apart of its deficiencies, attracted the attention to that overweight can be moderated with the power of will and persistence. Asking help of an expert makes the efforts more efficient. It pointed out that this fight is everybody's own fight, but people are not alone, it is easier with a partner and an expert.

Poster session | 2009-10-02 13:00

A-0171

### DEVELOPMENTS ON THE FIELD OF COMPUTER AIDED (CAD) DIET PLANNING

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Objectives: Planning an individual diet suitable for the actual recommendations, which does not contain some foods (because of allergy or intolerance), fits for the season etc. is very laborious work. According to this fact a long-term, good quality, really personal diet is almost beyond most of the patient's reach outside of the health resorts. There is an increasing demand to develop nutrition software with the automatic capability to plan individual diets, suitable for effective prevention or intervention of highly diet-related diseases like obesity, cardiovascular diseases or diabetes.

Method: A special software algorithm, founded on huge dietetic knowledge-base, capable for standalone diet planning has been developed by the work-team during a three-year period. According to the specified personal variables (age, gender, physical activity level, anthropometric parameters), regarding the avoided foodstuffs, season, etc. the software can draw up ten-day individual menus and automatically perform the necessary quality and quantity modifications for the optimal energy- and nutrient intake. There are numerous feasibilities to determine the characteristic of the menu under planning, assuring remarkable variability for the diet.

The principles regarding the automatic planning were as follows:

- to choose the type of the diet (e.g. general health promoting, slimming, lacto-ovo-vegetarian);
- to implement a reasonable food structure, appropriate to the recommended nutrient intake, the season and the type of the diet;
- to harmonize the meal pattern and kitchen technologies of the menu;
- to choose acceptable foodstuffs and recipes for the individuals with their own taste and tolerance;
- automatic substitution of the food alternatives and modification of the portion sizes to optimize the daily energy- and nutrient intake according to the requirements.

Results: The DietCAD software developed by the team can create individual menu plans regarding various dietetic viewpoints automatically and quickly. The menus are both varied and well balanced, ready for the adaptation of patient's life-style, or changeable by the dietician according to special demands of dietotherapy.

Conclusion: Considering the functions and fields of possible application, the software is useful and effective tool for the professionals of the prevention and clinical nutrition.

OBEKON symposium | 2009-10-02 14:00

A-0130

### IDENTIFICATION OF MOLECULAR TARGETS AND BIOMARKERS IN THE MECHANISM AND THE TREATMENT OF OBESITY. INTRODUCTION OF THE ACTIVITY OF THE „OBEKON”

Tamás Pázmány\* - Zoltán Urbányi\* - András Falus\*\* - András Budinszky\*\*\* - Károly Vékey\*\*\*\* - László Takács\*\*\*\*\* - Sándor Cseh\*\*\*\*\* - Tamás Oli\*\*\*\*\*

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While only recently identified as a major health concern, obesity levels have been growing steadily and the condition threatens to rank among the biggest causes of premature death in both the industrialized and emerging economies. With only three products approved worldwide for long-term treatment, and growing unmet clinical need, the treatment of obesity could present a major opportunity area for pharma companies.

Aim: Using „systems biology” approach we in-

tend to identify new molecular targets and biomarkers by mapping of the molecular network of obesity. The result can serve as a basis for subsequent pharmaceutical research. At the same time, we intend to develop a system of tools for the prediction of the evolution of the disease by evaluating large number of SNP patterns with the complete genomic profile and by complete genomic hybridization that on one hand enables prediction, on the other hand help in person-targeted drug selection.

**Methods:** We have established a consortium named "OBEKON" to facilitate the collaboration between institutions with different expertise required to achieved our goal.

To identify targets and biomarkers in the molecular pathway of obesity we studied DNA, transcription, RNA and protein -level changes in selected obese (over 800) and in non-obese (over 400) patient samples and in animal models. We used wide range of genomics, proteomics and bioinformatics methods to determine genes, their polymorphic variants and proteins connected to these processes.

Selection of drug targets is completed by up-to-date in silico protein projecting and structure determination methods.

**Results:** During the course of the project we established a large biobank of tissue -, DNA and RNA sample collected from obese and non-obese patients selected by their clinical and, sociodemographic and dietary data. We have analyzed the samples to collect data to able to identify new target for pharmacological intervention. We have started to evaluate this large amount of data.

**Conclusion:** The complex pathways within the central nervous system (CNS) and their interaction with other mechanisms involved in the regulation of body weight make obesity a difficult and complicated disease to treat. However, there is a growing understanding of how the CNS regulates appetite and metabolism as well as the mechanisms that limit weight loss over time. This understanding and the results emerging from the integrative bioinformatics evaluation of genomic, transcriptomic and proteomic are the basis of our drug development strategies. We hope that our result by establishing an „obesity biobank” will help and facilitate research with novel approaches contributing to a better and more effective treatment of obesity.

OBEKON symposium | 2009-10-02 14:00

A-0033

### INVESTIGATION OF THE GENOMIC BACKGROUND OF OBESITY USING SINGLE NUCLEOTIDE POLYMORPHISM ANALYSIS IN CANDIDATE GENES

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*Dept. of Meas. and Inf. Sys., Budapest University of Technology and Economics*

**Aim:** Family and twin studies have shown that genetic factors account for 40-70% of the population variation in body weight, but their exact roles in the susceptibility to obesity are still poorly understood. In our study we investigated the role of single nucleotide polymorphisms (SNPs) in candidate genes in obesity in Hungarian population.

**Methods:** Altogether 1635 Hungarian adults were included in the study. Detailed clinical and laboratory data were collected from all participants. For the candidate gene analysis 55 genes, previously found associated with obesity were selected from different public databases and the scientific literature. In these genes 120 SNPs were selected, and genotyped on Beckman SNPstream system. Associations between SNPs and different obesity associated phenotypes are analyzed by standard genetic software tools and special computer-intensive methods developed by our bioinformatic team.

**Results:** Our preliminary analyses showed association altogether of 10 SNPs in 7 genes with obesity in our population. These genes were the following (in brackets the number of SNPs in association): FTO (3 SNPs); ALOX5 (2 SNPs); ABCC8, IGF2, HSD11B1, AGRP, IL6ST (each of them with 1 SNP). Four SNPs in 4 genes (FTO, HSD11B1, ABCC8, and IL6ST) were associated with obesity in men, 3 SNPs in 2 genes (ALOX5, IL6ST) in women. When we considered the whole studied population 8 SNPs in 5 genes (FTO, ALOX5, IGF2, AGRP, IL6ST) were associated with the disease. Our analysis is still in progress, where we investigate the role of haplotypes, gene-gene and gene environmental interactions in obesity and obesity related phenotypes.

**Conclusion.** Our results show that genetic polymorphisms play an important role in the susceptibility of obesity in the Hungarian population. Those genes and pathways associated with obesity are potential targets for tailoring therapy for a healthier body weight.

OBEKON symposium | 2009-10-02 14:00

A-0139

### APPLICATION OF PROTEOMICS METHODS IN THE IDENTIFICATION OF BIOMARKERS, SUITABLE FOR STUDYING OBESITY AND OBESITY RELATED DISEASES

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The aim of these studies was the collection of large number of plasma samples from diabetic or non-diabetic obese and non-obese, well characterized patients and the examination of these samples with a wide range of different proteomics approaches in order to create a protein-biobank and to facilitate the discovery and development of biomarkers, appropriate for studying obesity and obesity related diseases.

For sample collection outpatients were recruited at several hospitals in Hungary; blood were taken and plasma were separated from cells using routine protocols. For protein separation one- and two-dimensional gel-electrophoresis, isoelectric focusing, different chromatography procedures (ion-exchange, affinity, graphitized carbon liquid, reverse phase, etc.), for protein identification HPLC-MS/MS were used. Monoclonal antibodies specifically recognizing the plasma proteins of the different patient- groups were produced by the hybridoma technology; hybridomas were screened and selected using HTP-ELISA-s. Purified antibodies were used for the determination of the antigens recognized by the antibodies (affinity chromatography or immune precipitation followed by protein separation, isolation and identification [MS]), and for the determination of epitope ID (phage display with 12-mer random peptides). Selected proteins were cloned for protein expression using standard molecular biology methods.

A plasma biobank was created containing more than 1200 samples which together with the collected clinical, social-demographic and life-style data represents an invaluable source for these type of research. Already after different depletion procedures shotgun MS examination revealed the presence of several proteins, selectively enriched between patients groups, and additional coupled separations of plasma proteins resulted in further selective increase of individual proteins. Out of the approximately 6000 hybridomas created, several were found to be able to differentiate between the different patient groups. Some of these selected hybridomas have already been cloned and the determination of their

protein and epitope ID has been attempted. Cloning and characterization of several others are in progress. During the project we have created the possibility to determine site-specific glycosylation patterns in protein samples. Chosen proteins, cloned into expression vectors are being used to enhance further, direct investigations. Our studies clearly showed the significant potential of proteomics techniques in the discovery and characterization of obesity related biomarkers.

**OBEKON symposium | 2009-10-02 14:00**

**A-0043**

### **Obesity related mRNA and miRNA profiling**

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**Aims:** Pathomechanism of the development of obesity is a widely examined field. Today it is known, that increased fat mass especially abdominal fat mass is associated with a low-grade inflammation. Our aim was to investigate the genetic background of inflammation development.

**Methods:** Peripheral blood mononuclear cells and subcutan adipose tissue were collected from obese and non-obese patients. After RNA isolation the messenger RNA and micro RNA expression profile were compared in obese and non-obese samples with gene expression microarray.

**Results:** Significant mRNA and miRNA gene expression modification were found in both tissues. In adipose tissue 60 mRNA and 7 miRNA were associated with obesity.

**Conclusion:** The simultaneous analysis of mRNA and miRNA microarray data could contribute to the recognition of obesity pathomechanism.

**OBEKON symposium | 2009-10-02 14:00**

**A-0022**

### **OBESITY: GENETIC UPDATE BY CGH ANALYSIS AND ITS POTENTIAL CLINICAL IMPLICATIONS**

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**Background:** Obesity and obesity associated diseases such as type 2 diabetes, metabolic syndrome, heart disease, hypertension, stroke, and cancer are one of the major health problems world wide. Although heritability is substantial, genetic mechanisms predisposing to obesity are not very well understood. The aim of this study was to understand these mechanisms and to identify chromosomal changes which could be associated with obesity.

**Methods:** Obese subjects (BMI>30) who are obese from early childhood, and whose obesity could be inherited from parents were included in this study. Until today, 8 samples were analyzed with comparative genomic hybridization (CGH). Tissue digestion, labeling, hybridization, and data analysis of genomic DNA were performed according to the Agilent Technologies protocol version 2.0 for 105 K arrays. For data analysis, DNA Analytics software (version 4.0.85) was used. The starting and ending points of the aberrations were confirmed by the ADM-2 algorithm with 6.0 threshold ( $p < 0.005$ ). **Results:** With the mentioned statistical conditions, significant chromosomal aberrations were found on the following chromosomal regions: 1q23.3, 2q13.2, 3p25.3, 4p16.1, 4q13.1, 4q22.1, 9p21.3, 9q31.3, 10q24, 15q15, 15q25, 17p13.1, 17q2132, 17q21.33, 19q13.2, 20q11.21, 20q13.2.

**Conclusions:** Our results demonstrate the potential of this technology for studies of obesity and suggest chromosomal markers responsible for such a phenotype.

**OBEKON symposium | 2009-10-02 14:00**

**A-0013**

### **GLYCOSYLATION PATTERN ANALYSIS WITH MASS SPECTROMETRY**

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In order to get a deep insight into the pathophysiological alterations during the obesity it is important to describe the biological changes at the molecular level, as well. Glycosylation is one of the most frequent posttranslational modification. Nearly the half of the proteins and almost all of the membrane proteins are glycosylated. Description of the changes of glycosylation pattern in different kind of pathological states is essential to understand the biological processes better.

Our aim was to develop an efficient method for the analysis of N-glycosylation. The use of high performance liquid chromatography coupled to mass spectrometry (HPLC-MS) offers an accurate and sensitive technique for the structural analysis of glycans. Our model glycoprotein was the human alpha-1 acid glycoprotein (AGP), which is a positive acute phase protein found in the human plasma. Possessing five N-glycan sites, the oligosaccharide content of the AGP is between 41-45 %.

N-glycans were enzymatically cleaved from commercial human AGP polypeptide backbone and purified prior to HPLC-MS analysis. The separation of the N-glycans was carried out by porous graphitized carbon (PGC) chromatography. On-line combination

of PGC with MS made possible the detection of oligosaccharides. 100 pmol of N-glycans mixture was analysed during an HPLC-MS measurement and gave detailed information about the possible major and minor heterogeneties of the glycosylation. Using our model glycoprotein we identified 18 glycans differing in their molecular weight and separated their isomeric forms.

The presented method can be a valuable tool for characterizing the glycosylation changes even the major and minor heterogeneties at molecular level. The advantage of the PGC coupled MS technique beyond the mass accuracy and sensitiveness is the capability to separate the isomers of the glycans and gave detailed structural information of the glycosylation.

**OBEKON symposium | 2009-10-02 14:00**

**A-0044**

### **EPITOPE MAPPING OF MABS RECOGNIZING PROTEIN MARKERS OF OBESITY: A PHAGE DISPLAY STUDY**

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TargetEx Kft., Dunakeszi

**Objectives:** The objective of the current study was to determine epitops recognized by monoclonal antibodies generated against protein markers or targets which can be involved in the pathogenesis of obesity. To achieve this purpose we established a phage display method which is suitable for epitope mapping of antibodies. The developed technique has been used for the characterization of mAbs generated in frame of the Obekon project.

**Experimental:** To establish the method for epitope mapping Ph.D-12TM Phage Display Peptide Library Kit was used from New England Biolabs. The phages display random peptide 12-mers fused to a minor coat protein (pIII) of M13 phage. The library consists of approximately  $2.7 \times 10^9$  sequences. The mAbs were immobilized on 96-well plates and phages were added to them for selection. The bound phages were removed by lowering the pH and then the selection was repeated twice. After the third round of panning mAb binding of selected phages was confirmed by ELISA and then twelve individual clones were taken for sequencing. The consensus motif representing the epitope was determined from the obtained sequences.

**Results:** We established and validated a phage display system which is suitable for the epitope mapping of antibodies. The technique was adapted to work in a medium throughput manner allowing mapping of hundreds of antibodies. This made feasible the characterization of mAbs generated in frame of the Obekon project. In most cases for a particular antibody the obtained sequences showed a well defined consensus motif which determines the epitope or at least a mimetop for the investigated mAb. This

sequence is suitable to identify a certain antibody. As expected different epitope ID was obtained for different antibodies and this consensus sequence could be reproduced when the selection was repeated for an antibody. This means that the epitope ID can be applied not just to identify mAbs but to find potential redundancies in the mAb libraries. In the future we might use the determined epitops to develop competitive ELISA methods to detect and quantify the protein markers or targets recognized by the characterized mAbs.

Conclusions: A phage display method was established and validated which proved to be suitable for the determination of consensus sequences for the epitops of antibodies. In frame of the Obekon project one of our goals was to generate mAbs which recognize protein markers or targets of obesity. The validated phage display technique was applied to characterize these antibodies. We showed that the epitopes determined by the phage display can be used to identify a particular mAb as well as to distinguish different antibodies making possible to remove redundancies from mAb libraries. Beside that the obtained epitope might be used in future ELISA development to work out diagnostic kits for identified markers of obesity. Taken together a phage display method has been developed which proved to be helpful in characterization of antibodies directed against protein markers or targets of obesity.

This work was supported by the Hungarian grant from NKTH # NKFP-A1-2006-0048.

**OBEKON symposium | 2009-10-02 14:00**

**A-0067**

### **STUDY OF LIGAND-BINDING MODE TO LYSOPHOSPHATIDIC ACID RECEPTORS BY MOLECULAR MODELLING METHODS**

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Lysophosphatidic acid (LPA, 1- or 2-acyl-sn-glycerol 3-phosphate) is a phospholipid displaying its biological actions via both G-protein-coupled seven transmembrane receptors and nuclear hormone receptors. Seven LPA1-7 and a nuclear hormone receptor, PPAR $\gamma$ , have been identified. The possible involvement of LPA in various diseases, including obesity, has been documented, and LPA agonists are now considered as attractive agents for the treatment and/or prevention of obesity. Thus, understanding of the molecular basis of ligand-receptor interactions could facilitate the design and development of therapeutically useful novel anti-obesity compounds. Here we describe the application of molecular modelling methods to characterize

the binding mode of some known ligands to LPA1 receptors.

Known ligands of LPA1 receptor with affinities were collected from literature. Models of the LPA1 receptor were obtained by homology modelling based on the crystal structure of bovine rhodopsin with 2.2 Å (Protein databank code: 1U19) as a template. Clustal W multiply alignment algorithm and Modeller 9v6 were used for alignment and model building. The binding site was next identified through blind docking of some known ligands (AutoDock 4.0). For model validation, calculated and experimental binding free energies were compared. Molecular dynamics (MD) simulation was used additionally.

Our results in respect to the binding site are mainly in line with those of previously described study of Sardar et al. on the LPA binding to LPA1 receptor[1] although, in our case, docking of agonists with long, highly flexible aliphatic side chains made for the calculations some difficulties. MD simulation led finally to the identification of key amino acids involved in binding of ligands. The recognized molecular aspects of the binding mode of LPA ligands to the receptor may now be used for designing new non-natural type, drug-like agonists and antagonists of LPA1 receptors.

This study was supported by National Office of Research and Technology (NKTH), Hungary

[1] Sardar V.M. et al. *Biochim. Biophys. Acta* 2002, 1528, 309-317

**Review session II. | 2009-10-02 16:15**

**A-0073**

### **PRIORITY IN THE EUROPEAN FOOD SAFETY POLICY**

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The European food safety system is based on the premise that safety must be guaranteed throughout the food chain if the health of consumers is to be protected. The central goal of the European Food Safety Policy is to ensure that European citizens have safe food to allow them to choose a healthy diet and to protect their health. Most measures aimed at protecting the safety of the food supply, including animal health and welfare, plant health, primary production aspects, manufacturing, processing, distribution and marketing of foodstuffs.

The BSE, dioxin and other crises of the late 1990s illustrated the complexity of food supply in Europe and the need to consider food safety in an integrated manner by assessing risks along the entirety of the food chain - from farm to fork. As an example, the BSE crisis illustrated the principle that animal health, animal feed and primary production methods were fundamentally important to the safety of food supplied to consumers.

