About ECOG

The European Childhood Obesity Group (ECOG) is a pan European group of professionals dealing with childhood obesity and overweight. ECOG brings together experts from across the board including: paediatricians, psychologists, nutritionists, genetists, physical activity experts, economists and many more. ECOG was founded in 1991.

ECOG’s mission is to help the European community at large to understand fully the health, social, psychological and economic impacts of childhood obesity, and work together to take this growing problem off the menu in Europe.

Childhood obesity is one of Europe’s most serious public health challenges. Around 20% of European children are overweight and one third of them obese and as childhood obesity has the status of a disease, it is now classified as an epidemic. The prevalence of childhood overweight and obesity is already so high in Europe that obesity-related diseases and complications in later life, such as type 2 diabetes, cardiovascular diseases, cancers, and psychosocial disorders, may very well lead to many European children living much shorter lives than their parents.

This is a serious concern for ECOG.
ECOG BOARD

Prof Andrea Vania, President – Italy
Prof Eva Erhardt, Vice President – Hungary
Dr Marie Laure Frelut, Secretary – France
Prof Caroline Braet, Scientific advisor – Belgium
Prof Artur Mazur, Treasurer and webmaster – Poland
Dr Grace O’Malley, Member – Ireland
Prof Daniel Weghuber, Member – Austria

SCIENTIFIC COMMITTEE
CONGRESS 2013

Dr Marie Laure Frelut, Secretary – France
Dr Margherita Caroli, Co-Chair – Italy

Prof Caroline Braet – Belgium
Dr Jo Cecil – United Kingdom
Prof Eva Erhardt – Hungary
Prof Jason Halford, United Kingdom
Prof Marion Hetherington – United Kingdom
Dr Beckie Lang – United Kingdom
Dr Clare Llewellyn – United Kingdom
Dr Grace O’Malley – Ireland
Prof Andrea Vania – Italy
Prof Daniel Weghuber – Austria

ORGANISING COMMITTEE
CONGRESS 2013

Prof Jason Halford, President Elect – United Kingdom
Mr Luigi Petito, Chair – Italy

Dr Maria Bryant – United Kingdom
Dr Emma Boyland – United Kingdom
Mrs Maria Grimes – United Kingdom
Dr Joanne Harrold – United Kingdom
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Dear Friend and Colleague,

On behalf of the European Childhood Obesity Group (ECOG) and the Organizing Committee, it is our great pleasure to welcome you to Liverpool and to the 23rd ECOG Congress.

The Congress has been designed to provide an innovative and comprehensive overview of the latest research developments in the field of childhood obesity, primarily in the areas of public health and health policies, psychology in prevention and treatment, critical periods in development and interesting insights into the most recent research on novel ideas and new developments.

Many distinguished colleagues have joined to take part in this Congress. Topics will be presented in the form of plenary sessions, working groups and posters. Moreover, this year’s Congress will host the ECOG-UK Association for the Study of Obesity joint session “Development in Science, Policy and Practice”.

Finally, at this year’s Congress, ECOG will appoint a new Board. The new Board will be presented during the plenary session on November 15th.

We hope that you will enjoy the Congress and that your interaction with colleagues from many different countries will stimulate the discussion and a creative exchange of ideas. We also hope that you will enjoy your visit to the very beautiful city of Liverpool.

We look forward to welcoming you in Liverpool and already invite you in Salszbug for our 24th Congress in 2014.

Yours sincerely,

ECOG President

President Elect ECOG 2013

Prof Andrea Vania

Prof Jason Halford
The first day of the congress will be dedicated to a joint session between the European Childhood Obesity Group (ECOG) and the Association for the Study of Obesity (ASO).

ASO is the UK’s foremost organization dedicated to the understanding, prevention and treatment of obesity.

The ASO aims to develop an understanding of obesity through the pursuit of excellence in research and education, the facilitation of contact between individuals and organisations, and the promotion of action to prevent and treat obesity.

Founded in 1967, the Association was the first such organisation worldwide and is affiliated to the European (EASO) and International (IASO) Associations for the Study of Obesity. The Association organised the 1st International Congress on Obesity, held in London in 1974 and the 2nd European Congress on Obesity, held in Oxford in 1989. The Association was also the founding body of the International Journal of Obesity.
Programme Day 1
November 13th

Joint Session ECOG-ASO

Childhood Obesity in 2013:
Developments in Science, policy and practice
**Programme - DAY 1**

**JOINT SESSION ECOG - ASO**

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<tr>
<td>09.15 - 09.45</td>
<td>Registration</td>
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</table>
| 09.45 - 09.55 | Chairs remarks:  
**Prof Jason Halford** - **Prof Andrea Vania**               |
| 09.55 - 10.20 | **SESSION 1 - The Psychobiology of Appetite and Obesity: Genes, Environment and Learning**  
Co-Chairs:  
**Dr Joanne Harrold** - University of Liverpool, UK  
**Prof Artur Mazur** - University of Rzeszow, PL |
| 10.20 - 10.45 | Increasing liking and intake of vegetables in infants and children  
Keynote:  
**Prof Marion Hetherington** - University of Leeds, UK |
| 10.45 - 11.05 | What drives eating behaviour in infancy and how does that relate to later obesity?  
Keynote:  
**Prof Charlotte Wright** - University of Glasgow, UK |
| 11.05 - 11.25 | Coffee break                                                        |
| 11.25 - 11.50 | **SESSION 2 - Integrated Intervention**  
Co-Chairs:  
**Dr Emma Boyland** - University of Liverpool, UK  
**Prof Daniel Weghuber** - Paracelsus Medical University, AT |
| 11.50 - 12.15 | Highlights of European projects on childhood obesity  
Keynote:  
**Prof Denes Molnar** - University of Pecs, HU |
| 12.15 - 13.00 | Lunch                                                            |
### SESSION 3 - Assessment and Evaluation

**Co-Chairs:**
- **Dr Maria Bryant** - University of Leeds, UK
- **Prof Eva Erhardt** - University of Pecs, HU

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<tr>
<th>Time</th>
<th>Event Description</th>
<th>Keynote Details</th>
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<tbody>
<tr>
<td>13.00 - 13.25</td>
<td>Predictors of co-morbidity of childhood obesity: new chances for paediatricians</td>
<td><strong>Prof Claudio Maffeis</strong> - University of Verona, IT</td>
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<tr>
<td>13.25 - 13.50</td>
<td>Issues concerning the measurement of physical activity</td>
<td><strong>Dr Lisa Phillips</strong> - University of Exeter, UK</td>
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<tr>
<td>13.50 - 14.15</td>
<td>Assessing dietary behaviours in complex interventions: implications for evaluation</td>
<td><strong>Prof Pinki Sahota</strong> - Leeds Metropolitan University, UK</td>
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</table>

**14.15 - 14.35**  
Coffee break

### SESSION 4 - Policy and Practice in the UK

**Co-Chairs:**
- **Dr Beckie Lang** - UK Association for the Study of Obesity
- **Dr Elizabeth Poskitt** - European Childhood Obesity Group

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<th>Time</th>
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<tbody>
<tr>
<td>14.35 - 14.55</td>
<td>How childhood obesity has changed from the past: a personal perspective</td>
<td><strong>Dr Elizabeth Poskitt</strong> - ECOG Founding Member, UK</td>
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<td>14.55 - 15.25</td>
<td>Measuring Up: The medical profession’s prescription for the nation’s obesity crisis</td>
<td><strong>Prof Michael Larvin</strong> - Academy of Medical Royal Colleges, UK</td>
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</table>
| 15.25 - 16.05 | Guidance on Overweight and obese children and young people: lifestyle weight management services | **Dr Adrienne Cullum** - National Institute for Health and Care Excellence, UK  
**Dr Paula Watson** - Liverpool John Moores University, UK |
| 16.05 - 16.30 | Panel Discussion - How should Science inform Policy and Practice?               | **Dr Elizabeth Poskitt** - ECOG Founding Member, UK                                |
Programme Day 2 and Day 3
November 14\textsuperscript{th} and 15\textsuperscript{th}
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<th>Time</th>
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<td>Registration</td>
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<td>09.00 - 09.20</td>
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<td></td>
<td><strong>Prof Jason Halford</strong> - University of Liverpool, UK</td>
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<tr>
<td>09.20 - 10.00</td>
<td><strong>SESSION 1 - Public health and public health policies: designing a healthy environment</strong></td>
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<td><strong>Dr Marie Laure Frelut</strong> - Assistance Publique Hôpitaux de Paris, FR</td>
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<td>Keynotes:</td>
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<td><strong>Prof Andrea Vania – President of ECOG</strong> - Sapienza University of Rome, IT</td>
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<td><strong>Dr Tommy Visscher</strong> - University of Amsterdam, NL</td>
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<td><strong>Prof Amandine Garde</strong> - University of Liverpool, UK</td>
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<tr>
<td>10.00 - 10.20</td>
<td>Oral presentations:</td>
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<tr>
<td></td>
<td>Assessing school food policies across the EU28 plus Norway and Switzerland</td>
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<td><strong>Dr Stefan Storcksdieck genannt Bonsmann</strong> - European Commission Joint Centre Research</td>
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<td>Are balance and quality of life impaired in children who are obese?</td>
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<td><strong>Dr Grace O’Malley</strong> - University College Cork, IE</td>
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<tr>
<td>10.20 - 10.40</td>
<td>Coffee break</td>
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<tr>
<td>10.40 - 12.00</td>
<td>Parallel working groups</td>
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<td>Time for delegates to return to the plenary</td>
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<tr>
<td>12.10 - 12.40</td>
<td>Plenary: follow up working groups and next steps</td>
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<tr>
<td>12.40 - 13.40</td>
<td>Lunch</td>
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<tr>
<td>13.40 - 14.40</td>
<td>Poster Session</td>
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### 14.40 - 15.00
**SESSION 2 - Psychology in the spotlight and its role in prevention and treatment**

**Chair:**
**Dr Margherita Caroli** - ASL Brindisi, IT

**Keynote:**
**Prof Caroline Braet** - University of Gent, BE

### 15.00 - 15.20
**Oral presentations:**
- Early psychopathology of obesity: a study with preschoolers and their parents  
  **Dr Anna Ek** - Karolinska Institutet, SE

- Restrictive feeding and child weight: evidence for a bi-directional association in preschool children  
  **Dr Pauline Jansen** - Erasmus Medical Centre, NL

### 15.20 - 16.10
**Parallel working groups**

### 16.10 - 16.30
**Coffee break and return to the plenary**

### 16.30 - 17.00
**Plenary: follow up working groups and next steps**

### 17.00 - 19.00
**General Assembly and presentation of new ECOG Board candidates**
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<tr>
<td>09.00 - 09.20</td>
<td><strong>SESSION 3 - Learning to eat: critical periods in development</strong></td>
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<tr>
<td>Chair:</td>
<td><strong>Dr Marie Laure Frelut</strong> - Assistance Publique Hôpitaux de Paris, FR</td>
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<tr>
<td>Keynote:</td>
<td><strong>Dr Sophie Nicklaus</strong> - Institut National de la Recherche Agronomique Centre des Sciences du Goût et de l’Alimentation, FR</td>
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<tr>
<td>09.20 - 09.50</td>
<td>Oral presentations:</td>
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<td>Understanding fruit and vegetable eating behaviour in British primary school children: An application of the Theory of Planned Behaviour</td>
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<td><strong>Dr Michael Duncan</strong> - Coventry University, UK</td>
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<td>A community study on psychosocial functioning of overweight and obese pre-school children in Germany</td>
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<td><strong>Dr Ricarda Schmidt</strong> - Leipzig University Medical Center, DE</td>
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<td>Common genetic architecture underlying food fussiness in children, and preference for fruits and vegetables</td>
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<td><strong>Dr Alison Fildes</strong> - University College London, UK</td>
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<tr>
<td>09.50 - 10.10</td>
<td>Coffee break</td>
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<tr>
<td>10.10 - 11.20</td>
<td>Parallel working groups</td>
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<td>11.20 - 11.30</td>
<td><strong>Time for delegates to return to the plenary</strong></td>
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<td>11.30 - 12.30</td>
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<td>Follow up working groups and next steps</td>
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<td>Announcement of results of ECOG Board elections</td>
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<td>12.30 - 13.30</td>
<td><strong>Lunch</strong></td>
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<td>13.30 - 14.20</td>
<td>Poster Session</td>
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### SESSION 4 - Novel ideas and new developments

**Chair:**
**Dr Ascenció Marcos** - Federation of European Nutrition Societies, ES

**Keynote:**
**Prof Daniel Weghuber** - Paracelsus Medical University, AT

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<td>Chair:</td>
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<td><strong>Dr Ascenció Marcos</strong> - Federation of European Nutrition Societies, ES</td>
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<td>Keynote:</td>
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<td><strong>Prof Daniel Weghuber</strong> - Paracelsus Medical University, AT</td>
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<tr>
<td>14.40 - 15.10</td>
<td>Oral presentations:</td>
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<td></td>
<td>The effect of ‘green exercise’ on post exercise hypotension in children:</td>
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<td>An exploratory study</td>
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<td><strong>Dr Michael Duncan</strong> - Coventry University, UK</td>
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<td>NAFLD-Nonalcoholic fatty liver disease in overweight / obese child (ow/ob) born SGA (Small for Gestational Age)</td>
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<td><strong>Prof Andrea Vania</strong> - Sapienza University of Rome, IT</td>
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<td>Screening for impaired glucose tolerance in obese children and adolescents: a validation and implementation study</td>
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<td><strong>Prof Claudio Maffeis</strong> - University of Verona, IT</td>
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<tr>
<td>15.10 - 16.10</td>
<td>Parallel working groups</td>
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<tr>
<td>16.10 - 16.30</td>
<td>Coffee break and return to the plenary</td>
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<tr>
<td>16.30 - 17.00</td>
<td>Plenary: follow up working groups and next steps</td>
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<tr>
<td>17.00 - 19.00</td>
<td>General Assembly: Announcement of ECOG new President and closing ceremony</td>
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The 23rd Congress of the European Childhood Obesity Group (ECOG) has been granted 17 European CME credits (ECMEC) by the European Accreditation Council for Continuing Medical Education (EACCME).