Europe's food safety system is governed by the

Regulation on General Food Law (178/2002/EC) which established three interdependent principles of risk analysis: risk assessment - the scientific evaluation of risks; risk management - the decision making process; and risk communication. Under this system, the independent European Food Safety Authority (EFSA) has been entrusted with risk assessment and risk communications, while the responsibility for risk management decisions lies with the European Commission, the European Parliament and Member States. EFSA is an integral part of the EU food safety system providing risk managers with scientific evidence for measures aimed at ensuring the high level of health protection chosen by the Community. EFSA, the European Commission, the European Parliament, Member States' authorities in Europe and beyond, and stakeholder organisations, are able to collect, analyse and provide data, and develop comprehensive advice. European risk managers have to be able to respond quickly and decisively to put in place appropriate measures when an emergency arises along the food chain which may have a direct or indirect impact on health. Due to socio-economical, societal, environmental changes and technological progress we face a great number of problems and questions to be solved, which influence our future.

The European Food Safety Policy has to face key challenges on several fronts. Globalisation will increase the likelihood of newly emerging or re-emerging risks to Europe's food supply. Innovative technologies and evolving risk assessment practices will make complex demands on scientific and communication activities. Sustainability and climate change will emphasise the importance of using an integrated approach to risk assessment. Changes in socio-demographic structure and consumer behaviour will impact on the fields of nutrition, diet and health, while changes in policies and the regulatory framework will also affect the priorities in the European Food Safety Policy.

**Review session II. | 2009-10-02 16:15**

**A-0100**

### **FOOD SAFETY RISK AND LEGAL ASPECTS OF DIETING**

Mária Szeitz-Szabó

*Hungarian Food Safety Office*

Obesity has numerous risk factors which are generally well-known and constitute the health reasons for weight reducing diet. But you have to consider the possible risk of diets as well.

First of all, a really effective weight reducing diet means starvation for the body. Inadequate intake of macro- and micronutrient can decrease the resistance against infections including foodborne diseases. To be on a diet often means unbalanced nutrition, over-consumption of some type of food and to omit others. Food safety risk depends on the quantity

consumed, and if the diet based only on some kind of food (e.g. egg-diet, or cabbage diet), it is easy to expose your body to elevated level of some contaminants, or residues.

The diet usually includes special foods invented for weight reduction. This food items are regulated on EU and national level. COMMISSION DIRECTIVE 96/8/EC on foods intended for use in energy-restricted diets for weight reduction regulates this products. Foods for use in energy-restricted diets are specially formulated foods, which replace the whole or part of the total daily diet. The product should not be used for more than three weeks without medical advice. They are divided in two categories: (a) products presented as a replacement for the whole of the daily diet; and (b) products presented as a replacement for one or more meals of the daily diet. The composition of such products should be fulfilling the daily nutritional requirements for essential nutrients. A number of products have been recently developed to be used as a replacement for snacks and to supply certain quantities of selected essential macronutrients and micronutrients. The energy provided by the products must be restricted. The products covered by this directive require nutritional labelling for the energy value and principal nutrients they contain. It is important, that the labelling, advertising and presentation of these products shall not make any reference to the rate or amount of weight loss which may result from their use or to a reduction in the sense of hunger or an increase in the sense of satiety.

Persons on a diet often buy and consume food supplements. Food supplements are regulated by directive 2002/46/EC. These products are foods containing concentrated sources of nutrients and presented for supplementing the intake of those nutrients from the normal diet. An adequate and varied diet could, under normal circumstances, provide all necessary nutrients for normal development and maintenance of a healthy life, but the energy-restricted diet sometimes needs supplementation. Only vitamins and minerals normally found in, and consumed as part of the diet should be allowed to be present in food supplements. There is a positive list of those vitamins and minerals attached to the directive. The labeling, presentation and advertising of food supplements shall not include any mention stating or implying that a balanced and varied diet cannot provide appropriate quantities of nutrients in general. There is not licensing procedure for food supplement, but placing the product on the market in a country may need notification to the competent authority. In Hungary notification should be done at OÉTI (National Institute for Food and Nutritional Science).

Food supplements are often advertised and sold under misleading statements. They are sometimes even harmful. The food control authority obliged to prohibit the marketing of harmful products, and they should alerting the other countries via RASFF (Rapid Alert System for Food and Feed).

There are other pieces of EU and Hungarian le-

gislation which refers to product often used in diets, for example food additives, artificial sweeteners, and novel food products. The presentation will give further information on the legislative aspects of these products and about the problems food inspectors and regulators encounter in the practice.

Review session II. | 2009-10-02 16:15

A-0074

## THE ROLE OF FOOD INDUSTRY IN THE PREVENTION AND DEVELOPMENT OF OBESITY

Péter A. Biacs

*Budapest Corvinus University, Faculty of Food Science*

In the developed countries of the world food industry is developing products targeting children, as purchasers of tomorrow. In case of food for children the development of products can only be nationally regulated. The composition and properties should meet the requirements of up-to-date nutrition contributing to the physical and mental development of children. According to the survey made by Lelovics et al (2007) more than 100 children-oriented foods are distributed in Hungary: cereals (38%), dairy products (30,1%), drinks (14,2%), chocolates and creams (12,4%) and meat products (5,3%). The assortment of the products: 93% are flavoured and sugar added, the energy (carbohydrate and fat) content of 4/5 of them is high, the protein content of the 1/5 of the products is low. Only the L of the dairy products has an advantageous low fat content.

For adults and for the elderly the dairy food industry offers „light” sortiments with 50% fat content of the original, traditional product: light butter with 40% fat instead of 80% or sour cream with 10% fat content instead of 20%. Milk for consumption has 3,5-3,6% of fat (full fat milk) or 1,5-1,6% (fat free milk), but in Hungary exceptionally the national regulation accepts 2,8% fat in homogenized, pasteurized milk (half-fat milk). Meat industry is frequently using the technique to replace fat in sausages by water-binding additives like carbohydrates. Claims using „reduced fat content” are regulated by the 2991/94/EC for long time issued in December 5, 1994 which legal instrument should be harmonized with the new regulation of 1924/2006 issued in December 20, 2006.

Some products of food retail in Hungary are originated from strictly controlled natural conditions (restricted to agricultural chemicals): bio-food, organic grown food, bio-dynamic food. Nutritional claims are calling our attention by making statements on high anorganic (mineral) and vitamine content of the product, whereas functional and health claims are misleading the public with statements of risk reduction of a disease (obesity): „Bio-tej” (milk from organic grown vegetation) is protecting your body from surplus calories.

Review session II. | 2009-10-02 16:15

A-0008

## THE NUTRITIONAL RISK

György Biró - E. Antal

*Complex Committee on Food Science of HAS*

*Hungarian Association of Dietitians*

The food provides “fuel” for the growth and functioning of humans; moreover it influences the gene expression, contributes to the physiological regulations, has an effect on health status and disease, plays role in the social relations, and may propagate agents injurious to health as well. Several components come within the nutritional risk of food: environmental contamination, natural toxic ingredients, discrepancy between food intake and expenditure, health impact of constituent parts, unwholesome substances arising during processing and cooking, detrimental effects of additives or substances added to food for fortification etc. We intend to show principally the components increase the obesity risk, still we pay attention to the risks of whole diet employed for the desired body mass. The presentation is aimed at stressing hardly appreciated nutritional issues in the development of overweight and obesity, furthermore at underlining the holistic biological aspects of slimming diets. We refer to the positive energy balance (and the insufficient or even excessive intake of nutrients) but we particularly deal with the sequels of certain nutrients as chancy factors of obesity: high SFA intake lessens the insulin sensitivity, on the contrary high n-3 PUFA protects it, while high n-6/n-3 ratio contributes to the adipogenesis. The association between FAs and cancer, and the antioxidative features of n-3 PUFAs is also mentioned. The deficiency of vitamin D is linked to increased body fat, metabolic syndrome, furthermore CVD, CHD, fatal stroke, breast cancer, multiple sclerosis, and other disorders, whilst the vitamin blocks the maturation of adipocytes. High fructose diet boosts the hepatic de novo lipogenesis, visceral adiposity, insulin resistance. Vitamin C, fruits and vegetables diminish the onset of type 2 diabetes (as one aftermath of obesity). Balanced micronutrient and amino acid intake promotes the adequate immune function. Certain amino acids trigger the immune response through neurotransmitter function. Phytoestrogens up-regulate the expression of antioxidant genes. Also the non-nutritive biologically active food ingredients may participate in the regulation of body mass: higher flavone, flavonol, catechin intakes reduce the increase in BMI, facilitate the maintenance of body mass. Flavanols improve endothelial function, decrease cardiometabolic risk factors. A wholesome slimming diet plays an extremely important role in obese aged subjects because of high risk of CVDs and - in childhood - because of growth (e.g. dairy consumption, micronutrient intake). Many other respects should be taken into consideration in the nutritional prevention and treatment of obesity: eating behaviour, reduction of dietary salt, diet rich in fruits and vege-

tables, allergenic foods. In the energy-reduced diet vitamin-enriched foods are often used: e.g. folic acid fortification may raise colorectal and prostate cancer risk. Another food-safety issue: acrylamide could be formed in various heat-treated carbohydrate-rich, starchy food that are fried or baked. It may presumably cause increased risk of ovarian, endometrial cancer, moreover induces proinflammatory state, a risk factor for progression of atherosclerosis.

In this case a useful solution looks to be the food-based dietary guideline, well.

#### Review session II. | 2009-10-02 16:15

A-0101

### ENVIRONMENTAL ESTROGEN EXPOSURE AND OBESITY

Anna Tompa

Semmelweis University, Department of Public Health

Obesity is a major public health issue in the XXI st century, because it is a risk factor for insulin resistant diabetes, cardiovascular diseases, some types of cancer, reproductive and metabolic alterations. The distribution of fat is dependent on gender and age, although the life style may modify these tendencies. Environmental pollutant are present in the industrialized countries as well as in rural areas using chemical agents for fertilizing and protect crops from different parasites. Some of them are persistent organic pollutants (POP) which are having similar effects, on the cell membranes, like steroid hormones. These group of chemicals are called hormone disrupters. The basic chemical structure required binding to the estrogen receptor are an aryl ring with a hydroxyl group. This structures are present several natural and man made chemicals. The natural compounds are originated from different plants (phytoestrogens), but these structures are present in several pesticides ( DDT, DDE, Bisphenol, Nonylphenol etc.) These chemicals, which act to mimic estrogens may modify the androgen metabolism too. Concerning endocrine disruption, there is a causal relationship between environmentally induced hormonal activity and health consequences, like premature sexual activity, menorrhagia, endometriosis etc. The question is, what extent can these xenoestrogens exert adverse effects on human body development and growth? According to our present knowledge the human exposure to hormone disrupters may occur mainly through the food chain. Because sex steroids regulate the distribution and growth of adipose tissue these environmental xenoestrogen exposure might play a special role in the obesity epidemic in the world.

#### Plenary session II. | 2009-10-02 18:00

A-0070

### IS THERE VALUE FOR LOW-GLYCAEMIC INDEX DIETS?

Arne Astrup

Department of Human Nutrition, Faculty of Life Sciences, University of Copenhagen, Copenhagen, Denmark

The term "glycemic index" refers to carbohydrate-rich foods ability to affect the change in blood glucose following food consumption, and GI is a value calculated by dividing the incremental area under the glucose response curve after consumption of a standard 50 gram portion of a test food by the area under the curve after consumption of an equal portion of a control substance (e.g., white bread or glucose). Carbohydrate containing foods are ranked in relation to glucose or white bread, which both have a GI of 100. Thus, foods with a GI between 0-55 are considered low GI foods (e.g., apple, beans), those with a GI of 70 or greater are considered high GI foods (e.g., corn flakes, potatoes), and those that fall between these two ranges are categorized as intermediate GI foods (e.g., raisins, boiled long grain rice). A variety of factors such as carbohydrate type, amount and type of fiber, degree of processing, cooking, storage, acidity, food structure, and macronutrient content affect GI. Glycemic load (GL) predicts the impact of a standard amount of carbohydrate (i.e., 50 gram portion) on blood glucose levels. GL is calculated by multiplying the GI value of a food by the amount of carbohydrate in a normal serving size (as opposed to as standard serving size). The product is then divided by 100. Some investigators believe that high GI foods or meals disrupt homeostatic mechanisms and spawn undesirable endocrine and metabolic responses such as hyperinsulinemia, hypoglycemia, increased hunger, and hyperphagia. More specifically, the high insulin-glucagon ratio (caused by the rapid spike in glucose from a high GI meal) causes metabolic processes to shift from oxidation toward nutrient storage, and blood sugar levels to drop below normal physiologic ranges. Together these effects are thought to increase hunger and result in weight gain.

However, clinical trials comparing low and high GI diets have not provided convincing evidence of any clinically relevant advantage of low GI diets for appetite and body weight control. The largest multicentre study to date, Diogenes, conducted in 773 adult over 6 months found that a low-GI versus high-GI diet resulted in a weight change difference of 1.2 kg. However, the low-GI diet seems to be confounded by higher contents of fibre, and whole grain foods, and recommending patients to select such foods may be a more feasible strategy for choosing the optimal carbohydrates for weight control.

In conclusion, studies suggest that individuals who follow an ad libitum low GI diet are more successful in losing and maintaining weight than those who adhere to a standard low-fat diet. However, it is unclear whether these effects are due to differences

between diets in GI or other aspects, and the GI concept is complicated to follow.

#### Oral session I. | 2009-10-02 14:00:

A-0124

### OVERWEIGHT AND OBESITY IN AN ITALIAN SCHOLAR AGE CHILDREN POPULATION

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Obesity in children represents a significant public health concern. Children's life-style has changed dramatically in the last four decades: increased consumption of high caloric foods, lack of physical activity have been identified as key issues in obesity development and related complications. In order to prevent the effects of obesity in adulthood early intervention in childhood is advisable. To evaluate the obesity prevalence in school children, a retrospective epidemiological study was conducted by the Italian Red Cross Committee of Bresso, a Northern Italy town (Milan, Lombardia) on 80% of the whole school children population from 2002 to 2008.

Body mass index (BMI, Kg/m<sup>2</sup>) was calculated by measuring weight (Kg) and stature (m) in 1243 children (682 male and 561 female) aged 9-15 years. Subjects were divided into three age groups: 9-10 years (group A, 188 male and 212 female), 13 years (group B, 345 male and 242 female), 14-15 years (group C, 125 male and 131 female) and classified as "under-weight", "normal-weight", "overweight", "obesity" according to clinical growth charts.

Results: Group A: underweight=4.2%; normal weight=67%; overweight=18.8%; obesity=10%  
Group B: underweight=1.8%; normal weight=72.5%; overweight=16.5%; obesity=9.2%

Group C: underweight=2.7%; normal weight=75.8%; overweight=14.8%; obesity=6.7%

Considering all the study population: underweight=2.9%; normal weight=71.8%; overweight=16.7%; obesity=8.6%.

Group A and group C subjects show no significant statistical differences between sex whereas in group B male obesity was significantly higher than female obesity (11.3% and 6% respectively, p= 0.04). A previous report conducted between 2000 to 2002 by Italian Health Ministry on a larger number of school children in Lombardia showed a 16.1% of overweight and 6.9% of obese subjects. Our findings partially agree with Italian Health Ministry data (about a quarter of school children are overweight

or obese) but highlight a slight increase in obesity prevalence in the younger groups. An early intervention on school children's life-style is mandatory to prevent adulthood obesity and related complications.

(INRAN "Sorveglianza ed educazione nutrizionale basata su dati locali per la prevenzione di malattie cronico-degenerative" anni 2000-2002)

**Oral session I. | 2009-10-02 14:00**

**A-0062**

**THE EVALUATION OF THE PHYSIC DEVELOPMENT AMONG THE SCHOOL AGES (6-21) YEARS OLD ,STUDIES OBJECT FOR THE NURSES IN COMMUNITY.2006-2009**

YLLKA BILUSHI\* - VASILIKA PRIFTI\* - ALEKSANDER LLANO\* - LEDION DAKA\* - LORETA KUNESHKA\*\* - LLUKAN RRUMBULLAKU\*\*

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**Aim.** The purpose of this study was to evaluate the body weight indicators among the (6-21) year old students in the district of Vlora, Albania in relation to gender, body, school type (private and public), school location (rural, city), family social status and nutrition habits.

**Material and methods.** The prospective study was conducted among 2641 randomly selected 6-21 year old students, living in the district of Vlora and frequenting city and rural district schools. 41.2 % were male and 58.8% female students. All students were properly instructed to fill in a detailed questionnaire. BMI (body mass index) as well as body weight and height were measured concomitantly.

**Results.** This study showed for the group age students had a normal weight 64.2 % of males compared with 68.9 % of females. Based on BMI classifications the overweight and obesity prevalence were more frequent in males than females. 29.3 %  $\pm$  3.9 % males and 13.2  $\pm$  1.14 females. In the opposite 16.6 % of female students were underweight compared with 2.3% of male students.

**Conclusion.** Our data showed that most of the students had a normal weight. This was more normal in females than males, and underweight students are more females than males, as the overweight and obese are more males than females. Overweight 15.4 % males compared with 8.7 % females, 1.4 % of males were obese compared with 0.6 % females.

**Oral session I. | 2009-10-02 14:00**

**A-0136**

**CHANGES OF GLUCOSE METABOLISM IN OBESE CHILDREN**

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**Introduction:** Pediatric obesity is associated with the development of cardiovascular risk factors including type 2 diabetes, hypertension, dyslipidemia and the metabolic syndrome. Obese children and adolescence seem to have increased risk to develop disturbed glucose metabolism. The prevalence of childhood obesity and type II diabetes has increased in last two decades. We found in our previous study that 70% of investigated obese children had insulin resistance, impaired glucose tolerance was presented in 25% of children.

**Patients and methods:** In 2007 we examined 237 obese children (109 girls and 128 boys, age groups: 5-10 years:59, 11-14 years:116, 15-18 years:60). We performed the anthropometric measurements (body mass index (BMI), measurements of body composition with multi-frequency segmental bioelectrical impedance analysis, abdominal ultrasound examination, 24h blood pressure monitoring, measurements of serum lipids and the 3h oral glucose tolerance test. In 51 cases we determined the serum insulin levels at 0, 30 and 120 minutes during the oral glucose tolerance tests.

**Results:** We diagnosed impaired glucose tolerance (IGT) in 5/51, impaired fasting glucose (IFG) in 1/51, metabolic syndrome in 4/51 children. Hyperinsulinism was found in 36/51 children. Obese children with increased serum insulin levels and without the presence of IGT according to WHO criteria, had serum glucose levels above the fasting value or decreased, sometimes hypoglycemic, at the 180th minute of the test. Comparing the groups of children with normal and increased insulin levels there were no significant differences in anthropometric values (abdominal circumference, body fat %, waist to hip ratio), serum lipid and C-reactive protein levels.

**Conclusion:** According to our results the hyperinsulinism and disturbed glucose metabolism showed increased prevalence in obese children. Several signs of insulin resistance and impaired glucose regulation might predict an increased risk for cardiovascular complications. Identifications of these obese children and early intervention (proper nutrition, increased physical activity) is important for prevention of cardiovascular diseases.