The EACCME is an institution of the European Union of Medical Specialists (UEMS) - www.uems.net

The CME credits are assigned as follows:

**DAY 1 – NOV 13th – up to 6 CME Credits**

**DAY 2 – NOV 14th – up to 5 Credits**

**DAY 3 – NOV 15th – up to 6 Credits**

Through an agreement between the European Union of Medical Specialists and the American Medical Association, physicians may convert EACCME credits to an equivalent number of AMA PRA Category 1 Credits™. Information on the process to convert EACCME credit to AMA credit can be found at www.ama-assn.org/go/internationalcme.

Live educational activities, occurring outside of Canada, recognized by the UEMS-EACCME for ECMEC credits are deemed to be Accredited Group Learning Activities (Section 1) as defined by the Maintenance of Certification Program of The Royal College of Physicians and Surgeons of Canada.
During the Day 2, 14th, and Day 3, 15th, the programme foresees parallel working group activities. The purpose of the working group activities is to discuss the topics presented in the plenary lectures.

Each Working Group has a Facilitator and a Rapporteur. The Facilitator will lead the discussion and the Rapporteur will present the outcomes of the working group to the plenary session.

Participants to each working group, Facilitators and Rapporteurs will be communicated during the Congress.

**Working Groups**

**Working Group A** from 10.40 to 12.00  
Public health and public health policies: designing a healthy environment  
- Presentation to the plenary at 12.20 -

**Working Group B** - from 15.20 to 16.10  
Psychology in the spotlight and its role in prevention and treatment  
- Presentation to the plenary at 16.30 -

**Working Group C** – from 10.10 to 11.20  
Learning to eat: critical periods in development  
- Presentation to the plenary at 11.30 -

**Working Group D** – from 15.10 to 16.10  
Novel ideas and new developments  
- Presentation to the plenary at 16.30 -
Venues and Logistics
Liverpool is a city like no other.

From world famous architecture and magnificent museums, to music legends revolutionising popular culture, Liverpool has always been a hub of creativity through spectacular festivals, dramatic sporting attractions and unique art, the city continues to be a gateway for UK culture, attracting millions of visitors every year.

Liverpool is currently undergoing a thrilling renaissance since its hugely successful year in 2008 as Capital of culture. Cultural events and creativity are in the DNA of the city.

Music and popular music are also at the core of Liverpool’s identity and international reputation.
ECOG 2013 takes place in heart of the famous Liverpool Waterfront, which is a great place to visit with a whole host of things to do in a breathtaking and iconic setting.

Found in the heart of the Albert Dock, the Merseyside museum is the ideal location to explore and uncover the development of the world famous port. Boats, paintings, ship models, ship wrecked objects, uniforms and more bring Liverpool’s nautical history to life. Discover the city’s pivotal role as the gateway to the new world.

Albert Dock
Merseyside
Liverpool
L3 4AQ
Tel: 0044 (0) 151 478 4499

The Gala dinner will take place on November 14th at 20.30 in the Ziba Restaurant.

It is a special venue housed in a Victorian gem of building constructed in the form of a Venetian Palazzo by a wealthy Liverpool merchant in 1857. The award winning Ziba Restaurant was established in 1997 and moved into the refurbished Racquet Club Hotel in 2003.

The Racquet Club Hotel
The Hargreaves Building
5 Chapel Street
Liverpool
Tel: 0044 (0) 151 478 4499
How to reach the Congress Venue

By train

James Street station
James Street station is about a 5 minute walk away. This station is served by the Wirral Line trains only.

Liverpool Central station
Liverpool Central station is served by the same services as Moorfields and is about a ten minute walk away.

Moorfields station
Moorfields station, just off Dale Street, is about a 15 minute walk away. This station is served by the Southport, Hunts Cross, Ormskirk, Kirkby, West Kirby, New Brighton, Chester and Ellesmere Port line trains.

Lime Street Station
Merseyside Maritime Museum is about a 20 minute walk from Liverpool Lime Street station - Liverpool’s mainline train station.

Mersey Cabs

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<tr>
<th>Credit card bookings</th>
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<td>0151 298 1234</td>
<td>0151 298 2222</td>
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</table>
Abstracts - Speakers Day 1

Dr Adrienne Cullum
Dr Paula Watson
Prof Marion Hetherington
Prof Michael Larvin
Dr Clare Llewellyn
Prof Claudio Maffeis
Prof Denes Molnar
Dr Lisa Philips
Dr Elizabeth Poskitt
Prof Pinki Sahota
Prof Gareth Stratton
Prof Charlotte Writght
Dr Adrienne Cullum
National Institute for Health and Care Excellence, UK

**BIOGRAPHY**

Adrienne Cullum is an analyst at the Centre for Public Health at the National Institute for Health and Care Excellence (NICE). She is the technical lead for forthcoming NICE guidance on lifestyle weight management in adults. She has also been involved in developing NICE guidance on obesity (2006), weight management before, during and after pregnancy (2010) and obesity: working with local communities. She has previously worked at the Department of Health and in health promotion. Her doctorate in social medicine, from the University of Bristol in 2001, focused on the development of adiposity in young adults. She is a Registered Public Health Nutritionist, a Trustee of the Association for the Study of Obesity and an associate member of the UK Health Forum.

Dr Paula Watson
Liverpool John Moores University, UK

**BIOGRAPHY**

Paula is a chartered psychologist with the British Psychological Society (BPS) and registered as a sport and exercise psychologist with the Health and Care Professions Council (HCPC). Between 2005 and 2012 she was Principal Researcher on the GOALS project, during which time she completed her PhD exploring the process of health behaviour change in children who were overweight. Her work on childhood obesity has attracted national and international interest, including television appearances as an expert on BBC Panorama and Channel 4 Generation XXL. Paula was a professional member of the NICE programme development group for lifestyle weight management services for children and young people.
Title: Guidance on Overweight and obese children and young people: lifestyle weight management services

The National Institute for Health and Care Excellence (NICE) was asked by the Department of Health to develop guidance on lifestyle weight management services for children and young people. Lifestyle weight management approaches were defined as those addressing diet, physical activity, behaviour change or any combination of these factors. The guidance was developed by an independent Programme Development Group (PDG) using standard NICE processes and methods for public health guidance. The guidance was published October 2013.

The guidance is principally for commissioners in local authorities and the NHS, directors of public health and their teams, those providing weight management services, health professionals and others working with children and young people.

The guidance is based on the best available evidence and covers children and young people under 18 years of age. For growing children, many lifestyle weight management interventions aim to maintain the child’s existing weight in the short term, as they grow taller. This is an appropriate short-term aim as it results in an improved BMI over time.

Recommendations cover:

• Planning
• Commissioning
• Lifestyle weight management programmes: core components
• Developing a tailored programme plan to meet individual needs
• Encouraging adherence
• Raising awareness
• Formal referrals
• Providing ongoing support
• Programme staff: training, knowledge and skills
• Training in how to make programme referrals
• Supporting programme staff and those making programme referrals
• Monitoring and evaluation.

Key issues in the development of the guidance were the limited evidence in relation to UK based studies, children under 6, impact by socioeconomic group and the views of children and young people who did not take part in programmes or who dropped out early. The guidance flags the importance of tailoring to meet local needs and commissioning programmes as part of an integrated, sustainable approach to obesity prevention and management. The guidance includes recommendations about monitoring and evaluation and focuses on sustaining changes in the longer term, by reporting outcome measures including BMI z score for age and gender at programme completion and at follow up after programme completion. Cost effectiveness considerations for this guidance were complex and hindered by limited long term data. A range of “what if” scenarios were considered to ensure that the recommendations are cost effective.
Biography

Professor Hetherington has held a chair in Biopsychology at the University of Leeds since 2008; previously she was appointed to chair at the University of Liverpool in 2001 and held a Futures Professorship at Glasgow Caledonian University in 2005. She began her academic career at the University of Dundee with interests in the field of energy balance, appetite regulation, obesity and eating disorders. Her undergraduate degree in Psychology is from the University of Glasgow, her DPhil in Experimental Psychology from the University of Oxford. She held a Fulbright scholarship and then postdoctoral fellowship at the Johns Hopkins University in Baltimore and a Fogarty International Fellowship at the National Institutes of Health in Bethesda. Her particular interests include the development of food preferences in children; causes of childhood obesity; satiety expression and enhancement; and the anorexia of aging.

Abstract

Title: Increasing liking and intake of vegetables in infants and children

Children’s consumption of vegetables falls below recommendations across Europe. Vegetables are low in energy density and provide protection against a number of chronic diseases if part of the habitual diet. However, children dislike vegetables and tend to avoid eating them. This might be due to attributes of the food (bitter taste, low energy density), characteristics of the child (overweight, fussy eating, neophobia), or parenting practices (vegetables offered infrequently). In a series of systematic studies we have tested the efficacy of repeated exposure in enhancing intake and liking of vegetables. In particular we have compared different forms of learning from flavour learning (where sweetness or other familiar tastes are added to novel foods) to flavour-nutrient learning (where energy is added to novel foods) and sensory manipulations on learning to like and to consume vegetables. Across several studies we have found that early, varied and repeated exposure is the most effective technique for promoting vegetable intake in infants and young children. Healthy eating habits formed early in life provides an important foundation for future eating patterns, therefore the first year of life may be optimal for the introduction of a variety of vegetables into the habitual diet. Later than this might prove problematic because novel food acceptance is a more difficult task when neophobia begins. Since infants tend to eat foods they prefer, offering vegetables as a first food, offering often and providing variety will increase liking and therefore intake.
Prof Michael Larvin
Academy of Medical Royal Colleges, UK

BIOGRAPHY

Professor Michael Larvin joined the University of Limerick’s Graduate Entry Medical School (GEMS) in August 2012, in succession to Professor Paul Finucane as Head of School. He is a General Surgeon with interests in HPB and Bariatric surgery. Prof Larvin is hoping to build on the solid foundations already established by the GEMS, and to strengthen relationships with GPs, hospital specialists and trainees in teaching and research.
Dr Clare Llewellyn
National Institute for Health and Care Excellence, UK

**BIOGRAPHY**

Clare is a Lecturer in Behavioural Obesity Research, at University College London. Her primary research interest is understanding how genes and the environment interact to promote excessive weight gain in early life, with a focus on behavioural appetitive pathways. She currently works on two population-based twin birth cohorts (Gemini – Health and Development in Twins; and the Twins Early Development Study), combining twin methods and molecular genetic studies to provide evidence for the idea that ‘obesity genes’ influence weight partly via appetitive mechanisms. She is also interested in elucidating the neurobiology that links genetic risk of obesity with eating behaviour, and the role of the microbiome in conferring susceptibility to weight gain in childhood.

**ABSTRACT**

**Title: Gene-environment interactions: susceptibility to overconsumption and obesity in early life**

There is considerable evidence for both environmental and genetic causes of obesity. Increased availability of cheap, palatable food plays a role, but despite the ‘obesogenic’ environment there is still substantial variation in weight. In fact, variability in weight has gone up over recent decades, with the thinnest people remaining as thin as they ever were, but the fatter ones becoming a great deal fatter than they used to be. Genetic susceptibility to the environment is thought to explain some of the individual differences in weight. Adiposity is highly heritable (50-90%), and genome-wide association studies have started to elucidate common genetic variants involved. This has led researchers to hypothesise that genetic susceptibility to the ‘obesogenic’ environment explains some of the individual differences in adiposity, implying gene-environment interaction in the determination of body weight. In particular, it has been hypothesised that genetic susceptibility to obesity is partly attributable to appetitive phenotypes, so-called inherited behavioural susceptibility theory (IBST). In other words, individuals who inherit a more avid appetite, and lower sensitivity to satiety, are more likely to overeat in response to the modern food environment.

Data from two large population-based twin birth cohorts (Gemini and TEDS) have provided support for IBST. Cross-sectional data from TEDS show a graded association between appetite and adiposity, such that children who are less satiety sensitive and more food responsive are higher on the body weight spectrum. Longitudinal data from Gemini shows that satiety sensitivity and food responsiveness predict faster weight gain from 3 to 15 months of life. Furthermore, there are profound individual differences in appetite from the first few months of life that are largely explained by genetic variation. The primary obesity-related SNP in the FTO gene is associated with differences in satiety sensitivity, independent of BMI, in TEDS; suggesting that FTO influences weight via appetite. TEDS children at higher genetic risk of obesity (indexed using a score comprising 27 common obesity-related variants other than FTO) are less satiety sensitive, suggesting that other genetic variants influence obesity via appetite pathways as well. Together, data from TEDS and Gemini support the idea that from very early in life there are inherited individual differences in appetite that predispose to obesity.
ABSTRACT

Title: Predictors of co-morbidity of childhood obesity: new chances for paediatricians

Maffeis C, Morandi A. - Morbidity associated with obesity is an emerging problem in pediatric care. The epidemic of obesity promotes a continuous increase of metabolic morbidity such as hypertension, disturbances of glucose metabolism, i.e. impaired glucose tolerance (IGT) and type 2 diabetes, and lipid metabolism, i.e. hypertriglyceridemia, low HDL-cholesterolemia. Moreover, fatty liver, a disorder disregarded till recently, is now the most common disease detectable in obese children and adolescents and it has been proposed as a key factor in the worsening of insulin resistance process. Long-term exposition to metabolic risk factors during childhood and adolescence increases the risk of developing the cardiovascular heart disease later in life and reduces the life expectancy. Performing blood tests, oral glucose tolerance test, and echotomography exam of the abdomen in all obese children and adolescents implies high economic, organizational and human costs. Thus it would be useful to have tools for categorizing subjects into subgroups at higher and lower risk for morbidity, in order to limit the biochemical and instrumental investigations to the high risk group.

The results of recent studies showed that a gross categorization of obese children on the basis of their metabolic risk is possible. The variables that may be used for this purpose are a body fat distribution index, as the waist-to-height ratio (W/Ht r), and a few simple blood tests performed in fasting conditions, as glucose, triglycerides, and ALT. Abdominal fat accumulation is associated with morbidity also in pre-pubertal children and the W/Ht r is a very simple and robust index, and its contribution to prediction is reasonably accurate. Fasting glucose and triglycerides allow for identifying accurately obese children affected by IGT, when combined as independent variables in a screening equation developed to this purpose. ALT, together with fasting glucose and W/Ht r, contribute to increase the chance of identifying obese children suffering from fatty liver, allowing a gross estimation of the risk.