**Oral session I. | 2009-10-02 14:00**

**A-0126**

**RELATION BETWEEN THE OBESITY AND THE PERI- AND POSTOPERATIVE COMPLICATIONS IN A GROUP OF CHILDREN WITH SLEEP RELATED BREATHING DISORDER**

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**Objective:** The aim of the study to evaluate the frequency of complications during the surgery and 24-hours postoperative time in a group of obese and non-obese children with obstructive sleep apnea syndrome (OSAS).

**Design:** Retrospective analysis of 50 patients in the sleep laboratory of Heim Pal Children's Hospital, Budapest

**Patients:** 25 were non obese and 25 were obese of them (28 boys, 22 girls, 14 boys and 11 girls were obese, 15 boys and 10 girls were non obese) The mean age : 8,5 year.

**Methods:** After a thorough anamnesis every patients underwent an ENT examination included laryngofiberoscopy, a blood test, a multifrequency bioimpedance measurement and a polysomnographic study has been done finally. The parents completed a questionnaire. All of the children were operated with adenotonsillectomy. The evaluation is based on the postoperative observation datasheets including level of O2 saturation, heart rate and blood pressure.

**Results:** The count of the AHI (apnea-hypapnea index) and the desaturation have been higher in the group of the obese patients than the non-obese children in the same age during the polysomnographic study. 3 of 25 non-obese patient had some complication after the surgery (1 laryngospasm, 2 desaturation). In the obese group the number of complications were 9 (3 laryngospasm, 6 desaturation). The difference is significant ( $p < 0.05$ ).

**Conclusion:** The appearance of the OSAS is more severe in the cases with obesity than the others, and the postoperative complication rate is higher. The operated patients with obesity require closer observation than the non-obese group. They must be monitored during the first 24 hours in the postoperative period.

## Oral session I. | 2009-10-02 14:00

A-0137

**THE EFFECTS OF REGULAR PHYSICAL ACTIVITY WITH BALL FOR BODY COMPOSITION AND MOTOR PERFORMANCE IN 9-10 - YEARS OLD BOYS**

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\*\*\*Hungarian Association for Overweight and Obese

Background: On the reason of the lack of habitual physical activity the prevalence of childhood obesity has increased in Hungary during the past 2-3 decades. The determination of body fat in connection with co-morbidities has a world-wide attention recently.

Aim: The purpose of this longitudinal study was to analyze the change of the body composition and motor development on boys during observation –four months intervention period.

Methods: Healthy, 9-10-years-old volunteer boys, 9-years-old (n=168) and 10-years old (n=160) boys. We investigated them two times O1: observation in 2008 and O2: observation in 2009. The regular physical activity program includes exercise with ball as a motivating tool twenty minutes in each PE lessons. Height and weight were measured. Weight-related fat body percent (FBP), body fat mass (BFM), skeletal muscle mass (SMM) were estimated by InBody720 equipment. Moreover we measured running speed with a ball (correct attempt, sec.), (1), dynamic abdominal strength and endurance (summarized time of ten correct event, sec.), (2), soft coordination between foot and ball (number of correct attempt in 30 sec.) (3). Differences between the means were tested by two-tailed t-test for independent samples at  $p < 0.05$ , and analyzed by the type of Statistica for Windows 8.0.

Results:

	O1 (9-years-old)		O2 (9-years-old)		
	X	SD	X	SD	P
<b>BFM</b>	6.43	1.13	5.39	1.35	0.038
<b>FBP</b>	17.37	6.32	15.87	6.14	0.026
<b>SMM</b>	14.94	2.06	15.09	2.75	0.137
	O1 (10-years old)		O2 (10-years-old)		
<b>BFM</b>	6.26	2.01	6.07	1.94	0.367
<b>FBP</b>	13.92	4.25	13.89	4.71	0.423
<b>SMM</b>	16.43	2.92	17.02	3.62	0.021
	O1 (9-years-old)		O2 (9-years-old)		
<b>RSB</b>	4.14	0.51	4.07	0.68	0.405
<b>DASE</b>	46.74	16.45	39.52	9.60	0.023
<b>CFB</b>	15.19	3.71	17.00	5.40	0.050
	O1 (10-years-old)		O2 (10-years-old)		
<b>RSB</b>	3.95	0.65	4.17	1.57	0.161
<b>DASE</b>	46.15	15.79	37.87	8.16	0.012
<b>CFB</b>	15.40	3.70	17.57	5.60	0.032

The comparison of the mean of body composition and motor performance in the observed 9-10-years-old pupil groups

Abbreviations: O1=first observation, O2=second observation, BFM=body fat mass, FBP=fat body percent, SMM=skeletal muscle mass, RSB= running speed with a ball (correct attempt, sec.), DASE= dynamic abdominal strength and endurance (summarized time of ten correct event, sec.), CFB= coordination between foot and ball (number of correct attempt in 30 sec.).

Conclusions: The regular and adequate motivated physical activity (with ball) has good influence of body composition and motor ability of pupils. Physical education at school (4-5 sessions of 45 minutes per ten days) alone fails to provide a solution in this respect

Key words: body fat, InBody720 equipment, exercise with ball.

## Oral session II. | 2009-10-02 15:00

A-0021

**COMPARISON OF BODY MASS INDEX WITH ABDOMINAL OBESITY INDICATORS AND WAIST-TO-STATURE RATIO FOR PREDICTION OF TYPE 2 DIABETES: THE ISFAHAN DIABETES PREVENTION STUDY**

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Objectives. The aim of this study was to compare the ability of the body mass index (BMI), waist circumference (WC), waist-to-hip ratio (WHR) and waist-to-stature ratio (WSR) to predict progression to diabetes in non-diabetic first-degree relatives (FDR) of patients with type 2 diabetes.

Methods. A total of 704 non-diabetics FDR 20-70 years old in 2003 to 2005 were followed through 2008 for the occurrence of type 2 diabetes mellitus. At baseline and through follow-ups, participants were underwent a standard 75 g 2-h oral glucose tolerance test. Prediction of progression to type 2 diabetes was assessed with area under the receiver-operating characteristic (ROC) curves based upon measurement of BMI, WC, WHR and WSR.

Results. The incidence of type 2 diabetes was 3.4% per year in men and 4.9% in women. BMI, WC and WSR were related to diabetes. These three obesity indicators have similar associations with incident diabetes. Areas under the ROC curves were 0.625 for BMI, 0.620 for WC, 0.611 for WSR and 0.538 for WHR.

Conclusions. These data indicate that BMI was as strong as WC or WSR in predicting progression to diabetes.

## Oral session II. | 2009-10-02 15:00

A-0112

**THE DINAMICITY OF WEIGHT GAIN IN OBESE, DIABETIC AND HYPERTENSIVE PATIENTS**

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Department of Family and Occupational Medicine

Background: The components of the metabolic syndrome develop gradually; some of them are mostly undetected, others are measured in medical setting, however body weight and height are regularly checked by individuals.

The aim of the study is to analyse the life-long and self-recorded data of patients on their body weight and to compare them regarding obesity, diabetes and hypertension.

Methods: The subjects of the study were 354 elderly people (159 men and 195 women), over 60y, consecutive selected, in primary care setting. As part of a lifestyle questionnaire, retrospective questions on self recorded body weight and height from 20y up to the present, in each life decade were asked.

Results: People recently in the normal body mass range acquired 4 kg, overweight 16 kg, and obese 22 kg from baseline.

– people with high excess body weight were already heavier in their youth,

– hypertensive men had also higher weight in their youth,

– women with normal blood pressure reported a balanced weight gain, while hypertensive females acquired 1.5 times higher weight during their lives,

– diabetic women had lower body weight in their youth, but they gained significantly more weight in their fourth and fifth decades

– the weight gains in the last decades prior to the diagnoses were higher in both genders with diabetes and in women with hypertension

– men without diabetes reported a constant weight gain and a decrease about their sixties, -women without diabetes had a more balanced body weight increase as well,

Actual means of body weights were 74.0 ( $\pm 13.9$ ) kg by men and 71.7 ( $\pm 14.4$ ) kg by women. There were 15 men and 21 women diagnosed as hypertensive and diabetic as well. The average age of diagnosis for hypertension were 59.9y ( $\pm 8.5$ ) by men and 57.3y ( $\pm 9.5$ ) by women, for diabetes were 62.3y ( $\pm 9.2$ ) and 60.3y ( $\pm 8.5$ ), respectively.

Conclusions: It seems that stability in body weight or at least only limited and slow continuous weight gain is a preventive factor against some components of the metabolic syndrome.

Considering the theoretical and practical limitations of the study, further evaluation is suggested within a wider study population, with more frequent and reliable data recording, international cooperation and comparison.

Authors of this pilot study welcome all possible contributors for this survey planned in the near fu-

ture.

Oral session II. | 2009-10-02 15:00

A-0116

### CENTRAL ADIPOSITY AND CARDIOVASCULAR COMPLICATION- IS THERE A MATTER OF TIME?

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**Introduction:** Cardiometabolic risk meets together in a pathological way cardiovascular disease and diabetes with its complications. **Cases and methods:** We studied a sample of population, 459 cases, transversal, randomized, during 2004-2005, selected from 4500 patients consulted. We were looking for metabolic syndrome elements, especially central adiposity, and its correlation with CV diseases already installed, following the decades of age. The same correlation was made with metabolic disturbances, especially glycoregulation abnormalities and diabetes.

**Results:** Prevalence of glucose impaired metabolism and diabetes were correlated with central adiposity (32%,  $p < 0.001$ ) and dyslipidemias (27%,  $p < 0.03$ ). The decadal evolution curves of prevalences point out a divergent shape for diabetes and cardiovascular diseases, after 40-49 years, but curves are ascendent with aging for abdominal obesity (maximum 58%), obesity - BMI (maximum 72%) și CVD (38 - 55%).

**Conclusions:** The metabolic syndrome finds out keep its value on general analysis and quantification of risk factors for CVD and the individual risk. Central adiposity is the starting elements and diabetes, glycoregulation disturbances and cardiovascular diseases are the end point of MetS (metabolic syndrome) diagnosis. There are a lot of limits in general practice linked of costs and organizing structures. We need better instruments for early diagnosis of metabolic syndrome in primary practice. **Key words:** MetS, early diagnosis, prevalence of risk factors.

Oral session II. | 2009-10-02 15:00

A-0125

### OXIDATIVE STATUS IN OBESITY: ROLE OF DIABETES

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The increasing incidence of obesity has contributed to the onset of the disease cluster known as metabolic syndrome, particularly insulin resistance and type 2 diabetes. Obesity is associated with cellular stress and inflammation which are involved in endothelial dysfunction and may play a role in pathogenesis of diabetes.

**Aim:** To evaluate the involvement of oxidative stress in diabetes complication associated with obesity by measuring oxidised-LDL (oxLDL) levels, a new biochemical risk marker for coronary heart disease, together with oxidative status and lipid panel.

**Subjects and Methods:** Fifty-five obese subjects (17 male and 38 female; mean age  $46.9 \pm 8.7$  years; mean BMI  $35.21 \pm 5.41$  Kg/m<sup>2</sup>) were evaluated for routine lipid parameters, oxLDL (competitive ELISA method, Mercodia, Sweden;  $< 70$  U/L), Reactive Oxygen Species concentrations (ROS, 250-300 U/carr) and Total Antioxidant Capacity (TAC,  $> 10$  molHClO/mL) by spectrophotometric method (Diacron International, m350 Italy). Based on glycemic status, obese subjects were divided into four groups matched for sex, age and BMI: A (n=23, normal fasting blood glucose), B (n=14, impaired fasting blood glucose), C (n=9, impaired glucose tolerance), D (n=9, diabetes). Statistical analysis was performed by R system.

Results are reported as mean  $\pm$  SD.

Group A: oxLDL=99.19 $\pm$ 23.75; ROS=415.8 $\pm$ 78.8; TAC=422.0 $\pm$ 60.5.

Group B: oxLDL=102.32 $\pm$ 20.09; ROS=410.4 $\pm$ 117.0; TAC=435.3 $\pm$ 38.0.

Group C: oxLDL=102.5 $\pm$ 26.05; ROS=396.4 $\pm$ 83.7; TAC=426.4 $\pm$ 51.1.

Group D: oxLDL=98.28 $\pm$ 15.9; ROS=409.2 $\pm$ 147.7; TAC=428.4 $\pm$ 92.7.

Interestingly, oxLDL and ROS concentrations were higher than relevant reference values in most of the subjects (91% and 83%, respectively), while TAC was decreased only in 10% of cases. Moreover, oxLDL concentrations correlated significantly ( $p < 0.0001$ ;  $r = 0.6$ ) only with the levels of lipid panel parameters (LDL- and total-cholesterol). No significant differences were found between groups for any parameter evaluated.

**Conclusion:** Our obese subjects showed a con-

dition of oxidative stress due to elevated ROS concentrations. In spite of the generally adequate TAC, elevated oxLDL concentrations in most of subjects indicated lipid peroxidation, more advanced in the cases of more serious dyslipidemia. Moreover, our results showed that obesity "per se" rather than diabetes is the most important determinant in oxidative status alterations.

\* Roberts CK, Sindhu KK. Oxidative stress and metabolic syndrome. Life Sci 2009;84:705-12.

Oral session II. | 2009-10-02 15:00

A-0012

### OBESITY AND INCREASING PREVALENCE OF METABOLIC SYNDROME AMONG EGYPTIAN ADOLESCENTS

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**Objectives:** No report exists regarding the prevalence of the metabolic syndrome in children & adolescents in Egypt. The aim of the study is to determine and evaluate the prevalence and distribution of the metabolic syndrome among Egyptian adolescents, estimate its risk factors and examine the association between the presence of the syndrome and homeostasis model assessment of insulin resistance (HOMA-IR) levels.

**Design:** A multilevel study of 4252 adolescents representative of Egyptian preparatory and secondary school students with age ranged from 10 - 18 years from 7 governorates, derived from recent National Egyptian survey, about Diet, Nutrition & prevention of chronic non-communicable diseases among adolescents. The criteria for the metabolic syndrome in adults developed by the National Cholesterol Education Program, with modified cutoff values for children and adolescents were used.

**Results:** Nationwide prevalence of metabolic syndrome among adolescents is 7.4% with no sex predilection. Urban residence and Giza had highest figures. More than one third of obese adolescents met the criteria for metabolic syndrome and furthermore, the remaining two-thirds had at least one metabolic abnormality. More than 50% of the affected consume  $> 10\%$  of their total caloric intake from saturated fat and about two-thirds of the affected students did not participate in regular sports. The risk of having MetS features had increased to more than 1.5 times in the presence of positive family history of obesity and increased to the double in the presence of diastolic blood pressure. Also, this study showed that diastolic blood pressure and BMI are considered the most sensitive indicator for the existence of MetS features.

**Conclusion:** The prevalence of the metabolic syndrome among Egyptian children and adolescents according to various definitions is considered high and the likelihood of being classified with metabolic

syndrome increased with higher insulin and HOMA-IR values. Healthy life style and early detection of adolescents having the tendency for metabolic syndrome might hold promise for enhanced prevention of cardiovascular disease.

Keywords: Prevalence - Metabolic - Insulin - Syndrome - Adolescents

**Oral session III. | 2009-10-02 16:20**

**A-0114**

**OBESITY OF AGING AND AGE-RELATED ALTERATIONS IN THE RESPONSIVITY OF THE CENTRAL MELANOCORTIN SYSTEM**

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Aims: Aging obesity involves two characteristic trends: significant body weight (BW) gain of middle-aged subjects, followed by anorexia of the old populations with sarcopenic obesity. Non-obese individuals are predisposed to cachexia/sarcopenia. Alterations in peripheral/central mediators of energy metabolism partly explain these population-wide trends in BW regulation. The hypothalamic melanocortin system and its endogenous agonist alpha-MSH are reportedly catabolic: suppressing food intake (FI), increasing metabolic rate, thereby decreasing BW. The present study aimed to investigate if changes in responsiveness to alpha-MSH may have any role in the age-related changes of BW regulation.

Subjects: 1.5, 3-4, 6, 12, 18, 24-months-old male Wistar rats, following 24-h fasting in acute (but not chronic) experiments.

Methods: After acute intracerebroventricular injections (5µg) of alpha-MSH, FI was recorded in a Feedscale system (Columbus) for 180-min. During 7-day-long infusions (1 µg/h, Alzet minipump) parameters of energy balance were observed in a biotelemetric system (VitalView, MiniMitter): body temperature (Tc), spontaneous activity, heart rate (HR, representing metabolic rate), frequency/duration of feeding (FF/FD). Daily FI was measured manually, together with BW. ANOVA repeated measures and one-way ANOVA with Scheffe's post hoc test were used for statistical analysis.

Results: The acute anorexigenic effect of intracerebroventricular alpha-MSH was minimal at 1.5-months (juvenile), very pronounced in 3-4 months-old (young adult), then markedly decreased in middle-aged rats, to become maximal in the oldest groups. Infusions induced transient anorexia and BW fall at 3-4-months, while 24-months-old rats exhibited sustained and pronounced falls in FI and BW. FF/FD fell similarly in different groups (lower levels in old). In old rats more pronounced and lasting elevations in HR were observed, and similar rises in

daytime Tc minima as in the young group.

Conclusions: Sensitivity of the central melanocortin system shows age-related alterations. The catabolic effects of alpha-MSH differed depending on age: on the one hand, the pronounced effect in the young adult group gradually decreased, which might contribute to the explanation of obesity in middle-aged subjects, on the other hand the catabolic effect reached again a peak in old animals, possibly contributing to the explanation of sarcopenia and sarcopenic obesity of aged subjects. (OTKA 49321)

**Oral session III. | 2009-10-02 16:20**

**A-0050**

**THE INFLUENCE OF BODY MASS INDEX ON LIPID PROFILE, BMD AND OSTEOPROTEGERIN LEVELS IN POSTMENOPAUSAL WOMEN WITH CARDIOVASCULAR DISEASES**

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Objectives. Menopause may cause development of dyslipidemias, obesity, atherosclerosis and decrease in the BMD etc. We examined the relationship between the body mass index (BMI, kg/m<sup>2</sup>), lipid profile, BMD (by ultrasonic densitometry), serum osteoprotegerin (OPG), C-terminale polypeptide CrossLaps (CTP), Osteocalcine (OK) (by ELISA method) in postmenopausal women with cardiovascular diseases.

Materials and methods. 319 women aged 45 to 82 (average age is 63,5±5,9) in a postmenopausal period lasting an average of 12,1±7,7 years were observed. 98 of them were subdivided into groups based on body mass index: Patients of I group (n=31) had a BMI up to 24,9; Patients of II group (n=33) had a BMI 25-28,9; Patients of III group(n=34) had a BMI >29 .

Results. A tendency towards an increase in the levels of Triglycerides, Cholesterol and decrease in HDL levels and a considerable increase of LDC levels were observed in patients with an increased BMI. During determination of BMD tendency towards a decrease in T-score deviation, no difference in levels of C-terminal polypeptide CrossLaps, very significant decrease of Osteocalcine were revealed in groups II and III compared to group I. A more pronounced decrease of OPG levels in groups II and III compared to group I were noted. BMI had a negative correlation with HDL (r= -0,23; p<0,05), OPG (r= -0,4; p<0,05), and Osteocalcine (r= -0,41; p<0,05).

Conclusion. The original observation suggested that oxidized lipids might cause inhibition of osteoblastic differentiation. Decrease of OPG levels, especially among the obese, may explain the reduced

osteoprotective function of RANK-L system, development of metabolic syndrome and its negative influence on BMD and can play an important role in the pathogenesis of atherosclerosis and osteoporosis.

**Oral session III. | 2009-10-02 16:20**

**A-0011**

**INFLAMMATION CYTOKINES IN PATIENTS WITH OBESITY AND METABOLIC SYNDROME**

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Background: Obesity is one of the key clinical symptoms of metabolic syndrome. It is characterized by system inflammation reaction and production of various mediators.

Aim: Survey of TNF-α, IL-1 and IL-6 levels in patients with obesity and metabolic syndrome  
Objective and methods: 58 patients with obesity and metabolic syndrome were surveyed at age from 35 to 62 years. There were 46 females and 12 males. 14 patients (18, 3%) had 1 degree obesity, 20 patients (40,7%) had 2 degree obesity and 24 patients (41,0%) had 3 degree obesity. Levels TNF-α, IL-1 and IL-6 in blood serum were examined by immune ferment method (ELISA) using Biosource International test system (USA). 10 patients without obesity were in control group.

Results: Increase in TNF-α, IL-1 and IL-6 levels was established with patients diagnosed with metabolic syndrome who had 2 and 3 degree obesity (10,21±0,1pg/ml, 8,6± 0,8pg/ml, 46,5 ± 0,4pg/ml, 28,6 ±0,2pg/ml, 32,6 ± 0,4pg/ml, 96,4 ± 0,9pg/ml , 3,0 ± 1,13pg/ml, 4,1 ±0,34pg/ml, 32,3 ± 0,4pg/ml control group - healthy people). Patients with 1 degree obesity had results which are not different from those of healthy people (4,6± 0,4pg/ml, 6,2 ±0,6pg/ml, 36,3 ±0,3pg/ml).

Conclusion: The results assume secretion of inflammation cytokines by adipose tissue in patients with obesity and metabolic syndrome.

Oral session III. | 2009-10-02 16:20

A-0017

### THE ROLE OF NUTRITIONAL EDUCATION IN THE MANAGEMENT OF OBESE ADOLESCENTS

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Department of Management and Public Health (O.O. Duma)

**Aim:** To analyze the response of a group of adolescents to a therapy program based on nutritional education, auto-management and intensive follow-up. **Subjects:** 52 obese adolescents (26 boys, 26 girls) were included in a management program and follow-up for a period of 2 years.

**Methods:** The following data were registered: body mass index (BMI) in the first visit and in each control, lipid profile, the therapeutic response at 6, 12 and 24 months of follow-up. The diet recommended endorsed to change food habits or behavior (eating 3 regular meals, eliminating snacks and high-sugar drinks from the house, reducing fats, eating different vegetables and fruits several times a day). They also realized a food diary.

**Results:** The average age was 14 years and 5 months. Average basal % BMI was 34,8, being significant higher in girls (35,8 vs 33,2). Investigation of the lipid profile at the start of the study showed: hyperlipemia - 13 cases (25%), hypertriglyceridemia - 9 cases (17,30%), low HDL-cholesterol - 4 cases (7,69%). The drop-out rate was 13,46% (5 boys, 2 girls). Under diet there was a progressive decrease from basal %BMI that was statistically significant from 18 months of follow-up. After 12 and 24 months of follow-up, 8 (33,33%) of girls, respectively 20 (60,60%) and 7 (33,33%) of boys, respectively 15 (71,42%) had mild improvement. At 24 months of follow-up, the rate of failure was higher in girls rather than boys (39,40% vs 28,58%). Height growth was normal independently of gender or therapeutic response. The implemented dietary treatment had a significant impact on improvement of lipids metabolism, as well as on the decreasing of adipose tissue on the abdomen and arms.

**Conclusions:** Dietary treatment with quality and quantity changes contributed to an improvement of obesity in adolescents who respected our indications. It is necessary to improve the nutritional knowledge of the adolescents and their families. **References:** Weker H. Simple obesity in children. A study on the role of nutritional factors. *Med Wieku Rozwoj* 2006;10(1):3-191.

Oral session III. | 2009-10-02 16:20

A-0027

### STUDY OF ADOLESCENTS' BODY WEIGHT CONTROL IN LIGHT OF THEIR SPORTS ACTIVITY

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**Abstract:** The increase of overweight children in the European Union is 1.3 million per year, among whom approximately 300.000 would become obese. 12-19-year-old American adolescents may be viewed as overweight. Due to dissatisfaction with body weight, efforts to loose weight are frequent which may even lead to pathological dietary behaviors. In an English study, among the participants of 2789 adolescents, 42% of the girls and 26% of the boys were actually on a diet. The regular, heavy physical activity may play a role in the optimalisation of body weight not only because of the elevated energy use but also due to a greater health consciousness and a more active monitoring tendency that are characteristic of the dietary habits of young athletes. Based on previous facts, a question may arise: how heavy physical activity, and competitive sports, may have an influence on adolescents' body weight control? Study was going on in 2007, with altogether 347 participants, among whom 91 were athletes and 259 belonged to the control group. In both cases, self-administered questionnaire was used as a method of data collection. After investigating the adolescents' body weight control, we may detect that dissatisfaction with body weight, dieting frequencies, and their diet control attitude regarding eating a healthy food are more common among the adolescent girls as compared to boys. This strong gender difference could be changed by the presence of sport only in cases of diet control directed toward healthy food: male athletes and their friends are significantly more aware of the healthfulness of their food intake than their nonathlete counterparts. Therefore, their attitude became similar to ones of female athletes and nonathletes who did not really differ.

**Keywords:** adolescence, sport, nutrition, body weight control

Oral session III. | 2009-10-02 16:20

A-0149

### URIC ACID, OBESITY AND CARDIOMETABOLIC RISK

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Obesity is strongly associated with Type 2 diabetes mellitus and more than 80 percent of cases of type 2 diabetes can be attributed to obesity. Inflammation and consequently endothelial dysfunction may play a role in the pathogenesis of diabetes, suggesting that several serum markers may identify patients at risk of developing the disease. Increased uric acid is generally associated with important risk factors for atherosclerosis like hypertension, abdominal obesity, and insulin resistance. Several studies have clearly shown an association among hyperuricemia and oxidative stress, endothelial dysfunction, and subclinical atherosclerosis.

**AIM:** To evaluate the role of uric acid and other serum markers of cardiovascular risk in uncomplicated obesity.

**METHODS:** we studied 358 subjects (305 women and 53 men, age range 19-76 yrs) with obesity from class I to class III, 22 patients were excluded for diabetes type 2 diabetes mellitus, during the first outpatient evaluation and during the follow-up in the Department of Occupational Health Obesity and Work Outpatient Clinic.

**RESULTS:** At baseline, (data are expressed as mean  $\pm$  SD) uric acid ( $4.80 \pm 1.56$  mg/dl), homocystein ( $10.38 \pm 4.44$   $\mu$ mol/l), fibrinogen ( $365.27 \pm 112.23$  mg/dl), hsCRP ( $0.72 \pm 2.23$  mg/dl), SHBG ( $41.70 \pm 47.69$  nmol/l), Insulin ( $14.82 \pm 12.03$  uIU/ml); Tests were performed with standard detection methods, using Modular (ROCHE) instruments.

Statistical analysis performed with Pearson Correlation showed: serum uric acid positively related to plasma homocystein ( $r=0.21$ ;  $p<0.0001$ ) and insulin ( $r=0.31$ ;  $p<0.0001$ ) and negatively related to sex hormone binding globulin (SHBG) ( $r=-0.19$ ;  $p=0.0001$ ); moreover, plasma insulin negatively related to SHBG ( $r=-0.12$ ;  $p=0.01$ ). Obviously, PCR and fibrinogen positively related (coeff.  $0.32$   $p>0.0001$ )

**CONCLUSIONS:** These preliminary data suggest that uric acid may be linked to cardiometabolic risk in obese patients because its serum concentrations was related to hyperhomocysteinemia and insulin resistance, well-known markers associated with an increased risk of type 2 diabetes and cardiovascular diseases. The results from follow-up evaluation to investigate the effects of weight reduction, while monitoring concomitant changes in parameters of oxidative stress and inflammation, are warranted.

Feig DI, Kang DH, Johnson RJ. Uric acid and cardiovascular risk. *N Engl J Med* 359:1811, October 23, 2008

**Oral session III. | 2009-10-02 16:20**

**A-0152**

**RESPIRATORY FUNCTION IN OBESE WORKERS**

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**Introduction:** Obesity is a well know risk factor for cardiovascular diseases, but it affects also respiratory function. Obesity is in fact related to restrictive pulmonary disease (because of fat distribution that increase abdominal pressure on the diaphragm) and, according to new studies, with a high incidence of obstructive syndrome.

**Aim of the study:** To evaluate possible pulmonary function alterations in a group of consecutive overweight-obese workers admitted at the outpatients clinic Obesity and Work centre of the "Clinica del Lavoro L. Devoto" of the Policlinico Hospital in Milan between 2006 and 2008.

**Methods:** We measured Basal spirometry, Total Lung Capacity (TLC), and Residual Volume (RV) using a Ganshorn SanoScope LF8 Impulse Oscilometer. We evaluated the relationship between respiratory function indices (observed/predicted) and BMI using a multiple regression model adjusted for age, gender, and smoking habit.

**Results:** We tested 294 subjects (219 women, 75 men), with mean age 44.4 years  $\pm$ 11.8 and BMI 34.06  $\pm$  6.14. We found 6 restrictive pulmonary diseases (3 men, 3 women): 1 (3.8%) among 26 patients with BMI 25-29.9, 2 (5.1%) among 39 patients with BMI 30-34.9; 1 (5.2%) among 19 patients with BMI 35-39.9; 2 (12.5%) out of 16 patients with BMI >40. The respiratory function tests also showed 30 cases (11 men, 19 women) of obstructive pulmonary diseases out of 294 (10.2%): 8 were smokers, 8 for-

mer smokers, and 14 (4.8%) never smokers. Never smoker obstructive patients had no occupational exposure to fumes, dusts or gases. Among them, 1 had asthmatic broncho-pneumopathy, 1 was an atopic subject, and 8, with no signs of other pulmonary disease, presented anamnestic or clinical signs of gastroesophageal reflux disease (GERD): at the Carlsson Dent questionnaire 4 of them have a index over 7 (high probability of GERD).

**Conclusion:** We found a few restrictive pulmonary diseases, with the greatest frequency (although numbers were very low) among very important obese patients (BMI>35). There was an adjusted 0.4% (p=0.04) decrease of the Forced Expiratory Volume in one second (FEV1) for each BMI unit increase. Interestingly, the frequency of obstructive pulmonary diseases was high (10.2%). According to recent studies, this may be due to an increase of incidence of GERD-related asthma-like obstruction in overweight-obese patients, meritable of further studies.

Chen Y et al. Atopy, obesity, and asthma in adults, the Humboldt study. *J Agromedicine* 2009; 14:222-7

Gaude GS. Pulmonary manifestations of gastroesophageal reflux disease. *Ann Thorac Med* 2009;4: 115-23

**Oral session III. | 2009-10-02 16:20**

**A-0154**

**ALLELE FREQUENCY DISTRIBUTION DATA FOR D12S1632, D12S329, D12S96 IN FOUR ETHNIC GROUPS IN RELATION WITH METABOLIC SYNDROME: TEHRAN LIPID AND GLUCOSE STUDY**

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Variation in drugs resistance and susceptibility to special disease may relate to the different allele frequencies of the variants at population level. This study analyzed the allele frequency of 5 STRs loci including D12S1632, D12S329, D12S96 on a representative sample of 563 individuals from Tehran from four different ethnic groups in Iran. In this sample, 130 individuals were affected with metabolic syndrome. Allele frequency, PIC values, observed and expected heterozygosity, discrimination power, matching probability, power of discrimination, power of exclusion and paternity index were calcu-

lated for the whole sample. No significant deviation in observed allelic frequencies from Hardy-Weinberg equilibrium was found for all the studied markers except for D12S1632 and D12S329. In subjects, who were affected with metabolic syndrome, the long alleles were significantly more frequent in D12S329 (p<0.05). The most significant findings of this study is reporting allele frequency of some STRs in chromosome 12 for the first time in Iran, and observed differences between subjects affected with metabolic syndrome as opposed to subjects in the control group.

**Oral session III. | 2009-10-02 16:20**

**A-0059**

**PHARMACEUTICAL QUALITY OF GENERIC ORLISTAT PRODUCTS COMPARED WITH XENICAL**

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**Objective:** To compare the pharmaceutical quality of synthetically produced orlistat (Xenical®, Roche, Switzerland) with ten generic products, each produced by fermentation processes. Orlistat is a potent inhibitor of gastrointestinal lipases. This inhibition prevents absorption of up to one-third of all dietary fat and can promote and maintain weight loss in obese patients. The physiochemical properties of orlistat, which pose manufacturing, packaging and storage difficulties, have been overcome in Xenical® by use of a granular spheroid formulation that includes desiccants and a disintegrant resulting in highly pure product with a three year shelf life.

**Materials:** 120 mg Xenical® capsules were used as reference material. Generic products (all 120 mg capsules) included: Cobese (Ranbaxy, India), Cuvaryl (Pharmaniago, Malaysia), Fingras (Phoenix, Argentina), Lesofat (InnoGen, Phillipines), Obelit (Intas, India), Orlistat (Lab. de Manipulacao, Brazil), Xeniplus (Elea, Argentina), Xiluet (Servimedica, Uruguay), Ximplex (Craveri, Argentina), Zerocal (Weidar, Taiwan).

**Methods:** Colour, odour, crystalline form, particle size, dissolution rate, capsule fill mass, Active Pharmaceutical Ingredient (API) content and amount of impurities were compared by using eight standard physical and chemical laboratory tests that were developed by Roche and accepted by regulatory authorities as part of the Xenical® registration documentation.

Results: Each of the generic products contained at least 7 impurities (range 7 to 14), each above the limit set at 0.05%. All of the generic products failed the Xenical® specification for maximum allowable amounts of organic impurities (range 0.9% to 4.6%) which included side chain homologues (range 0.8% to 2.4%), degradation products (range 0.1% to 1.95%) and unidentified impurities (range 0.1% to 1.5%). Only two of the generic products tested fully complied with dissolution rate requirement. Six generic products were powder formulations within the capsules, including Cuvarlix® which formed a capsule-shaped tablet on storage and resulted in poor (<20%) dissolution. All generic products failed to comply with Xenical® specifications in three or more tests. Seven generics failed five or more tests.

Conclusions: All of the fermentatively manufactured generic orlistat products tested were pharmaceutically inferior to Xenical® in at least two of eight standard tests, including maximum impurity limits. The high levels of impurities in generic orlistat products are a major safety and tolerability concern.

**Plenary session III. | 2009-10-03 08:15**

**A-0071**

**VIRUSES AND THE WORLDWIDE EPIDEMIC OF OBESITY: AN UPDATE**

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The global prevalence of obesity began to increase dramatically starting about 1980. In the USA, the prevalence of obesity (BMI > 30 kg/m<sup>2</sup>) increased from 15% to 31% from 1980 to 2000. Across the world, obesity increased regardless of economic or educational status, but the geographic pattern was irregular. The pattern of rapid spread cannot be due to genetic changes and fits best with an environmental agent such as an infectious disease or worldwide pollutant. Eight viruses have been shown to increase adiposity in animals. Human adenoviruses are of particular interest and human adenovirus-36 (Ad-36), Ad-37, and Ad-5 have been shown to cause obesity in animals. Ad-36 is best studied and experimental infection results in increased adiposity and a paradoxical reduction in serum cholesterol and triglycerides in chickens, mice, rats, and non-human primates. The presence of antibodies to Ad-36 is evidence of past infection because the antibodies do not cross-react with other known human adenoviruses. Presence of Ad-36 DNA in tissues also is direct evidence of past infection. About 30% of obese humans and 11% of non-obese humans in the USA have been infected with Ad-36. Obese Korean children also had a 30% prevalence of Ad-36 infections. Adult humans with Ad-36 infection were 9 BMI units heavier (~25 kg) and had markedly lower serum cholesterol and triglycerides, similar to the pattern seen in animals. Korean children had a higher BMI

z-score, but cholesterol and triglycerides tended to be higher, not lower. In a small number of discordant twin pairs, the infected twins were significantly heavier and fatter than their co-twins. Two other human adenoviruses (Ad-2, Ad-31) were not correlated with obesity in humans or animals. Spontaneous (natural) infection with Ad-36 occurs in multiple species of animals including domestic pets (dogs and cats), horses, cows, rabbits, and chickens. Laboratory animals have a particularly high level of unsuspected Ad-36 infection and the virus alters experimental results, in some cases drastically. Billions of dollars of research in experimental animals is in question due to unsuspected Ad-36 infection in laboratory animals. The mechanisms of obesity with Ad-36 appear to be a direct effect on adipose tissue to alter intracellular metabolism, particularly glucose and lipid metabolism. Ad-36 DNA has been found in multiple tissues of infected animals and in human adipose tissue. Ad-36 in tissue culture alters leptin, lipoprotein lipase, multiple lipogenic enzymes, and PPAR-gamma. Glucose transporters are increased in infected cells, particularly Glut 4, and non-insulin dependent glucose transport into cells is increased. The E4orf1 gene of Ad-36 is responsible for most of the effects of the virus. When the E4orf1 gene was deleted or blocked with siRNA, the lipogenic effects were blocked. When the E4orf1 gene was cut from Ad-36, inserted into a lentivirus, and transfected into preadipocytes in vitro, this reproduced the lipogenic effects of the virus. It seems likely that Ad-36 and perhaps other lipogenic viruses have contributed to the worldwide epidemic of obesity.

**Review session III. | 2009-10-03 09:00**

**A-0057**

**BASIC PRINCIPLES AND OUTCOMES OF BARIATRIC TREATMENT OF MORBID OBESITY**

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The prevalence of obesity has reached dimension of global epidemics. In Europe is reported in the range of 10-20% in men and 15-25% in women.

Overweight and obesity play a crucial role in the development of type 2 diabetes, other metabolic and non-metabolic obesity-related diseases, impairs quality of life (QoL) and reduces life expectancy.

Mortality attributable to excess weight is a serious public health problem in Europe. Premature mortality increases with increasing BMI. Relative risk of death at the age of 50 years among men and women with BMI ≥ 40 kg/m<sup>2</sup> who had never smoked is 3.82 and 3.79, respectively. Among severely obese young men, mortality rate is 12 times that of young normal weight men.