It is expected that in the near future new markers may be identified for increasing the predictive power of the available equations and the estimation of metabolic risk in obese children and adolescents, making possible to the pediatrician to concentrate its intervention to the subgroup of obese children at the highest metabolic risk.

Prof. Dr. Dénes Molnár is head of the Department of Paediatrics, University of Pécs. He was the president and for two terms the scientific advisor of the European Childhood Obesity Group (ECOG), and the vice-president of the Hungarian Association for the Study of Obesity. He is the president of the Hungarian Paediatric Association from 2012. He is associate editor of the Journal of Pediatric Obesity from 2012, and member of the editorial board of Obesity Facts and Nutrition, Metabolism and Cardiovascular Diseases, Journal of Pediatric Biochemistry and The Scientific World Journal; besides that of more national journals. He has published 250 original articles in peer-reviewed journals and 15 book chapters (cumulative IF: 450; independent citation index: more than 1000).

**ABSTRACT**

**Title: Highlights of European projects on childhood obesity**

The HELENA, IDEFICS and ENERGY Projects were comprehensive three to five year research programmes, spanning 8-10 countries, using a common methodology designed to assess the nutritional status and behaviour, as well as the fitness and physical activity patterns, of more than 3000 adolescents aged 12.5 to 17.5 years; more than 16,000 prepubertal children aged 2-10 years and more than 7,000 10-12-year-old children, respectively.

The basic objective of the European multicentre cross-sectional studies was to obtain reliable and comparable data on dietary intake, food preferences, anthropometry, serum indicators of lipid and glucose metabolism, vitamin and mineral status, physical activity, fitness and genetic markers.

The aim of the lecture is to present a bunch of the most important findings of the above projects in the light of other, recent international results.

The prevalence of BMI categories in European children and adolescents was the following:

<table>
<thead>
<tr>
<th></th>
<th>Overweight</th>
<th>Obese</th>
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<tr>
<td></td>
<td>boy</td>
<td>girl</td>
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<tr>
<td>HELENA (12.5-17.5 yr)</td>
<td>19.4</td>
<td>13.9</td>
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<tr>
<td>ENERGY (10-12 yr)</td>
<td>20.4</td>
<td>17.7</td>
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<tr>
<td>IDEFICS (2-10 yr; T0)</td>
<td>11.4</td>
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The prevalence of overweight and obesity showed a north to south gradient in all studies. 42% of normal weight and only 31.5% of obese adolescents spent 60 minutes/day in moderate-to-vigorous physical activity as measured by accelerometer. In the IDEFICS Study 16.7% of normal weight and 11.3% of overweight + obese prepubertal children spent 60min/day in moderate-to-vigorous physical activity. Adolescents spent most of the registered time in sedentary behaviours (9 hours/day, or 71% of the registered time).

In the HELENA sample 1.1% of children had metabolic syndrome according to the criteria of the International Diabetes Federation. In the IDEFICS sample the prevalence of metabolic syndrome was 2.0% according to the criteria of Cook. The results of the European projects beside their scientific merit help authorities to launch preventive measures on a European level.
Dr Lisa Philips  
University of Exeter, UK

After completing her undergraduate and MSc at Bangor University, Lisa joined the University of Exeter to undertake her PhD; which she recently completed under the supervision of Dr Melvyn Hillsdon and Dr Alex Rowlands. Her Thesis, entitled ‘The relationship between psychological well-being and physical activity: the impact of measurement’ focused on the effects that accelerometer data reduction processes have upon the observed relationships between psychological well-being and physical activity in children. She currently hold two associate research fellow positions within the University of Exeter; the first at the Medical School as the physical activity coordinator on the Healthy lifestyles programme (HeLP). The second based within the Sport and Health science department.

**ABSTRACT**

**Title: Issues concerning the measurement of physical activity**

The precise measurement of physical activity is imperative in obtaining the best estimate of physical activity levels, the association between physical activity and health outcomes such as obesity, for determining the effectiveness of interventions designed to increase physical activity and for developing appropriate public health recommendations. Reliance on self-reports of physical activity has almost certainly led to an overestimate of population prevalence which in turn has underestimated the burden of disease attributable to physical inactivity. The observed relationship between physical activity and obesity is likely to be much may be weaker than the true relationship; leading researchers to draw false conclusions about how much physical activity is required to prevent obesity and the relative importance of physical activity compared to other risk factors.

The development of technology has allowed researchers to employ more objective measurement methods, such as accelerometry, that attempt to overcome some of the shortcomings of self-reports. Despite having the potential to provide more precise estimates of physical activity levels, a number of limitations, specifically concerning periods of accelerometer wear data processing, are present. The various decisions made when handling accelerometer data can result in misclassification of time spent in different intensities of physical activity and can introduce selection bias to a study. Misclassification can occur through decisions employed to estimate time spent in different physical activity intensities based on levels of acceleration, the sampling periods (epochs) chosen and the determination of non-wear / wear-time. Further, the amount of wear time required for a day to be classed as ‘valid’, and the number of ‘valid’ days necessary for a participant to be included in analysis has the potential to introduce selection bias. Selection bias can be random but can also be systematic with regards to the outcome variable of interest, e.g., obesity, and important covariates such as age and socioeconomic position. Although very few of these issues are usually acknowledged, misclassification and selection bias may have substantial impact upon prevalence estimates and observed relationships between physical activity and health outcomes. As a result, it is imperative that researchers wishing to measure physical activity not only consider the method used, but also the consequences of data processing rules, in order to avoid drawing incorrect conclusions.
Dr Elizabeth Poskitt
European Childhood Obesity Group, UK

BIOGRAPHY
Elizabeth is an academic paediatrician with a specialist clinical and research interest in both over and under nutrition in childhood, working in UK and in Africa. She ran an obesity clinic for children in UK between 1971 and 1993 - virtually the only one in UK at that time. A research project between 1974 and 1976 was associated with the outcome for overweight infants. Twenty years ago she founded ECOG together with Walter Burniat. Now retired, she retains a watching brief on developments in obesity and the activities of ECOG.

ABSTRACT
Title: How childhood obesity has changed from the past: a personal perspective

Over the past forty years research and publicity about childhood obesity have increased dramatically. Yet, the prevalence of childhood obesity has also increased dramatically. Why? Research and publicity should lead to prevention and even cure but, for the obese child and family, there remain few places where they can receive individually directed, long term advice. There is still no management ‘best practice’. Follow up studies are few and involve too few children for too short a time.

Some things have changed. Infants are now less fat. Pre-school children are fatter. Markers for the adult complications of obesity - of little concern in the past - are now not only frequently found but the complications themselves may be present. Income, education and social class are, if anything, more important risk factors than in the past. Also, in my view, the focus on the causes of obesity has become more realistic. Overeating used to be widely regarded as THE cause of obesity. Overeating was perceived as a psychological failing. As a consequence, obese children were referred to psychologists and psychiatrists who were as unsuccessful with management as everyone else. Physical activity levels were liable to be ignored.