Multi-disciplinary, scientific medical approach is

one of the key long-term success factors. Such care should be ideally concentrated to obesity Centres of excellence

However, it is widely accepted that bariatric surgery has proved to be the most (and the only) effective in treatment of morbidly obese patients (BMI > 35).

Interdisciplinary European Guidelines on Surgery of Morbid Obesity were adopted throughout Europe covering important questions of standardized obesity management. Among other criteria, the patient should be selected according to Body Mass Index (BMI) > 35 with serious co-morbidities, or BMI > 40 even without them. BMI criterion may be current BMI or a documented previous BMI of this severity.

The basic surgical approaches to obesity are: -Gastric restrictive / food limitation procedures (i.e. gastric banding), which mechanically limit (restrict) the amount of food patient able to eat at a time -Operations limiting absorption of nutrients / "energy" (i.e. biliopancreatic diversion)

- Combined procedures (i.e. distal gastric bypass) / operations blending features of both of the previous

Bariatric surgery carries low risks and is significantly beneficial. It substantially improves and/or resolves serious metabolic disorders (such as Type 2 Diabetes, and others) in more than 85% of obese patients.

Recent long-term studies show, that there is a substantial reduction in mortality after bariatric surgery, as well as decreased risk of developing new obesity-related co-morbidities, decreased health-care utilization and decreased direct health-care costs.

**Review session III. | 2009-10-03 09:00**

**A-0096**

**DEVELOPING A PAN-EUROPEAN CAMPAIGN TO TACKLE OBESITY: THE CASE FOR A NEW STAKEHOLDER NETWORK**

Neville Rigby

*European Network on Overweight and Obesity*

*EU Réseau Européen sur le Surpoids et l'obésité (EURES0)*

It is important when assessing where we are today in the field of obesity in Europe, to look back at where we started, and reflect on what has been achieved since then. Ten years ago, the 9th European Congress on Obesity in Milan, adopted a declaration pledging support for a call to action on obesity. At the time the issue was not yet centre stage in public health thinking, let alone the wider health policy arena.

Milan was a milestone - if not the foundation stone - for many of the health profession's efforts to create a new level of awareness in Europe and it created the resolve to achieve take more meaningful steps to halt the rising obesity epidemic. The political wheels began to turn slowly as the issue of

obesity was drawn into the labyrinth of European politics in Brussels with a wider European impetus emanating from WHO in Copenhagen (and Geneva).

The European Council - the meeting of ministers from all EU member states - first expressed concern about the problem of obesity in European at the end of 2000. Subsequently the Council regularly - if not annually - adopted resolutions touching on obesity. In 2005, the year after the World Health Assembly adopted the WHO's Global Strategy on Diet and Physical Activity, the embryonic EU obesity round table transformed into the Platform for Action on Diet and Physical Activity, which provided a closed forum in which the food and beverage industry could debate with health NGOs and other stakeholders but more importantly could showcase their own actions the steps they were taking to help.

We witnessed a major landmark in 2006 - the European Charter on Counteracting Obesity - adopted by the whole of Europe's health ministers, and not just the EU. With much emphasis on prevention policies, it was significant that a lone voice at the Istanbul Conference - an East European voice too - spoke up for the forgotten issue - the treatment of obese patients themselves. Even though the EU unveiled its Obesity Prevention White Paper in 2007 and WHO adopted its WHO European Action Plan for Food and Nutrition Policy later the same year, the challenge voiced by Professor Vojtech Hainer, then president of EASO, 'not to forget the obese patient' remains just as valid and vital today.

It is important that the widest range of 'stakeholders' should be engaged in the battle to halt the obesity epidemic, and the challenge must be addressed across the entire policy arena to reshape the social and economic environment to be more conducive to maintaining healthy weight. But it should be a major concern that so little attention is being given to the health and social strategies needed for Europe to address the reality of obesity affecting perhaps one in four adults.

The obese - who perhaps number as many at 65 million across the EU - are effectively denied a voice. Reflecting the degree of hidden discrimination and stigmatisation that remains embedded, the interests of the obese are often ignored while the resounding 'health message' conveys the prejudicial misjudgement that the obese have 'only themselves to blame'.

We need to overcome the institutional barriers as well as public (and professional) ignorance about obesity. We need to demand that the obese are treated with respect and that their needs within our health systems are properly addressed. This is why it is important to engage everyone in supporting a European network on overweight and obesity, and looking to the immediate future, seize the opportunity to support the establishment of European Obesity Day on May 16 2010.

Not only do we need to create a wide-ranging forum in which the voices of all stakeholders, including obese patients themselves, can be listened to,

and a communications focal point - a dynamic nexus for rapid communication and information exchange across Europe - but we need to galvanize all stakeholders to achieve the recognition and actions essential to managing a new reality in which obesity is not only an epidemic, but an endemic condition that on present trends seems unlikely to go away.

Review session IV. | 2009-10-03 09:50

A-0089

**THE GLOBAL SIGNIFICANCE OF CHILDHOOD OBESITY DEMONSTRATED BY RESULTS OF EUROPEAN PROJECTS**

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The growing epidemic of childhood obesity draws the attention to accompanying risk factors and co-morbidities. According to the most recent data, 22 million children in Europe are overweight and 5 million obese, increasing yearly by 300 000 children. The available national data, however, are not comparable.

Objective: to provide comparable data on the prevalence of childhood obesity and metabolic syndrome in Europe based on multicenter studies: 1/ Healthy Lifestyle in Europe by Nutrition in Adolescence (HELENA) (1), 2/ Identification and prevention of dietary- and lifestyle-induced health effects in children and infants (IDEFICS) (www.ideficsstudy.eu) and 3/ multicenter study on the prevalence of the metabolic syndrome (2).

Results: The prevalence of overweight and obesity in the HELENA (age range: 12.5-17.5 years) and IDEFICS (age range: 2-10 years) populations is shown in the table.

Table The distribution of the HELENA and IDEFICS samples according to Cole's (3) BMI categories

Traditional cardiovascular risk factors associated with obesity are frequently detected in children and especially in adolescents. Odds ratios for these risk factors are the following: 2.4 for raised diastolic

Study	Number, M/F
HELENA	1670/1838
IDEFICS	7721/7446

Study	Underweight, M/F, %
HELENA	4.8/6.4
IDEFICS	11.4/10.6

Study	Normal weight, M/F, %
HELENA	68.1/72.9
IDEFICS	70.1/68

Study	Overweight, M/F, %
HELENA	19.5/16.3
IDEFICS	11.4/14.2

Study	Obese, M/F, %
HELENA	7.6/4.4
IDEFICS	7/7.2

blood pressure, 3.0 for raised low density lipoprotein cholesterol, 3.4 for low high density lipoprotein cholesterol, 4.5 for elevated systolic blood pressure, 7.1 for elevated triglycerides and 12.6 for high fasting insulin. Overweight and obesity in youth also plays a central role in the development of the metabolic syndrome (MS), defined as clustering of the above listed risk factors.

A recent multicenter study (2) demonstrated that the prevalence of the metabolic syndrome among European adolescents is high (17.3-35.7%, depending on the definition used). The prevalence of the metabolic syndrome was significantly influenced by the degree of obesity, characterized by BMI or waist circumference, but not by age.

Conclusion: The result clearly demonstrate, that overweight and obesity are frequent already at early childhood in Europe, together with the clustering of obesity-associated cardiovascular risk factors. Effective prevention of cardiovascular and other chronic diseases in adulthood must start in early childhood.

- 1/ Moreno LA, et al. Int J Obesity 32(Suppl. 5): S4-S11, 2008
- 2/ Bokor S, et al. Int J Pediatr Obesity 3(Suppl. 2): 3-8, 2008
- 3/ Cole, et al. BMJ 320: 1240-3, 2000

Review session IV. | 2009-10-03 09:50

A-0077

**THE PREVALENCE OF CHILDHOOD OBESITY IN HUNGARY**

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The obesity is one of the most important risk factor of the cardiovascular diseases. It is a fact, that the prevalence of childhood obesity is very high in the industrial country. We want to examine this question in our Hungarian children population.

The first examination was carried out by the Hungarian Children Institute of Health. More, than 3000 paediatrists, GPs and district-nurses worked in this study year by year. They observed every child in the kindergarten, in the elementary school, and the secondary school at the age 5, 10, 15 and 17. They used the BMI percentile in obesity, the Riva-Rocci auscultation method in hypertension and the medical history data in IDDM. In every age group they worked near 100 000 children, collected this data.

From 1996/97 to 2003/04 the prevalence of hypertension, obesity and IDDM is growing, the hypertension from 0,1% to 2%, the IDDM from 0,5‰ to 2,5‰ and the obesity from 4% to 7%. That means, that in the 17 age group we have now 7% obese, 2% hypertonic and 2,5‰ IDDM patients in Hungary.

The second investigation was carried out by Sonda Ipsos. They use a 500 sample of girls and boys, from 6 to 14 years old. This sample was informative of 1 000 000 school children. In this study they also used BMI percentile. In this population they diagnosed 34% obese and pathological obese pupil in the elementary school. These results are suggesting, that the obesity and other cardiovascular risk factors /IDDM, Hypertension/ are growing in Hungary year by year.

**Review session IV. | 2009-10-03 09:50**

**A-0123**

### **GOOD PRACTICES AGAINST CHILDHOOD OBESITY BY NATIONAL INSTITUTE OF FOOD AND NUTRITION SCIENCE**

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The prevalence of childhood obesity has doubled in the last two decades and now has reached epidemic proportions. In Hungary, 25% of primary school children are overweight, and one fourth of these children are obese. Similar rates were found among secondary school students. Given the rising prevalence of childhood obesity in Hungary, its adverse health effects and the low success rate of interventions, National Institute of Food and Nutrition Science (NIFNS) continuously design programs aimed to prevent obesity in children.

In the HAPPY (Hungarian Aqua Promoting Program in the Young) program we studied changes in nutritional knowledge and drinking pattern (especially in water and soft drink consumption) in primary-school children after an education and environmental intervention and evaluated whether these changes were sustained 1 year after the end of the intervention.

The 'Healthy might be Tasty' campaign was designed to increase nutritional knowledge and fruit and vegetable (FV) consumption in primary school children. The campaign also aimed to determine the most effective approach by comparing three different types of intervention.

The 'Healthy School Canteen Program' was started in 2005, when NIFNS in collaboration with the Ministry of Health prepared a guideline about healthy selection that should be provided by the canteen. The guideline was issued as a decree by the Ministry of Education (OM 32/2005). The selection of the canteens was monitored 3 times since the implementation (in Spring and Autumn, 2006 and in

2008). As a result of the initiative, the portion of canteens whose selection met the recommendation increased dramatically.

In addition, NIFNS participates in many EU and WHO funded projects that aim to counteract childhood obesity.

**Review session IV. | 2009-10-03 09:50**

**A-0153**

### **NUTRIENT SUPPLEMENTATION OF CHILDREN: INFLUENCING FACTORS AND ANTHROPOMETRIC CORRELATIONS**

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**Objective:** The IDEFICS (Identification and prevention of Dietary and lifestyle-induced health Effects In Children and infantS) is a five-year multicentre European study which investigates the childhood obesity in the age group 2-10 years. Our analysis targets the medication of the children with special attention on nutrient supplementation, its influencing factors and its correlation with the weight and general health status of the children.

**Methods:** We analyzed that subsample of 1008 children from the baseline survey of the Hungarian IDEFICS study population whose parents provided information about the medicine intake of the children. Medication was assessed by clustering the referring answers of health questionnaire. This was correlated with different modules of the parental questionnaires and with the measures of obesity (BMI ranked according to Cole, 2000, body composition assessed by equations based on skinfold measurement -Slaughter, Bray, Dezenberg- and waist/height ratio) and with laboratory results (total and HDL cholesterol, triglyceride and HOMA-IR).

**Results:** The characteristics of our survey population were: boy-girl ratio: 52,6:47,4%; age 6,1 ± 1,88 years. 25,7% of the children were free of any medication. The prevalence of medication prescribed for diagnosed major chronic illnesses was 3,2%, for allergy 16,2%, antibiotics 14%; freely available medication for symptomatic treatment of acute respiratory infections 19,9%, for fever and/or pain 5,4%, for gastrointestinal symptoms 4,0%. In the focus of our attention were the consumption of different nutrient supplements, the vitamin C; the multivitamins and their combination with minerals; flavones and aloe-derived drugs; and homeopathic drugs, the prevalence of which was 26,0%, 48,8%, 14,3% and 6,9%, respectively. From the further analysis we excluded those 311 children who suffered in actual illness because this in short term significantly influenced medication and we wanted to analysis traits of medicine-taking habits. This resulted in 697 valid cases. Their medication correlated significantly ( $p < .05$ , Spearman) with most statements referring to the parent's external locus of control concerning he-

alth. The other drug supplementation correlated with the parent's positive attitudes towards advertising ( $p < .05$ ) but not the vitamin supplementation. Born small for gestation age and the perceived worse general health of the child also increased the motivation for providing the child extra medication ( $p < .01$ ). The vitamin intake proved to be beneficial regarding the lower BMI, waist/height ratio and fat mass according Slaughter ( $p < .05$ ) but the other drug supplementation showed no correlation with anthropometric parameters. In the case of HOMA-IR this correlation was reversed. Hereby should be taken into account that according to diet recall, the fruit and vegetable consumption of only 2,9% of the children met the nutritional guidelines. Regarding the socio-economical background variables, the child's medication correlated significantly with the educational level of the mother ( $p < .01$ ) and the father ( $p < .05$ ) and with the income of the family ( $p < .01$ ).

**Conclusion:** Supplementary medication is influenced more by possibilities than real needs. Intervention should focus on explaining the advantages of a well-balanced diet to the pattern of poor diet plus supplementation; and on directing this kind of medication by professional principles and not by incentives of consumer society.

**Review session IV. | 2009-10-03 09:50**

**A-0122**

### **BODY COMPOSITION ASSESSMENT AND ITS CORRELATION WITH PATHOLOGIC FINDINGS IN CHILDREN**

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**Objective:** The IDEFICS (Identification and prevention of Dietary and lifestyle-induced health Effects In Children and infantS) is a five-year multicentre study targeting comprehensively childhood obesity in the age group 2-10 years. In the present analysis we investigated whether the different anthropometric indexes and calculation of the body fat content, beside the traditional BMI helps the cardiovascular risk assessment of children.

**Methods:** We analyzed data of the baseline survey of the Hungarian IDEFICS sample of 2509 children: the BMI measured and ranked according to Cole (2000), blood pressure rated according NIH report (2005) and laboratory results (total and HDL cholesterol, triglyceride and HOMA-IR). Body composition was assessed by equations based on skinfold measurement (Slaughter, Bray, Dezenberg), BIA (Bray, Deurenberg, Goran, Schaefer) or other anthropometric values (Ellis). Other obesity rating data (waist/hip and waist/height ratio, conicity index) and upper arm fat area estimation (Rolland-Cacheria) were calculated.

**Results:** The anthropometric characteristics of our survey population were as follows (mean ± SD):

boy-girl ratio: 49,9:50,1%; age 6,3 ± 1,85 years, weight 23,8 ± 7,86 kg, height 119,5 ± 13,1 cm, bioelectrical impedance 643,7 ± 77,96 ohm, waist/hip ratio 0,87 ± 0,05, waist/height ratio 0,46 ± 0,04, conicity index 1,14 ± 0,06. Body fat percent according to Slaughter, Bray, Dezenberg and Ellis were 16,4 ± 5,74; 19,7 ± 5,06; 17,1 ± 4,92; 24,9 ± 6,35 %, respectively. The calculations based on published BIA equations proved to be inappropriate since no validated equations exist for such young children and for the BIA device (TANITA) used in the present study. 27,4% of the study population had high blood pressure. 67,1% of the population had no laboratory abnormality. The incidence of high total cholesterol was 5,4%, low HDL cholesterol 16,3%, high triglyceride 8,6% and increased HOMA-IR 11,1%.

All calculations of body composition correlated significantly ( $p < .01$ ) with the above pathologic findings, but only in case of HOMA-IR was the regression large enough to indicate predictive value ( $R^2$  0.209). Linear regression model showed the best explanatory value when waist/height ratio and/or upper arm fat area estimation were added to the model beside the BMI and one of the fat percent equation or conicity index ( $R^2$  0.354-.415).

Conclusion: Combining the above anthropometric assessment methods may improve the identification and selection of those children who need more attention in terms of preventing non-communicable diseases in adulthood. New, validated BIA equations are needed for young European children in order to assess body fat content accurately.

Review session IV. | 2009-10-03 09:50

A-0092

## INTERDISCIPLINARY APPROACH TO THE TREATMENT OF CHILDHOOD OBESITY

Bea Pászthy

Head of Child and Adolescent Mental Health Unit,  
Semmelweis University, Budapest, Hungary

Childhood obesity is a chronic disease having serious sequelae on both physical and psychological health, damaging the quality of life. The prevalence is growing in almost all industrial countries of western culture. Therefore it requires more preventive attention, and in case of illness, long-term and multimodal treatment, involving medical, educational, psychological, social and family-based interventions.

Patients - in general- meet their GPs at first, who often tell them about possible consequences of their disease, and order further examination to exclude secondary forms of obesity due to some rare, metabolic or endocrine abnormalities. Being informed about health risks will alert patients, but is not enough to induce long-term changes of their eating behaviour. Especially children psychologically lack the capacity of making efforts to reach a far-away benefit, and need long-term motivation to do so.

The psychologic background of obesity gives

very important implications for both prevention and treatment. Of the latter, cognitive-behavioural approaches are proved to be most effective. According to these, behavioural abnormalities are due to dysfunctions in different levels of learning processes, from information processing to core attitudes and beliefs of the self and the environment. The purpose of therapies is changing maladaptive responses and coping strategies to become more adequate. The psychologic features of patients proved to be very different, but common therapeutic goals are improving self-esteem, building peer-relations, facilitating rich freetime activities and bettering response strategies to stress.

The education system also has an important role in the prevention of obesity by giving opportunities to experience self-efficacy, positive adult and peer relations, and building up a realistic self-esteem.

Last but not least, almost every effort to change a child's behaviour is only successful when it meets the consent and active cooperation of his family. Eating has an important role in every family's daily life and often serves as a way of emotional communication, expressing also relations, feelings and coping strategies of family members. We need to help parents to set limits to their children's over-eating, replacing it with positive and supporting activities.

EASO Midle region round table conference |

2009-10-03 11:45

A-0080

## EASO ACTIVITIES IN THE LAST THREE YEARS: REALIZED VISIONS & REMAINED TASKS

Vojtech Hainer\* - E. Woodward\*\*

\*past-president of EASO (2006-2009), Institute of Endocrinology, Prague, Czech Republic; \*\*EASO Executive Director, London, United Kingdom, European Association for the Study of Obesity (EASO)

The European Association for the Study of Obesity (EASO) was established in 1986 to promote obesity research and actions that tackle the current epidemic of obesity in Europe. In the nineties EASO activities focussed almost exclusively on the European Congresses on Obesity (ECO) which were operated by the host national association and a local congress agency. When I took the EASO presidency three years ago, I outlined a vision for an extended EASO engagement and the following main goals were raised: To activate task forces, to improve contacts and collaboration with national associations and European regional initiatives on obesity, to prepare guidelines on obesity management, to establish a European Journal of Obesity, to support young investigators, to organize in-house ECOs as the most important and prestigious annual scientific events on obesity in Europe, to extend EASO activities, incl. educational courses to Eastern Europe, and to improve communication with the EASO secretariat.

What has been achieved: The revitalized Childhood Obesity Task Force (COTF) and Prevention and Public Health Task Force have engaged internationally acknowledged scientists and each Task Force has clearly declared their goals and immediately started to create the links with other European groups, projects and initiatives when organizing workshops and satellites at ECOs. The Obesity Management Task Force (OMTF), which represents an enthusiastic group collaborating for a long time, continued to monitor weight management strategies across Europe and began to define the EASO Collaborating Centres in Obesity Management. The OMTF developed a new guidelines on obesity management in primary care and together with the European bariatric surgeons prepared Inter-disciplinary European guidelines on surgery of severe obesity. Both guidelines were published in several international as well as national journals on obesity in Europe. The COTF has prepared a template for childhood obesity management which should be published soon. Obesity Facts, which was launched in 2008 as the first official journal of EASO, provides an important platform for exchanging experiences in European research and clinical practice. Young Investigators United run their scientific and social meetings mainly during the ECOs. The inaugural EASO Bjorntorp symposium organized this year was a great chance for intense informal scientific exchange between internationally renowned scientists and younger research fellows from around Europe. The past three ECOs (Budapest, Geneva, Amsterdam) kept a tradition of the great annual scientific and social event when emphasizing the role of young investigators and interactive poster presentations. Each ECO attracted over 2500 participants and these congresses were also successful from the financial point of view, even the last one, in spite of the current global economic situation. EASO succeeded to extend its activities to Eastern Europe. New associations were founded in Georgia, Russia and recently in Ukraine, where the EASO course on obesity management organized by the OMTF this June was highly rated. Communication with the EASO secretariat achieved a new dimension thanks to the Executive Director who greatly contributed to friendly collaborative atmosphere within the EASO Executive and to all successful EASO activities.

Tasks remaining for the near future:

- To create more links within the community of European obesity specialists using the EASO website and the first European Journal of Obesity as platforms for collaboration between national associations. Pre-congress dinner meetings of the EASO Executive with presidents of the national associations provided an opportunity for informal discussions and negotiations but only partly contributed to improvement in communications.
- To increase engagement of EASO in European regional activities (Balkan, CECON, Nordic etc.).
- To intensify collaboration with other European Medical Associations (ESE, EASD, ESH etc.).
- To submit more papers to Obesity Facts from all

EASO member countries.

- To find a positive solution as to how EASO coordinates European educational activities with the SCOPE.
- To run successfully an independent EASO office.
- To establish an EASO Scientific Group in order to support pan-European research projects with special emphasis on integration of young and Eastern European scientists.

Conclusion: EASO succeeded to realize many goals which were raised three years ago. However it cannot afford to rest on its laurels and should be prepared to respond appropriately to new challenges in obesity research, prevention and clinical practice.

**Connections of obesity | 2009-10-03 09:00**

**A-0023**

### **THE PATHOGENESIS OF THE METABOLIC SYNDROME**

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The metabolic syndrome (MS) is an insulin-resistant state characterized by a cluster of cardiovascular risk factors, including abdominal obesity, glucose intolerance, hypertension, and atherogenic dyslipidemia (elevated triglyceride values, low high-density lipoprotein cholesterol levels). The combination of the factors increase the risk for diabetes (DM) and cardiovascular diseases (CVD).

The World Health Organization (WHO) criteria are: Insulin resistance plus any two of the following: abdominal obesity, high triglycerides, low HDL-C, hypertension and microalbuminuria. The International Diabetes Federation (IDF) definition of MS requires someone to have central obesity, defined by waist circumference, plus any two of the following four factors: increased triglycerides or treatment thereof; reduced HDL cholesterol or treatment thereof; increased blood pressure or treatment thereof; raised fasting plasma glucose. The Adult Treatment Panel (ATP) III definition of MS is slightly looser, requiring someone to have three or more of the following: raised fasting plasma glucose, elevated blood pressure, elevated triglycerides, reduced HDL, and abdominal obesity.

The 3 major definitions of the MS are based on different views as to the pathogenesis of MS. The WHO definition emphasized the central role of insulin resistance. Proponents of ATP III version consider this entity to be "a real syndrome," that probably has more than one cause. The IDF definition suggests that there is a specific cause of the MS, stating that "visceral obesity is the most important first step in the cascade leading to the MS." Few topics in medicine are as controversial as the MS.

Concerns about the MS: Criteria apply arbitrary

cutpoints to a continuum of risk; insulin resistance as unifying cause is uncertain; CVD risk associated with the MS seems to be no greater than sum of its parts; Treatment of MS is no different from treatment for each of its components.

MS is designed either as a global CVD risk predictor, or as part of „global cardiometabolic risk”. This implies that, if one component is identified, a systematic search for the others is indicated, together with an active approach to managing all of these risk factors.

**Connections of obesity | 2009-10-03 09:00**

**A-0078**

### **WINE CONSUMPTION AND OBESITY**

Janos Feher - G. Lengyel

*2nd Department of Medicine, Semmelweis University, Budapest*

The obesity is part of metabolic syndrome beside the type 2 diabetes mellitus, hypertension and hyperlipidemia as well as non-alcoholic fatty liver disease. This metabolic disorder is one of the most frequent disease accompanied by numerous complications. Obesity, type 2 diabetes mellitus, dyslipidemia, and hypertension contribute to risk for liver disease and to disease progression. Patients have a high risk for cardiovascular morbidity and mortality, mediated by early atherosclerosis. Non-alcoholic fatty liver disease refers to a wide spectrum of liver damage, ranging from simple steatosis to non-alcoholic steatohepatitis, advanced fibrosis and cirrhosis or even hepatocellular cancer. The more components of the metabolic syndrome are present, and the more severe they are, the higher the likelihood of this transition is to happen. An important factor is the massive influx of fat and free fatty acids into the liver. Excessively activated fat metabolism is associated with the release in various cell compartments of free radicals (reactive oxygen species), which are cytotoxic. This oxidative stress plays the most important role in the progression of the disease. The damaged cells express cytokines, which results in inflammation, cell death and fibrogenesis. The lifemode, movement and nutrition, the quality of food and alcohol consumption play an important role in the prevention and progression of the obesity and related diseases. The therapy consists of correspondent life style, blood lipid and sugar control, scavengers and antioxidants (silymarin, ursodeoxycholic acid, metadoxine). Atorvastatin and losartan are proved to be efficient in the treatment of dyslipidemia- and hypertension-associated non alcoholic steatohepatitis by bettering both biochemical parameters and steatosis or necroinflammation. The wine consuming moderately (not more than 2-3 dl/day) could beneficially influence the consequences of this process.

**Connections of obesity | 2009-10-03 09:00**

**A-0025**

### **BODY MASS INDEX AND CAUSE-SPECIFIC MORTALITY IN 900 000 PEOPLE: THE PROSPECTIVE STUDIES COLLABORATION**

Gary Whitlock - S Lewington - P Sherliker - R Peto, on behalf of the Prospective Studies Collaboration  
*Clinical Trial Service Unit & Epidemiological Studies Unit, University of Oxford*

AIM: To assess the associations of body mass index (BMI) with overall and cause-specific mortality

PARTICIPANTS: 894 576 adults (61% male, mean recruitment age 46 years, median recruitment year 1979, mean BMI 25 kg/m<sup>2</sup>), mostly in Europe and North America

METHODS: Collaborative analyses of data on individuals in 57 prospective cohort studies. The relative risks (RR) were adjusted for age, sex, smoking and study. To limit reverse causality, the first 5 years of follow-up were excluded, leaving 66 552 deaths of known cause (30 416 vascular, 22 592 neoplastic) during a mean 8 years of further follow-up.

RESULTS: In both sexes, and at all ages between about 40 and 85 years, mortality was lowest at 22.5-25 kg/m<sup>2</sup>. Above this level, each 5 kg/m<sup>2</sup> higher BMI was associated on average with about 30% higher mortality (RR 1.29, 95% CI 1.27-1.32): 40% for vascular mortality; 10% for neoplastic mortality; 60-120% for diabetic, renal, and hepatic mortality; and 20% for respiratory and for all other mortality. Below 22.5-25 kg/m<sup>2</sup>, BMI was inversely associated with mortality, mainly because of strong inverse associations with lung cancer and chronic respiratory disease, despite cigarette consumption per smoker varying little with BMI.

CONCLUSIONS: Moderate obesity (30-35 kg/m<sup>2</sup>) reduces median survival by 2-4 years; morbid obesity (40-50 kg/m<sup>2</sup>) reduces it by 8-10 years. This effect of morbid obesity is comparable to the effect of lifelong smoking, but in Europe, smoking is still several times more prevalent than morbid obesity.

REFERENCE: Prospective Studies Collaboration. Body-mass index and cause-specific mortality in 900 000 adults: collaborative analyses of 57 prospective studies. *Lancet* 2009; 373: 1083-96

**Connections of obesity | 2009-10-03 09:00**

**A-0029**

### **PREVENTION OF OBESITY IN EUROPE. WHERE ARE WE GOING?**

Dana Müllerova

*Public Health Department, Medical School and Faculty Hospital in Pilsen, Charles University in Prague, Czech Republic*

Aim of the presentation is summary what are ongoing actions in Europe to prevent obesity escalation. There is not only responsibility of health care professionals, but above all responsibility of all community. Especially political decisions treating obesitogenic environment, making the healthy option for European inhabitants more available are needed. The initiation of politics and their involvement in tackling obesity has been started by EASO Milan declaration in 1999. Since that many important political documents designing and implementing policies tackling obesity have been accepted, first of all European Platform for Action on Diet, Physical Activity and Health (2005), the Green Paper "Promoting healthy diets and physical activity: a European dimension for the prevention of overweight, obesity and chronic diseases (2006), Charter from WHO European Ministerial Conference counteracting Obesity (2006), and White Paper on a Strategy for Europe on Nutrition, Overweight and Obesity related health issues (2007). These documents determine necessary background for community progressive shift from obesitogenic environment to environment promoting health. Strategies develop partnerships for action at European level, strengthen local networks for action, activate public, provide sector, and non governmental organizations to be involved in tackling obesity with the aims to stop obesity epidemic, and especially reverse increase of obesity prevalence in children. New national or European programs related to obesity prevention have been started as EPODE (Together let's prevent childhood obesity) and the EPODE European Network, HELENA (Healthy Lifestyle in Europe by Nutrition in Adolescents), HOPE, (Health Promotion through Obesity Prevention across Europe), IDEFICS, Identification and Prevention of Dietary - and Lifestyle - Induced Health Effects in Children and Infants, The Dutch (Windsheim University of Applied Sciences/ VU Amsterdam /Umc/Maastricht University /ErasmusMC), HEALTH PLUS program (Improving knowledge and Decision Support for Healthy Lifestyles) and many others. Their strategies together with activities to prevent obesity in the Czech Republic and as well EASO Public Health and Prevention Task Force effort will be presented.

**Clinical aspects of obesity I. | 2009-10-03 10:00**

**A-0014**

### **RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND OBESITY**

Jako Peter

*Hungarian Society of Sports Medicine, Budapest, Hungary*

Physical activity is an important factor for weight control. By using energy and maintaining muscle mass, exercise is a useful and effective tool combined with dietary management for avoiding weight gain or losing weight. Several studies indicated that supervised, long-term, moderate to moderately-vigorous intensity exercise, even in the absence of weight loss, improves the dyslipidemic profile in

obese adults, by increasing the HDL-cholesterol and decreasing the triglycerides. Exercise and dietary-induced weight loss improve insulin resistance and glucose tolerance in obese patients and prevent or delay the onset of type 2 diabetes. The improvements may be attributable to changes in body fat distribution, a significant reduction of visceral fat. Randomised controlled trials indicate that exercise decreases blood pressure in obese individuals with high normal blood pressure and in hypertension. Exercise training with or without weight loss associates with ventricular remodeling, a reduction of left ventricular mass. Physical activity is an essential component of lifestyle therapy.

**Clinical aspects of obesity I. | 2009-10-03 10:00**

**A-0093**

### **TO EAT OR NOT TO EAT? PSYCHOLOGICAL MECHANISM AND TREATMENT POSSIBILITIES IN OBESITY**

Dóra Perczel Forintos

*Department of Clinical Psychology*

*Semmelweis University*

Obesity is a global and preventable epidemic with serious health consequences for individuals worldwide, particularly for those in the developed countries. Obesity is one of the main risk factors in cardiovascular diseases, stroke, hypertension and in some types of cancer, etc. It is a multicausal and complex condition where genetic, hormonal, metabolic and psychological factors play equally important part. Psychological and behavioral factors include inappropriate patterns of eating behavior, lack of physical activity, stress and emotional problems which are all modifiable.

Research has demonstrated that weight losses as small as 7-10% of initial weight produce significant health benefits. Short-term successes and long-term failures of traditional slimming cures show that all participating factors especially maladaptive eating and activity habits should be included in the proper treatment of obesity. Studies proved the effectiveness of behavior therapy (BT) and cognitive behavior therapy (CBT) demonstrated promising results. Behavior therapy focuses on long-term weight reduction with a half-year-long group program based on learning theory by modification of maladaptive eating behavior, self-control, healthy diet and exercise. The cognitive behavioral model of obesity (Cooper and Fairburn, 2003) adds new elements to the behavioural treatment such as cognitive conceptualization, improvement of self-acceptance and continuous weight control aimed to avoid relapses.

In this presentation psychological mechanism which play important part in the development of obesity, new and effective psychotherapy approaches as well as our treatment experiences will be addressed.

**Clinical aspects of obesity I. | 2009-10-03 10:00**

**A-0117**

### **EATING BEHAVIOURS AND WEIGHT STATUS OF URBAN PRIMARY-SCHOOL CHILDREN - LESSONS FROM LEARN STUDY**

Viktoria Anna Kovacs - Zs Fajcsak - A Gabor - E Martos

*National Institute for Food and Nutrition Science, Budapest, Hungary*

Aim: Obesity has become a worldwide epidemic among children. Declining physical activity and poor nutrition are among the main contributors. The purpose of the LEARN (Lifestyle, Eating, Activity and Rate of obesity in school children) study was to obtain data on weight status, activity pattern and dietary habits of urban primary school students. Subjects: Data were obtained from 3714 first to eighth grade children (1860 boys, 1854 girls; age range: 7-15 years; mean age: 11.3±2.3 years) from 18 primary schools in Óbuda, Budapest.

Methods: Weight, height and waist circumferences were measured by school nurses, and BMI was calculated. Data about obesity-related nutritional behaviors (breakfast skipping, fruit and vegetable intake, number of meals, soft drinks consumption) were collected via self-administered questionnaire.

Results: According to the Cole criteria, 14.5% of the children were overweight (OW) and 4.6% were obese (OB). The highest ratio for OW was found in the 12-year-old population (girls: 18.5%, boys: 18.4%), while for OB was among the 7 years old girls (5.7%) and 12 years old boys (7.6%). One fifth of the children (21.3%) were regularly skipping breakfast. The percentage of breakfast skippers increased with age. Both BMI (19.3±4.0 vs. 18.1±3.7 kg/m<sup>2</sup>; p<0.001) and WC (67.3±12.0 vs. 63.9±10.8 cm; p<0.001) were higher among breakfast skippers than in breakfast eaters. Children had on average 4 (3.9 ± 0.9) meals per day. Prevalence of obesity was twice as much higher among those children who eat 3 meals per day compared to those who had 5 meals (5.7% vs. 3.2%). Almost two third (63.3%) of children reported consuming soft drinks daily, while every fifth boy (19.3%) and every eighth girl (12.4%) did not consume fruit or vegetable on a daily basis.

Conclusions: The prevalence of OW and OB was in line with the European data. Frequency of obesity related dietary behaviors were high among Hungarian school children. Skipping breakfast and number of meals were associated with the weight status of the participants.

**Clinical aspects of obesity I. | 2009-10-03 10:00**

**A-0138**

### **TRAIT DEPRESSION, READINESS FOR PHYSICAL ACTIVITY AND PHYSICAL SELF-WORTH OF**

## GRADE I-II OBESE AND MORBID OBESE PATIENTS

Szilvia Boros\* - László Halmy\*\*

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\*\*Central Hospital, Ministry of Home Affairs, Center of Hypertension

The aim of the objective: To identify the main differences in physical self-concept, trait depression, readiness for physical activity between grade I-II (BMI 30-34,9 kg/m<sup>2</sup> and 35-39,9 kg/m<sup>2</sup>) and morbid obese (grade III), (BMI ≥ 40 kg/m<sup>2</sup>) patients. Subjects: Obese patients were 101 (25 males and 76 females) with a mean age of x: 42 years SD:± 12, bodyweight x: 110.6 kg SD: ± 24, height x: 170 cm SD: ± 18.1 and BMI x: 39.9 ± 7.4, ranged between 30 and 66 participated in the present study.

Methods: Anthropometrical parameters (bodyweight, height, BMI, waist circumference, bodyfat percentage) were measured. Three standard questionnaires were completed by the participants. Trait depression was measured with Trait Personality Inventory. Physical Self-Concept subscale of the Tennessee Self-Concept Scale was used to assess the sense of physical self-worth. Readiness for Physical Activity scale was also completed.

Results: Morbid obese patients had obviously higher body weight, body fat percent, waist circumference, body mass index and lower physical self-concept. In grade I-II obese group, physical self-concept associated inversely with body fat percentage. Those morbid obese patients who had higher physical self-concept were more ready for physical activity. We found negative association between trait depression and physical self-concept in both groups.

Conclusions: Body satisfaction may play an important role in the protection against depression and may be beneficial in readiness for physical activity amongst obese patients. Positive physical self-concept may ensure greater psychological balance and stability which may influence the manifestation of trait depression. Therefore it is relevant to evaluate physical self-concept in continuity instead of its cross-sectional stability. It may be a relevant purpose to improve physical self-concept of obese patients.

Clinical aspects of obesity I. | 2009-10-03 10:00

A-0081

## NUTRITIONAL SURVEY OF OVERWEIGHT, OBESE CLASS I-II AND MORBID OBESE PERSONS

Eszter Halmy - Gertrud Kovacs - Laszlo Halmy

Platon Health Services and Advisory Ltd.