So, what should change now? The individual obese child and family need experienced, focused, on-going help. Multifaceted, multidisciplinary programmes would seem the best way forward but the dedicated wise advisor is often the critical factor for subject retention and success. Treatment programmes, whether research or clinic/community group based, must include long term evaluations. Pressure to publish should not drive research. Further, could the findings of modern research be confused by the irrelevant ‘associations’ that inevitably accompany any condition with high community prevalence? Do we need to give more credence to past research and clinical experience when obesity was less prevalent? Going back to early studies can be enlightening.

Does the solution to obesity really lie with politicians, planners and local government rather than with biomedical scientists? The current epidemic is predominantly due to nurture not nature. Modern lifestyles need to be less obesogenic but leaving individuals, particularly the ‘at risk’ disadvantaged, to alter their lifestyles in unaltered environments is clearly not successful. So what should be done and how do we do it? These are the challenges… for the next forty years?
ABSTRACT

**Title: Assessing dietary behaviours in complex interventions: implications for evaluation**

Behavioural interventions commonly used in the prevention and treatment of obesity are termed complex interventions because they often consist of many potential active ingredients targeting a range of modifiable risk factors, combine different components that focus at different levels e.g. individual, group, community, environmental and involve a range of personnel in intervention delivery. Dietary intake and food habits are important contributors to the obesity epidemic. They are highly modifiable components of energy balance and are usually targeted in both obesity prevention and treatment programs. Such interventions often target behavioural changes in diet and eating behaviours and interventions aimed at children often target parents e.g. interventions aimed at infants and pre-school children; or target the child or adolescent directly, involve parents, teaching and catering staff e.g. school-based interventions. It is widely acknowledged that dietary assessment generally poses methodological challenges, and can convey a large burden in terms of cost, technical expertise, impact on respondents and time.

Furthermore there are unique methodological issues in evaluating dietary behaviours in children and adolescents and considerations include age, cognitive ability, weight status, physical activity level, respondent burden, and reliability and validity in the context of program goals and research questions.

Furthermore complex interventions due to the multi-level nature of the intervention present further challenges in determining which dietary behaviours should be evaluated in addition to dietary intake. The presentation will highlight the unique methodological issues associated with evaluating dietary intake and food habits in children; briefly review the evidence-based diet-related outcomes to consider in the evaluation of childhood obesity interventions and provide recommendations for evaluating dietary intake and dietary behaviours within complex interventions aimed at obesity prevention in children. The presentation aims to provide guidance to researchers in selecting appropriate outcomes and dietary assessment methods for the evaluation of obesity interventions.
BIOGRAPHY

Professor Stratton is Director of the Applied Sports, Exercise Technology and Medicine (A-STEM) Research Centre at Swansea University. Professor Stratton chairs the Research into Exercise Activity and Children’s Health (REACH) group that he founded in 2001 and is also an adjunct Professor at the University of Western Australia. Professor Stratton has two main areas of academic interest. Children maturation and physical activity and physical activity fitness and health. He has been involved in physical activity measurement studies for over 20 years and he continues his interest in the development of novel sensor technologies to detect and stimulate changes in physical activity and sedentary behaviour. Further Professor Stratton has designed a significant number of physical activity interventions in clinical and healthy populations that aim to change children’s behaviour, impact on overweight and type I and II diabetes. Professor Stratton has worked in translating research and chaired a number of national groups responsible for producing evidence based guidance on young people, physical activity and health. Professor Stratton co-directs the Sportsinx Programme that won the Louis Bonduelle Childhood Obesity Group award in 2011. Professor Stratton has published over 100 per reviewed papers and book chapters.

ABSTRACT

Title: Sensing changes in physical activity, fitness and health in children: engineering solutions

Whilst the rise in overweight and obesity has largely plateaus in the UK, some measures of fitness continue to decline. Whereas BMI cut points are well established in paediatric populations, fitness cut points are not. This presentation will first examine the production of fitness cut points and establish them in relation to cardio metabolic risk. Second the presentation will consider measurement approaches and how technology and engineering may develop more effective determinant of fitness and physical activity data and intervention designs.
Prof Charlotte Wright
University of Glasgow, UK

Charlotte Wright is a paediatrician and epidemiologist whose interest in nutrition began with the study failure to thrive, but now extends to all aspects of growth and feeding in preschool children and obesity in older children. She previously set up the Parkin Project and the Gateshead Millennium cohort on Tyneside. She holds a personal professorship in Community Child Health at Glasgow University and is based at the Royal Hospital for Sick Children in Glasgow where she works half time as a Paediatrician specialising in nutritional problems. The rest of her time is spent working in nutrition and public health related research and teaching. She also heads the RCPCH growth chart working group who designed the new UK-WHO growth charts.

ABSTRACT

Title: What drives eating behaviour in infancy and how does that relate to later obesity?

Many studies have found that duration of breast feeding, age at weaning and rate of weight gain are predictive of later obesity and it is widely suggested that infancy represents a critical period for the formation of taste preferences and eating behaviour. This paper will describe approaches to assessing eating behavior in infancy, the characteristics that are associated with infant appetite and how infant eating behaviours relate to later growth and adiposity.
Abstracts - Speakers Day 2

Prof Caroline Braet
Dr Anna Ek
Prof Amandine Garde
Dr Pauline Jansen
Dr Grace O’Malley
Dr Stefan Storcksdieck genannt Bonsmann
Prof Andrea Vania
Dr Tommy Visscher
Prof Caroline Braet, Ph.D., is a professor in the Department of Developmental, Personality, and Social Psychology at Ghent University in Belgium. Her research domain and the topics of the lessons were all characterized by a developmental psychopathology approach. She also serves as the coordinator, supervisor, and a therapist at the Children’s University Hospital at Ghent University and the Ghent University Child Mental Health Center. Caroline Braet received her Ph.D. from the University of Ghent in 1993, with a specialization in the investigation of psychological aspects of childhood obesity. She is the author or co-author of over 100 scientific publications.

ABSTRACT

Title: Psychology in the spotlight and its role in prevention and treatment

Children with overweight are a heterogeneous group and differ on psychological dimensions. These pre-treatment characteristics are related with differential treatment outcome. We conducted two studies using cluster analysis and compared the subtypes on disordered eating characteristics and psychopathology symptoms. Three robust subtypes emerged: a rigid dietary restraint/ negative affect subtype (DR/NA), a pure negative affect group (NA) as well as a non-dietary/ non symptomatic (NS) group. We advise that for NS children a standard evidence-based weight control treatment program will be the first choice, whereby a psychologist as part of the team learns the children self-regulation. In contrast, the DR/NA and NA subtypes enclose more problematic children and they will need an individual psychological approach that focuses on coping with their emotions, and challenging their rigid restraint attitudes. I will conclude that individual characteristics like history of dieting and current negative affect can be helpful in (1) typifying youngsters with overweight seeking treatment (2) stipulating specific treatment guidelines and (3) making differential prognoses.
BioGraphy

Anna Ek is a Registered Dietitian and a PhD student in Medical Sciences at Karolinska Institutet, Stockholm, Sweden (main supervisor: Paulina, Nowicka). The PhD thesis with the preliminary title “Early prevention and treatment of childhood obesity: risk factors and effective interventions” will include results from two randomized controlled trials: the first one is a prevention study, the Early Stopp study, and the second is the More and Less Study which is a treatment study testing different approaches to obesity in preschoolers.