The aim of the study was to examine the differences in total energy, fatty acids, sodium and fiber intake, in the ratio of the macronutrients and the fatty

acids intake by BMI and gender in adult overweight, obese and morbid obese persons. Material: n: 269 adults, mean age: 47.1y, overweight 25 kg/m<sup>2</sup> ≤ BMI < 30 kg/m<sup>2</sup> n:59 (21.9%), obese class I-II 30 kg/m<sup>2</sup> ≤ BMI < 40 kg/m<sup>2</sup> n:112 (41.6%), morbid obese BMI ≥ 40 kg/m<sup>2</sup> n:98 (36.4%).

Method: anthropometric parameters were measured, 3-day nutritional interview collected and analyzed by Nutricomp 3.0, SPSS used for statistic analyses

Results: The mean of total energy intake: 2278 kcal/day (SD:807) was lower than we expected on the reason of self-reported data and the possibility of the static phases of the obesity in most cases. The daily energy intake was significantly higher in men: 2696 kcal/day than in women: 2061 kcal/day. The energy intake by BMI groups revealed significant difference (p<0.001) between the morbid obese and the groups of lower BMI only, overweight: 2176 kcal/day (SD:615), obese: 2093 kcal/day (SD:769), morbid obese: 2550 kcal/day (SD:881). The ratio of macronutrients was: fat 38.76 energy% (SD:7.13) more over the recommended 30%, carbohydrate 45.28 en% (SD:7.03), protein 16.13 en% (SD:2.95) close to the representative Hungarian data collected in 2003-2004. Total fat intake was the highest in the age group of 30-44y: 129.33 g/day (SD:64.81) and by BMI in the morbid obese group, overweight: 88.97 (SD:30.43), obese: 90.41 (SD:38.56), morbid obese: 124.56 g/day (SD:44.75). The intake of SFAs (11.44en% 29.5g/day), MUFAs (11.77en% 30.09g/day) and PUFAs (9.59en% 23.92 g/day) was significantly (p<0.0001) higher in men and by BMI in morbid obese group. SFAs: overweight: 26.29 (SD:9.69), obese: 27.12 (SD:13.68), morbid obese: 32.87 (SD:15.12), MUFAs: overweight: 26.68 (SD:10.5), obese: 27.69(SD:14.54), morbid obese: 34.83(SD:15.25), PUFAs: overweight: 22.21(SD:8.49), obese: 22.03(SD:0.79), morbid obese: 27.07 g/day (SD:10.84). All the three values were significantly (p<0.001) higher in the morbid obese group. The ratio of n-6/n-3 intake by BMI groups was: overweight: 27.4 (SD:12.0), obese :25.8(SD:11.1) morbid obese:28.1 (SD:11.5) (n.s.), and the highest values were found in the age group above 60y: 31.8/1 (norm: 4-10/1). Sodium intake was higher than the recommendation in each group, the highest in morbid obese: 6593 g/day. The sodium intake increases by bodyweight groups but in the ratio of the body weight kg the sodium intake decreases by body weight groups and BMI. The same significance was found by body surface. The fiber intake n. s. between the obesity classes but in the ratio of 100 kcal energy intake the fiber intake increased: r:0.496, 0.649, 0.676, in the ratio of body fat mass the fiber intake decreased: r:0.29, 0.25, 0.23.

Conclusion: In energy and fatty acids intake significant differences were found in obese and morbid obese. The paradox results of sodium intake suggest the role of fat tissue in salt balance. Attention should be paid to decrease of fatty acids and sodium intakes and increase the fiber intake of particularly in morbid obese patients.

Clinical aspects of obesity I. | 2009-10-03 10:00

A-0079

## THE TEN MOST OBESE PEOPLE OF THE WORLD

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\*\*Platon Health Services and Advisory Ltd.

Objectives: Changes of body weight and body composition of the Homo sapiens during its microevolution in Europe have a matter of conjecture in the lack of reliable date, in spite of the fact that methods are at disposal for estimating the body-mass, moreover the BMI - from the measurements of the human skeleton. The women with significant fat deposit might be attractive for the Early and Late Upper Paleolithic people, that may be interpret by their reproductive advantages, proved by the physique of the majority of the so-called "Venus figurines", of which the Willendorf Venus is a famous example. The accurate weighing is mostly a twentieth-century phenomenon; therefore, the rapid growth of the body weight together with the enormous increase of the prevalence of overweight and obesity in the different populations all over the World appeared only in the last decades of the last century.

This study has multifarious purposes through the presentation of the ten heaviest people of the world of the last decades. We do not analyse their body mass and body composition only as peculiarities of the human beings, but our main goal is to show by their way of life how often these lives has been cut short by venal, inadequate, or clueless medical care.

Subjects: Among the listed ten heaviest people of the world of the last decades of the 20th century, we found seven man and three women in the reliable data. Eight of the ten lived or has been living in the USA, one of them in Kenya and another one in Mexico.

Results: The body mass of the listed most obese people were between 460 and 635 kg, and their BMI between 87.5 and 188 kg/m<sup>2</sup>. The majority of them died between the 28 and 48 years of age.

Conclusions: The quality of life of the most obese people was on an incredibly low level. In spite of the fact that in the majority of them, the controlled weight reduction in the different hospitals was successfully they had frequently heart and respiratory problems along the way, possibly as the result of their treatment with diet pills. Better results may achieved by gastric bypass surgery. Our mean conclusion is that the treatment of the most obese people has not solved until now.

Clinical aspects of obesity I. | 2009-10-03 10:00

A-0158

## RESULTS OF GASTRIC BANDING

## IN THE TREATMENT OF MORBID OBESITY

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**Aim:** To refer about authors experience with 74 laparoscopic gastric banding.

**Patients and subjects:** 74 consecutive patients (20 men, 54 women) were included in the study from 1.7.2005 to 31.7.2009. Indication was BMI higher than 35 kg/m<sup>2</sup> and comorbidity, or 40 kg/m<sup>2</sup> and higher. Standardized preoperative algorithm was used. Mean age was 46 years (range 24 to 63 years). Preoperative mean BMI was 44,1 kg/m<sup>2</sup>, (35,3 - 62,5), Follow up was completed in 90 % of patients.

**Methods:** Prospective single center study was performed. Demographic data, weight loss, excess weight loss, comorbidity and complication were recorded. Three types of gastric banding for laparoscopic implantation were used.

**Results:** Mean excess weight loss after 12 months was 34,44 %, after 24 months 36,1%. Mean BMI dropped to 35,6 kg/m<sup>2</sup>. Comorbidity ( diabetes, hypertension, hyperlipoproteinemia) was seen in 20,3; 62,2 and 24 % of patients. In the follow up improvement in nearly 90 % patients were observed. Two major complications (2,7%) were recorded (pouch dilatation, gastric stenosis). The solution was rebanding and sleeve gastrectomy. Three small complication - port rotations - ( 4,0%) were repaired under local anesthesia. One patient was reoperated after two years for method failure. The Roux-Y gastric bypass was done. One conversion was needed for splenic bleeding. One patient died for pulmonary embolism (1,35%).

**Conclusion:** The authors conclude, that laparoscopic gastric banding is safe and effective bariatric operation. The complications rate is low. Weight loss in authors group is sufficient, but not as good as it is presented in the literature.

Experimental session | 2009-10-03 11:45

A-0063

## FOREBRAIN GLUCOSE-MONITORING NEURONS IN THE CENTRAL CONTROL OF FEEDING AND METABOLISM

Zoltán Karádi - B. Nagy - G. Takács - Cs. Szalay - Sz. Papp - B. Lukáts - D. Fotakos - D. Keresztes - B. Hideg - L. Lénárd  
Institute of Physiology and Neurophysiology Research Group of the Hungarian Academy of Sciences (H.A.S.), Pécs University, Medical School, Pécs, Hungary

The so called „glucose-monitoring” (GM) neurons, sensitive to increase (or decrease) of the extracellular glucose concentration, exist in the hypothalamus, and in several other brain regions of the rat and monkey brain. Despite increasing efforts in the field, little is known yet about the complex functional characteristics of these special chemosensory cells.

To study involvement of the forebrain GM neuronal network in the central regulation of homeostasis, series of microelectrophysiological, neurochemical and behavioral experiments have been conducted in the rodent and macaque monkey. Extracellular single neuron activity was recorded in various forebrain areas in anesthetized Wistar rats and alert rhesus monkeys by means of the multibarreled microelectrode technique. In addition, feeding and metabolic-energetic consequences of a single bilateral microinjection of the diabetes inducing streptozotocin (STZ) or the primary cytokine interleukin 1b (IL-1b) into these same forebrain regions were also studied in the laboratory rat.

In all structures examined, a characteristic 'endogenous' and 'exogenous' (i.e. gustatory) chemosensitivity of the GM neurons was revealed. Furthermore, the GM cells were also shown to have particular responsiveness to food objects as well as to phases of a food rewarded learning task. Evidence has been obtained for the development of serious feeding-metabolic disturbances and taste perception deficits after the microinjection of either the STZ - which proved to be selectively toxic for the chemosensory cells - or the IL-1b into these same forebrain areas.

The above findings - along with results of our most recent fMRI studies in the rhesus monkey - indicate that intact functioning of the forebrain GM neuronal network is indispensable to maintain the balance of homeostasis during challenges of the continuously changing environment.

Supported by: National Research Fund of Hungary (OTKA K 68431, M036687), Health Care Scientific Council (ETT 315/2006), NKTH MEDIPOLIS RET-008/2005, and the H.A.S.

Experimental session | 2009-10-03 11:45

A-0160

## GENE-ENVIRONMENT INTERACTION IN THE DEVELOPMENT OF OBESITY: PREVENTIVE ROLE OF PHYSICAL ACTIVITY

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**Introduction:** In the human population the genetic determinants of traits for development of obesity and its comorbidities is complex and the gene-environmental interactions make even further variable the outcome as individual phenotypes. One tool to investigate the complexity of inter-individual differences in a specific character in the laboratory is artificial selection. Artificial selection uses a largely heterogeneous animal population and selectively inbred for a given character or trait. Each generation of inbreeding increases the probability of attaining homozygosity at specific genetic loci resulting a clear divergence in the phenotypic expression of the given trait. We used mouse lines that are selectively bred for the trait of high voluntary wheel running activity over at least 30 generations to study the metabolic, physiological and behavioral consequences of high voluntary exercise activity. The aim was to study response to selective breeding for high voluntary wheel running activity in energy balance regulation and their contribution in the prevention of obesity and related metabolic diseases in relation to high fat feeding.

**Methods:** Behaviors and organismal physiology as complex traits were studied in male and female active and sedentary control mice. Body growth, food and energy intake, energy expenditure, food efficiency, food selection behaviour, resting metabolic rate, diet-induced obesity, motor activity in home cage were tested in one hand and exploration, fear, anxiety, spatial learning on the other. Hormones known to control food intake and metabolism (leptin, insulin, adiponectin) were also assayed, as well some brain neurotransmitter system functions.

**Results:** The highly active mice were hyperphagic but nonetheless resistant to diet-induced obesity (DIO), showed increased energy expenditure, higher non-exercise thermogenesis and fat oxidation when fed a HF diet. Control mice, on the other hand, were prone to develop DIO when subjected to the same HF diet. Behavioral consequences of selective breeding for high voluntary activity showed that mice with high activity levels responded differently in a novel vs. habituated environment. In a novel environment, they were more anxious, more explorative and risk-taking suggesting their level of carefulness and attentiveness was increased relative to non-selected mice. In a habituated environment, they had increased routine behavior, which probably helped them to sustain their physical en-

duration activity.

Conclusions: Selective breeding for voluntary physical activity is an appropriate tool to study potential co-adaptational changes, since selective breeding for one trait could be linked to changes of several sub-ordinate traits that may determine individual variation in energy metabolism and susceptibility to diet-induced obesity.

**Clinical aspects of obesity II. | 2009-10-03 12:15**  
**A-0097**

### **IMPORTANCE OF ECHOCARDIOGRAPHY IN THE EVALUATION OF OBESE STATUS**

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Obesity in adulthood has been confirmed to correlate closely with cardiovascular morbidity and mortality. It is well known that obesity acts as an independent factor in coronary heart disease, in congestive heart failure, in stroke as well as in cardiovascular mortality.

Echocardiography has become an important diagnostic tool in assessment of obese persons for the early detection of the unfavourable geometrical and functional changes observed in connection with obesity. These changes are well known in cases of left ventricle - as left ventricular hypertrophy, decreased systolic function, diastolic dysfunction, and higher estimated pulmonary arterial systolic pressure. It seems to be important to make an estimation of right ventricular geometry (RV anterior wall thickness) and systolic (tricuspid annular plane systolic excursion) and diastolic function (tricuspid inflow velocity patterns and Doppler tissue imaging parameters of right ventricle) in obese persons. We can observe in obesity earlier than in left ventricle increased right ventricular anterior wall thickness, slightly decreased right ventricular systolic function, and significantly impaired myocardial relaxation. Furthermore, right ventricular diastolic indexes may eventually prove prognostically important in obesity. Several studies have demonstrated that weight reduction is associated with a significant decrease of left ventricular muscular mass along with favourable changes in cardiac geometry and systolic and especially diastolic function. To avoid the harmful consequences of the obesity we have to detect the diastolic and systolic dysfunction both ventricle as early as possible, and we have to start complex therapy (lowering body weight, increasing physical activity, low-salt diet, if needed calcium antagonistic agents (CAA), ACE inhibitors, AT1 receptor blockers and diuretics (first of all aldosterone antagonists).

**Clinical aspects of obesity II. | 2009-10-03 12:15**  
**A-0010**

### **IS THE CARDIOMETABOLIC RISK FACTOR IMPROVEMENT AFTER WEIGHT LOSS IN OBESE PATIENTS SIMILAR TO A STABLE OBESE CONTROL GROUP?**

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Background: Weight loss impacts positively on cardiometabolic risk factors greater cardiovascular risk such as elevated fasting plasma glucose, dyslipidemia, hypertension and insulin resistance. The aim of our study was to compare the metabolic cardiovascular risk factors of 50 obese patients after weight loss (mean weight loss of 17%) against a group control of 50 stable obese control subjects without history of weight loss, matched by age, BMI and sex.

Method: Following analysis have been done for both group: anthropometrical characteristics, lipid profil, euglycemic clamp, IMT measurement.

Results: Anthropometrical characteristics and IMT measurements were similar.

Insulin sensitivity were significantly different: The control group had higher insulin sensitivity than the weight loss group.

Lipid profil showed a significant difference only in LDL level between the two groups

Conclusion: These two groups were compared according to their anthropometric, laboratory values, blood pressure and insulin resistance.

Beside insulin sensitivity and LDL-c values, all the other parameters were similar and non significant.

Obese with weight loss, despite an improvement in several parameters, have a lower insulin sensitivity compared to stable weight obese. As this was already highlighted in several studies, we can assume that the weight loss obese group was more sedentary because of their overweight and that therefore their insulin sensitivity was significantly reduced. In our study, this group is also characterized by a higher LDL-c mean value which confirms that reduced insulin sensitivity is a precursor of atherogenic factors such as LDL-c. The (IMT) measured in both group did not differ significantly. These two groups of obese matched by age, sex and BMI differ if we consider their atherogenic state.

**Clinical aspects of obesity II. | 2009-10-03 12:15**  
**A-0003**

### **THE IMPORTANCE OF COMBINING BODY MASS INDEX (BMI) AND WAIST CIRCUMFERENCE MEASUREMENTS IN THE ASSESSMENT OF THE RISKS OF OBESITY AND OBESITY-RELATED CO MORBIDITIES.**

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Purpose: Obesity is associated with serious chronic conditions such as Type 2 diabetes, hypertension, hypercholesterolemia, that are major risk factors for cardiovascular disease, can reduce people's overall quality of life and can lead to premature death. With the recognition that central deposition of fat is more closely associated with these chronic diseases, the National Institute for Health and Clinical Excellence (NICE) guidance classifies health risk by combining both body mass index (BMI) and waist circumference. A high waist circumference (defined as 94-102 cm in men and 80-88 cm in women) and a very high waist circumference (defined as >102 cm in men and >88cm in women) is suggested by NICE as being associated with increased health risks for people with a BMI  $\geq$  30 kg/m<sup>2</sup>; health risks are very high for people with a BMI of 35 kg/m<sup>2</sup> or more, even when the waist circumference measurement is low. The aim of this analysis was to examine the prevalence of combined health risks of raised waist circumference and overweight/obesity according to the NICE definition and look into the link between raised waist circumferences with possible risk factors.

Subjects: 4274 men and 5043 women aged  $\geq$ 16 living in private households in England 2006. Outcome measures: Socio-demographic information, risk factors, measurements of height and weight and waist circumference.

Methods: Nationally representative cross-sectional population survey: the Health Survey for England (HSE) included an Interviewer administered questionnaire and measurements taken by trained nurses.

Results: Using the NICE guidelines definitions of health risk, most men and women classified as overweight or obese tended to also have a high or very high waist circumference. Those at very high risk of the health effects of overweight and obesity increased with age; being the highest in those aged 65-74 (30% of men, 34% in women). Among men aged 25-34, 16% had a high or very high waist circumference and BMI  $\geq$  30 kg/m<sup>2</sup>). Regression analyses showed that raised waist circumference was positively associated with age (odds ratio of 6.7 in men and 6.3 in women in those aged 65-74), with being an ex-cigarette smoker (odds ratios 1.6 for men and 1.2 for women), and with low levels of physical activity (odds ratio 2.1 in men and 1.9 in

women). Women in the lowest income quintile had almost twice the odds of a raised waist circumference compared with women in the highest income quintile.

Conclusion: The data highlights the need for healthcare professionals to incorporate waist circumference measurements into routine practice for early identification of abdominal obesity, shows a consistent independent association between raised waist circumference and other risk factors and identifies the need to consider both BMI and waist circumference when assessing risks of obesity and obesity-related co morbidities.

**Clinical aspects of obesity II. | 2009-10-03 12:15**  
**A-0098**

### THE RISK OF WEIGHT GAIN DURING MANAGEMENT OF THYROID DYSFUNCTIONS

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Population-based studies show significant positive association between TSH levels and body weight. Morbid obese patients have more often subclinical hypothyroidism but autoimmunity is not the major cause. Those patients with negative thyroid autoantibodies have higher TSH and lower free thyroid hormone levels as well and no female gender prevalence was observed.

It remains unclear whether high TSH levels or high leptin levels are responsive for obesity or represent secondary phenomenon.

Recommendation for the daily practice: in obese patients borderline elevated TSH levels without thyroid antibody positivity should not be treated by thyroid hormones because in many cases they are reversible by body weight reduction.

Since about one third of the rest energy expenditure is thyroid hormone dependent it is believed that thyroid hormone substitution may prevent body weight gain,

Thyroid hormone treatment of euthyroid patients with obesity is not justified. However in some cases when TSH is elevated and triiodothyronine (T3) concentration is low, T3 treatment can be given. Also, when obesity developed after cessation of cigarette smoking and there is hyperlipidemia and a concomitant high TSH/T3 ratio.

Several studies show significant weight gain of patients treated for hyperthyroidism. The risk factors are: a/ if overweight before; b/ in case of immune hyperthyroidism; c/ significant weight loss before the treatment. In one study the weight excess in two years was: 5.2kg on thyrostatic treatment; 4.8kg after radioiodine administration and 10.3kg after surgery. The weight excess was 4.6kg in patients who remained euthyroid, 5.4kg if they had transient hypothyroidism but 8 kg in patients on thyroxine treatment. The average weight excess was 3.7kg/year!

It is astonishing in how many cases the problem of weight gain during treatment of thyroid dysfunction is completely neglected by the clinician and not discussed with the patient!

In the majority of our patients we see that a weight gain beyond the „pre-hyperthyroid” or „pre-thyroxine” weight can be effectively prevented by confronting the patients (mostly women who care a lot about their bodyweight!) with the risk of obesity and by demanding for frequent weight control, preventive diet (especially decrease of carbohydrate intake, increased during hyperthyroidism), daily exercise and behaviour training.

**Clinical aspects of obesity II. | 2009-10-03 12:15**  
**A-0045**

### PREVALENCE AND SIGNIFICANCE OF SOME THYROID ABNORMALITIES IN OBESITY

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Objectives. Thyroid volume determined by ultrasonography (US) is a measure of thyroid enlargement. Thyroid nodes are frequent in the general population. Few data are available about thyroid abnormalities in obesity. The aim of this study is to investigate the prevalence and significance of thyroid involvement in obese patients. Further, to look for correlation between the most common risks of obesity, the fatty liver and the cardiovascular complications.

Materials and methods. Normal values of thyroid volume were determined in 202 healthy people. Thyroid volume of 205 obese patients was measured by US using a cross-sectional area method together with other parameters of obesity such as BMI, waist/hip ratio, US measurement of liver attenuation ( $\alpha$ ), subcutaneous fat thickness (SCF), as signs of fatty liver and US determined visceral fat thickness (VFT), as well as US determination of common carotid artery intima-media thickness (CCA-IMT) as signs of cardiovascular risks, etc. Prevalence and correlations were then determined.

Results. It was found that the prevalence of thyroid enlargement was 44,3% being much higher than the 7-10% in the general population. Nodules (in all cases multiple, mostly solid, some mixed) were detected in extremely high percentage, i.e. 91,7% ; 48,4% occurred in normal sized thyroid. The 17 patients without nodules had also normal sized thyroids and were in the overweight group (BMI<30). The correlation between thyroid enlargement and VFT, VFA, BMI, waist/hip ratio was significant ( $p<0,001$ ). On the other hand, the correlation between thyroid enlargement and US attenuation and SCF was not significant.

Conclusions. The prevalence of both thyroid enlargement and thyroid nodules are much higher in

obesity, than in the general population. The nodules were multiple and mostly solid, in some cases mixed ones also occurred. On the basis of correlation studies it was found that thyroid abnormalities rather contribute to the cardiovascular risks of obesity than to the development of fatty liver disease associated with high US attenuation. In the future it would be desirable to search for the background of these abnormalities of high prevalence.

**Clinical aspects of obesity II. | 2009-10-03 12:15**  
**A-0086**

### THE EFFECT OF PHYSICAL ACTIVITY AND LOW CALORY DIET FOR THE WEIGHT REDUCTION IN PATIENTS SUFFERING FROM OSTEOARTHRITIS

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Aim: The physical activity is a prominent part of the weight management but it may be blocked by osteoarthritis of knee or hip. To dissolve this problem we worked out a complex physical activity method for the treatment of obese patients with osteoarthritis.

Subjects: 53 patients with osteoarthritis (34 male, 19 female) mean of age 42,30 (SD:8,73) were treated in hospital (14-21 days) and following in an outpatient's clinic during 70,02 days (SD:13,84).

Method: The treatment started with underwater exercise and continued by gymnastics, followed by brisk walking in the park of the hospital. The dietitians controlled by computer analyses the individual diet content 800-1500 kcal/day. The fat body mass and percent were measured by InBody 3.0. The total number of steps and the walking distance were measured by Omron HJ-112-E counter.

Results:

n:53	X	marginal	SD	p
Body weight kg1	121.60	208.0-59.6	23.40	
Body weight kg 2	114.33	180.6-58.8	21.31	< 0.001
$\Delta$ body weight kg	6.82	34.9-3.9	4.55	
BMI kg/m <sup>2</sup> 1	39.30	68.0-22.7	5.76	
BMI kg/m <sup>2</sup> 2	36.97	59.0-22.4	4.92	< 0.001
Fat body mass kg1	45.52	105.2-16.3	12.33	

n:53	X	marginal	SD	p
<b>Fat body mass kg 2</b>	40.53	90.0-15.0	12.30	< 0.001
<b>Fat body % 1</b>	37.10	53.7-22.1	6.52	
<b>Fat body % 2</b>	35.03	51.0-19.1	6.63	< 0.001
<b>Muscle kg 1</b>	71.76	116.0-38.3	14.65	
<b>Muscle kg 2</b>	70.02	113.4-40.9	13.83	< 0.001

Conclusions: The complex physical activity method based on underwater exercise gave possibilities for gymnastic and brisk walking program. The significance changes of examined parameters manifested by dietetic regime and behavioural therapy too. We recommend our method in the treatment of obese patients with osteoarthritis.

#### Clinical aspects of obesity II. | 2009-10-03 12:15

A-0163

### SLEEP APNEA IN OBESITY

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Aim or objectives: Obesity is known risk factors of sleep apnea. The distribution of body fat influences the severity of obstructive sleep apnea. Android/gynoid fat distribution and the quantity of fat deposited in the cervical region were compared with selected parameters recorded with a cardiorespiratory polygraph. The objective of this study was to explore the relationship between the quantity and distribution of body fat and the severity of sleep apnea.

Materials or Subjects: The study population comprised 62 patients (32 women and 30 man) with a mean age of 58.87±7.48 years. The mean duration of menopause was 45.75±5.10 years. The severity of apnea was rated according to the apnea-hypopnea

index (AHI). Mild apnea was diagnosed in patients with AHI 0-10, whereas moderate and severe apnea was denoted by AHI 10-30 and >30, respectively.

Methods: The quantity of total and regional body fat was determined using DEXA (dual energy x-ray absorptiometry). For the purposes of this study, the cervical region was delimited by the tip of the chin and the level of the clavicles. The severity of obstructive sleep apnea was appraised with a cardiorespiratory polygraph.

Results: The ratio of android/gynoid obesity was determined as the quotient of percentage body fat in the abdominal and hip regions. A quotient of >1 indicated severe android.  $\chi^2$ -test revealed non-independence of android obesity/cobesity. Analysis using the and severe OSAS (df: 2, p=0,039). The same was demonstrated for obesity (BMI >30 kg/m<sup>2</sup>) and the severity of apnea (df: 4, p=0,036). Fat content of the cervical body region was 30.19% in cases with advanced OSAS (n=37) and 25.17% in patients with mild-to-moderate OSAS (n=25). Two-tailed t-testing demonstrated a statistically significant (p=0,026) difference between the means of these two groups.

Conclusions: Obesity with android fat distribution and higher relative fat content of the cervical region are suggestive of progressive sleep apnea.

#### Clinical aspects of obesity II. | 2009-10-03 12:15

A-0026

### OBESITY: KNOWLEDGE, ATTITUDES AND EVERYDAY PRACTICE AMONG HUNGARIAN GENERAL PRACTITIONERS

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Aim: Obesity and its consequences represent a high burden on European societies. Fourty percent of the Hungarian population is overweight, and 20% is

obese. General practitioners (GPs) have a significant role in preventing and diagnosing weight problems. Methods: In this cross-sectional study we assessed knowledge and attitude of 160 GPs (64 men, 96 women, age 53±6.8 years, mean±SD), who filled out a validated questionnaire about their attitudes and opinions regarding obesity, any relevant knowledge and daily practices. Anthropometric data of the GPs were also recorded.

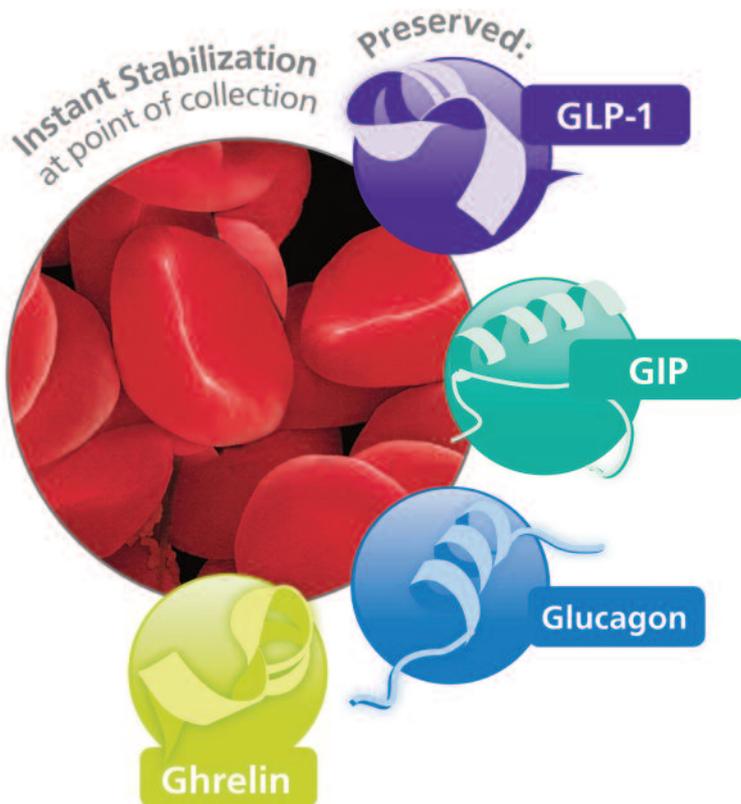
Results: Most GPs (96%) were aware of the fact that obesity is a risk factor for several other diseases, and 94% implicated weight loss programs with patients. Sixty one percent did not know the exact Body Mass Index (BMI) criteria of obesity, but 77% used BMI as a diagnostic method. However, only 23% of them measured waist circumference. Almost three-fourth of the GPs targeted more than 15% weight loss as an objective for overweight or obese patients. Calorie intake was rated significantly higher than stress, hormonal problems or unemployment as a risk factor for obesity. GP apply weight loss programs for 7 patients per month (median). The mean duration of consultation was 10 minutes. This treatment was successful in 9% of cases. Especially male doctors (57% vs. 47%, p < 0.01) but altogether 49% felt not properly trained in managing obese patients. We observed a negative correlation between GPs' BMIs and their attitude score towards obese patients (r= -0.22, p<0.001), while the number of their specialization correlated with their attitudes positively (r=0.091, p<0.001). In addition, the weight loss program was less effective in the case of obese GPs (5% vs. 12%, r<0.22, p<0.001).

Conclusions: The knowledge and attitude of Hungarian GPs on causes, potential dangers and management of obesity is insufficient. Their unrealistic weight loss objectives for patients also add to therapeutic failure. A large number of GPs do not feel adequately prepared to manage a successful weight loss program. They require interactive training, based on practical experiences.

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**Adagolás:** Felnőttek (18 éves kortól) egy kapszula naponta háromszor minden főétkezéshez (illetve legfeljebb egy órával étkezés után). Naponta legfeljebb 3 kapszula alkalmazható. A kezelés időtartama nem haladhatja meg a 6 hónapot. A kezelőorvossal vagy gyógyszerésszel való konzultáció javasolt, amennyiben 12 hetes alli-kezelést követően sem jelentkezett súlycsökkenés. Az alli-kezelést megelőzően ajánlott egy diétát és testmozgást is magában foglaló program elkezdése. **Ellenjavallatok:** túlérzékenység bármely összetevővel szemben, egyidejű ciklosporin- warfarin- vagy más antikoaguláns-kezelés, krónikus melabszorpciós szindróma, cholestasis, terhesség, szoptatás. **Figyelmeztetések:** Nagyobb valószínűséggel jelentkezhetnek gastrointestinális tünetek, ha magas zsírtartalmú étrend mellett szedik. Lefekvés előtt multivitamin bevétele javasolt. Orvosi konzultáció javasolt cukorbetegeknek, amiodaron szedőknek, akik magas vérnyomás vagy magas koleszterinszint kezelésére gyógyszert szednek. Végbélvérzés esetén orvosi konzultáció javasolt. Súlyos hasmenés esetén a szájon át szedett fogamzásgátlók hatástalanok lehetnek, ezért kiegészítő fogamzásgátló módszert kell alkalmazni. **Gyógyszerkölcsonhatások:** Ciklosporinnal, orális antikoagulánsokkal, orális fogamzásgátlókkal, zsírban oldódó vitaminokkal, akarbozzal, amiodaronnal. **Terhesség és szoptatás:** Terhesség és szoptatás alatt ellenjavallt. **Nemkívánatos hatások, mellékhatások:** Főleg gastrointestinális jellegű mellékhatások fordulhatnak elő, amelyek a gyógyszernek az elfogyasztott zsír felszívódását gátló hatásával kapcsolatosak pl. olajos csepegés, széllel együtt távozó hig széklet, surgetó székelés, zsíros, olajos széklet. Ezek általában enyhék és átmeneti jellegűek és általában a kezelés kezdeti időszakában jelentkeznek. Alacsony zsírtartalmú étrend fogyasztásával csökkenthető a valószínűségük. Ezekon kívül csökkent protrombinszint és emelkedett INR-érték, túlérzékenységi reakciók beleértve az anaphylaxiát, bronchospasmust, angioödémát, pruritust, kiütést és urticariát; szorongás; hepatitis; cholelithiasis, transzamináz illetve alkalkus foszfatáz szint emelkedése, bulózus kiütés.  
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**Qualitative and quantitative composition:** One capsule of Reductil 10 mg contains 10 mg of sibutramine hydrochloride monohydrate (equivalent to 8.37 mg of sibutramine). One capsule of Reductil 15 mg contains 15 mg of sibutramine hydrochloride monohydrate (equivalent to 12.55 mg of sibutramine).  
**Therapeutic indications:** Reductil 10 mg / 15 mg is indicated as adjunctive therapy within a weight management programme for: patients with nutritional obesity and a body mass index (BMI) of 30 kg/m<sup>2</sup> or higher, patients with nutritional excess weight and a BMI of 27 kg/m<sup>2</sup> or higher, if other obesity-related risk factors such as type 2 diabetes or dyslipidaemia are present.  
**Posology and method of administration:** The initial dose is one (1) capsule of Reductil 10 mg swallowed whole, once daily, in the morning, with liquid (eg a glass of water). The capsule can be taken with or without food. In those patients with an inadequate response to Reductil 10 mg (defined as less than 2 kg weight loss after four (4) weeks treatment), the dose may be increased to one (1) capsule of Reductil 15 mg once daily, provided that Reductil 10 mg was well tolerated.  
**Contraindications:** Known hypersensitivity to sibutramine hydrochloride monohydrate or to any of the excipients, organic causes of obesity, history of major eating disorders, psychiatric illness. Sibutramine has shown potential antidepressant activity in animal studies and, therefore it cannot be excluded that sibutramine could induce a manic episode in bipolar patients. Gilles de la Tourette's syndrome. Concomitant use, or use during the past two weeks, of monoamine oxidase inhibitors or of other centrally-acting drugs for the treatment of psychiatric disorders (such as antidepressants, antipsychotics) or for weight reduction, or tryptophan for sleep disturbances. History of coronary artery disease, congestive heart failure, tachycardia, peripheral arterial occlusive disease, arrhythmia or cerebrovascular disease (stroke or TIA). Inadequately controlled hypertension (> 145/90 mmHg; see section 4.4 "Special warnings and special precautions"). Hypertthyroidism. Severe hepatic impairment. Severe renal impairment and in patients with end stage renal disease on dialysis. Benign prostatic hyperplasia with urinary retention. Pheochromocytoma. Narrow angle glaucoma. History of drug, medication or alcohol abuse. Pregnancy and lactation (see section 4.6 "Pregnancy and lactation"). Children and young adults up to the age of 18 years, owing to insufficient data. Patients above 65 years of age, owing to insufficient data.  
**Special warnings and precautions for use:** Blood pressure and pulse rate should be monitored in all patients on Reductil 10 mg / 15mg, as sibutramine has caused clinically relevant increases in blood pressure in some patients. In the first three months of treatment, these parameters should be checked every 2 weeks; between month 4 and 6 these parameters should be checked once monthly and regularly thereafter, at maximum intervals of three months. - Reductil 10 mg / 15 mg should be given with caution to patients with epilepsy. Increased plasma levels have been observed in the assessment of sibutramine in patients with mild to moderate hepatic impairment. Although no adverse effects have been reported, Reductil 10 mg / 15 mg should be used with caution in these patients. Although only inactive metabolites are excreted by the renal route, Reductil 10 mg / 15 mg should be used with caution in patients with mild to moderate renal impairment. Women of child-bearing potential should employ adequate contraception whilst taking Reductil 10 mg / 15 mg.  
**Undesirable effects:** Most side effects reported with sibutramine occurred at the

start of treatment (during the first 4 weeks). Their severity and frequency diminished over time. They were generally not serious, did not entail discontinuation of treatment, and were reversible. The side effects observed in phase II/III clinical trials are listed below by body system (very common > 1/10, common < 1/10 and > 1/100):

Body system	Frequency	Undesirable effects
Cardiovascular system (see detailed information below)	Common	Tachycardia Palpitations Raised blood pressure/hypertension Vasodilation (hot flush)
Gastrointestinal system	Very common	Constipation
	Common	Nausea Haemorrhoid aggravation
Central nervous system	Very common	Dry mouth Insomnia
	Common	Light-headedness Paraesthesia
		Headache Anxiety
Skin	Common	Sweating
Sensory functions	Common	Taste perversion

The SpC-s last chequing date: 13.11.2007.

ATC: A08A A10.

Before prescribing please read the whole SpC of Reductil.

Prescribing information: Group II

Medical product subject in Hungary to medical prescription only (V).

Maximum price in Hungary from 06.01.2009.: Reductil 10mg 28x: 5.990 Ft,

Reductil 10mg 56x: 10.890 Ft, Reductil 15mg 28x: 6.990 Ft,

Reductil 15mg 56x: 12.990 Ft. [www.ogyi.hu](http://www.ogyi.hu), (2009.08.12.)

For more information please contact your local Affiliate.

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References:

1. Finer N. Eur.Herat Jour.Suppl.7., 2005; (Suppl.L):L32-L38.

2. Torzsa P. [www.webdoki.hu](http://www.webdoki.hu) 2008.09.25.

3. Reductil Summary of Product Characteristics

RE/AUG/09/02

**Reductil**<sup>®</sup>  
sibutramine

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