Abstract

Title: Early psychopathology of obesity: A study with preschoolers and their parents

Ek, A 1, Hedman, J 2, Marcus, C 1, Nowicka, P 1,3
1 Division of Pediatrics, Department of Clinical Sciences, Intervention and Technology (CLINTEC), Karolinska Institute, Stockholm, Sweden
2 Department of Public Health Sciences, Karolinska Institute, Stockholm, Sweden
3 Unit for Biocultural Variation and Obesity, School of Anthropology and Museum Ethnography, University of Oxford, Oxford, UK

Introduction: While increased levels of depression and symptoms of ADHD have been reported in older children with obesity, not much is known on the prevalence of early psychopathology in obese children as young as four.

Methods: Parents of preschoolers aged 4 to 6 years (n=28, mean age 4.9 yrs, 50% boys) with obesity (mean BMI SDS 3.0), who were referred from Stockholm County child care centres to a treatment study, filled out the Child Behaviour Checklist for ages 1.5-5, measuring the child’s emotional, social and behavioural problems. The parents also filled out the Beck Depression Inventory Second Edition (BDI-II), measuring parents’ degree of depression. Children’s levels of problematic behaviour symptoms were compared to Swedish and Danish reference populations.

Results: The total score of problem behaviours in this clinical sample was 30.6 (SD 20.3), compared to 22.3 (15.4) for Sweden and 16.1 (15.0) for Denmark. Obese children had higher scores on the following subscales: externalizing, internalizing, affective problems, anxiety, attention and depression. They were more withdrawn and had more sleep problems than their normal weight peers. There were no significant gender associations. Mothers’ scores on BDI-II were positively correlated with the children’s scores on the total problem scale and on the externalizing problem subscale (ρ>0.000). The results were adjusted for child’s age at the onset of obesity as well as parent’s ethnicity.

Conclusion: The high prevalence of psychological problems as early in life needs to be confirmed in larger samples. We will discuss the results, including the latest cohort, in Liverpool.
Prof Amandine Garde
University of Liverpool, UK

Amandine Garde is Professor of Law at the University of Liverpool. She previously lectured at King's College London, at the Faculty of Law in Cambridge - where she was also a Fellow of Selwyn College, at the University of Exeter and at the University of Durham. Her research interests lie in the fields of EU Trade, Consumer, Advertising, Food and Public Health Law. She specialises in particular on the role which legal instruments can play in promoting healthier lifestyles and thus contribute to the prevention and control of non-communicable diseases at global, regional and national levels.

Title: Public health and public health policies: designing a healthy environment

The NCD Global Action Plan for 2013-2020 explicitly acknowledges that the law provides significant opportunities to improve the environment in which we live and thus promote healthier diets. Nevertheless, the opportunities that the law offers to prevent obesity will only be maximised if the constraints which the law imposes on regulators are understood and adequately taken into account at all stages of the policy process. This paper considers three categories of constraints and assesses how they influence the obesity prevention agenda at national and European levels. Firstly, it discusses the extent to which international trade rules can have consequences on how public authorities design and implement their obesity prevention strategies. Secondly, it focuses on the need for competent authorities to respect constitutional imperatives relating to the allocation of powers between the different levels of intervention (national or European). Finally, it assesses the role which fundamental rights play in the NCD debate, focusing on how they have been invoked by industry operators to oppose any regulatory intervention intended to reduce tobacco or alcohol consumption and how this is relevant, by analogy, to unhealthy diets. Overall, this paper demonstrates why the public health community in Europe and beyond cannot succeed in using the law effectively if it does not take these three categories of constraints systematically into account.
Dr Pauline Jansen 
Erasmus Medical Centre, NL

BIOGRAPHY

Pauline Jansen is a post-doctoral researcher at the Erasmus Medical Centre in Rotterdam. She is a child psychologist and an epidemiologist. Her work is focussed on behavioural influences on childhood overweight, for which she uses data from large population-based cohorts in the Netherlands and Australia.

ABSTRACT

Title: Restrictive feeding and child weight: evidence for a bi-directional association in preschool children

Jansen, PW1,2, Jaddoe, VWV1, Hofman, A1, Verhulst, FC1, Tiemeier, H1
1 Erasmus Medical Centre, Rotterdam, the Netherlands
2 Murdoch Children’s Research Institute, Melbourne, Australia.

Introduction: Parents’ restriction of food intake has consistently been associated with a higher body mass index (BMI) in children. It is assumed that parental restriction weakens children’s self-regulation, but restriction may also be a parent’s response to child overweight. With few exceptions, studies have not examined this possibility. In longitudinal analyses, we aimed to identify directionality in the restrictive feeding–BMI relationship among preschoolers.

Methods: BMI was measured among 3,478 children in the population-based Generation R Study. Restriction (Child Feeding Questionnaire) was self-reported by parents. Separate linear regression analyses (Figure 1, paths A and B) and path analysis (including paths A, B and C simultaneously) were conducted with Restriction and BMI expressed in standard deviation (SD) scores.

Results: Separate analyses indicated a higher child BMI at 2 years was associated with more Restriction at 4 years, which in turn predicted higher child BMI two years later. Path analysis jointly estimating Restriction–BMI associations in both directions and accounting for continuity in BMI over time indicated paths A and B remained significant and were equally strong (beta’s depicted in Figure 1). However, associations were modest, e.g. for each SD increase in Restriction, child BMIz increased by 0.072.

Conclusions: Our results imply a bi-directional relation between restrictive feeding and child BMI. This suggests that, in contrast to school-age children, among preschoolers a cyclical relationship may appear with parents responding to high child weight by food restriction, while excessive restriction has a counterproductive effect resulting in overeating and adiposity.
Grace is Senior Physiotherapist working as part of the obesity management team at The Children’s University Hospital (www.w82go.ie). Grace is a Health Research Board Fellow and is a PhD Student of Epidemiology and Public Health based in University College Cork. Grace’s clinical interests include: evidence-based paediatric obesity assessment and treatment and maximizing function in youth who are obese. Her research interests include the assessment and management of musculoskeletal impairment in obesity and the use of remote technologies and telemedicine in obesity prevention and management. Grace is the Chair of the Association for the study of Obesity on the Island of Ireland and is the Irish representative on the European Childhood Obesity Group and the European Childhood Obesity Task Force.

Title: Are balance and quality of life impaired in children who are obese?

O'Malley G; Killeeen S; Murphy S.
Weight Management Service, Temple Street Children’s University Hospital. Dublin 1.

Background: Children who are obese have impaired physical fitness. Balance and coordination are key parameters of fitness and when impaired can lead to falls and musculoskeletal injury1-3.

Aim: 1. To investigate whether children who are obese have impaired balance 2. To explore whether balance impairment is associated with quality of life

Methods: Children were recruited from the Temple Street Obesity Clinic. Children were classified as Class 1 (C1) obese (BMI SDS 2.0-2.49) or Class 2 (C2) obese (BMI SDS>2.5). Balance was measured using the BOT-II. Based on age-adjusted norms, children were classified as having a balance impairment or not. Quality of life was assessed using the physical capacities domain of the PedsQL4. A general linear model was used to compare differences in balance between C1 and C2 with

Results: Eighty-seven children (mean age 11.15 ± 2.7 years) who were obese (mean BMI SDS=2.36 ± 0.32; C1: n=57; C2: n= 30) were recruited. Mean balance correction for age, gender and musculoskeletal injury. A t-test compared quality of life between children with and without balance impairment, was 26.52 ± 5.2 out of a maximum of 37 (C1: 27.4 ± 4.6 and C2: 24.8 ± 6.2). 71.26% of children had impaired balance (C1 70.18% C1; C2 73.33%). C2 obese children had lower balance scores compared to C1 obese children (F=5.27; p=0.02). Mean quality of life was 59.0% ± 19.8% (C1 60.7% ± 19.1; C2 57.44 ± 19.8) and children with balance impairment had lower quality of life (56.43 ± 18.35 versus 66.88 ± 20.68, p=0.04).

Conclusion: Results of our study indicate that balance is impaired in children who are obese and that children with such impairment have a lower quality of life. Results highlight the importance of conducting a holistic physical in children who are obese.

Biography

In May 2013, Dr Stefan Storcksdieck joined the Nutrition team within the Public Health Policy Support Unit as Scientific Project Officer. Stefan holds an MSc equivalent (Dipl. oec. troph.) in Nutrition and Household Economics from Justus-Liebig-University Giessen, Germany, and a PhD in Human Nutrition from ETH Zurich, Switzerland. Over the past 5 years, he was employed first as Nutrition Communications Manager and then as Nutrition & Health Projects Manager at the European Food Information Council (EUFIC) in Brussels. At the JRC, Stefan is focusing on school food standards across Europe, coordinating the JRC input to the EU project PATHWAY-27, and supporting other projects of the Nutrition group.

Abstract

Title: Assessing school food policies across the EU28 plus Norway and Switzerland

Storcksdieck genannt Bonsmann, S, Wollgast, J, Caldeira, S
European Commission Joint Research Centre (JRC), Ispra, Italy

Background: With alarming childhood obesity trends in many European countries, strategic health policy documents have highlighted schools as a protected environment where children should learn healthy diet and lifestyle habits. Research shows that dietary intakes in school children can be improved by providing healthier food choices at school in an attractive and accessible way.

Methods: We screened public databases, EU level reports, national ministerial websites and the scientific literature to collate official school food policies across Europe. In a second step, Member States representatives on the High-Level Group (HLG) on Nutrition and Physical Activity checked that all appropriate documents had been identified and referenced.

Results: School food policies in the countries assessed vary from mandatory to voluntary to barely existent. Where specifications have been set, these differ in scope and detail. Variations mainly relate to the types of meals targeted (e.g. lunch, breakfast, snack, dinner); whether advice is nutrient- and/or food-based; and if vending machines and the wider food environment (kiosks near schools, packed lunches from home, etc.) are considered.

Conclusion: We provide an up-to-date overview of European school food policies. The next step will be to assess the need and feasibility for developing best practice guidelines for school food policies in Europe, bearing in mind cultural and structural differences between countries. This assessment will be conducted via a workshop designed to understand the challenges faced by different stakeholders and countries in developing, adopting, implementing and monitoring/evaluating school food policies.
Prof. Andrea Vania is Full Researcher and Aggregate Professor at the Department of Paediatrics and Paediatric Neuropsychiatry of the Faculty of Pharmacy and Medicine of “Sapienza” University of Rome. He is also author or co-author of almost 500 items including published papers and lectures, over 170 of which are of international relevance. His main interest research areas are: Paediatric Obesity, Paediatric Nutrition, General Paediatrics, Human Nutrition, Paediatric Psychology, Teaching Aspects of Paediatrics; other interests, mainly in the past time, were: Paediatric Haematology, Gastroenterology, Infectious Diseases, Immunology. At clinical level, he is Responsible for the Centre for Paediatric Nutrition and Dietetics in the same Department. As an Aggregate Professor, he teaches General Paediatrics, as well as Paediatric Nutrition.

ABSTRACT

Title: Assessing school food policies across the EU28 plus Norway and Switzerland

In the EU, the present one is the year of the “active citizen”. For this reason a wide space and many initiatives have been dedicated to the empowerment of citizens, or consumers, as people are still defined by many DG’s. As for health promotion, empowerment means teaching people about healthy choices, and it “involves people in assuming control or mastery over their lives (Rappaport 1987) but is also a social process that promotes participation of people toward the goals of increase individual and community control, political efficacy, improved quality of community life and social justice (Wallerstein 1992)”. By a cultural and ethical standpoint, a praiseworthy activity indid. But it is unlikely applicable per se to the task of tackling paediatric obesity, due to several psychological, environmental, and economic reasons.

Children get teaching in many aspects of their everyday life, but not all notions received and acquired are then put into practice, particularly when “duties” and “pleasure” are in conflict. In this case, most times “pleasure” wins over “duties”. The main reason for this unequal conflict is that children lack of Super-Ego’s ability (or symbolic and foreshadowing abilities, according to novel psychodynamic models), allowing aware choices. With the lack of such a support, the empowerment based on knowledge and information cannot reach positive and effective results. At their best, children can be empowered by proxy, through their parents and care-givers. The latters are therefore to be taught about correct life-styles, provided they can enjoy life conditions that allow them to make such life-styles applicable. Besides, working just on empowerment to promote health can be dangerous: it leads to forget the important role of the macro-environment on the development of obesity, one aspect of the environment that the single person (or family) cannot easily modify. Thus, insisting on the empowerment alone may even have a negative effect, when families with a lower SES are involved: they will probably feel guilty for being unable either to react or to apply healthy behaviours, even though the environment where they live in does not allow them for several external reasons, such as economic, social, political, and working ones. ECOG wants to enfasisize the need to still intervene on family, yet without forgetting the general social model, which deserte to be changed for the respect due to both children and their rights to health, as much during childhood as in the adult age.
Tommy Visscher is trained as an epidemiologist and has performed research to the prevalence, determinants and public health impact of obesity. As a postdoc he entered the field of health promotion and prevention. He co-developed the Research Centre for Obesity Prevention at the Windesheim University of Applied Sciences in Zwolle, The Netherlands and the VU University in Amsterdam, for which he serves as research coordinator. He now acts as team leader research for the expertise centre for health and social work at Windesheim. Further, Tommy Visscher serves as the chair of the Prevention and public health taskforce by the European Association for the Study of obesity (EASO), he is the president of the Netherlands Association for the Study of Obesity, and he is involved in the EU-programme EPODE Promotion of Health Equity and the EPODE International Network. His current research activities focus on linking prevention and management strategies combating chronic diseases.

**Title: Healthy obesity management needs a healthy environment**

European policy makers to date are keen on calling at ‘own responsibility’ when it comes to developing healthy behaviours amongst our youth. However, ‘own responsibility’ is different from ‘own fault’. Unfortunately, obese children and their parents very often anticipate that their peers and even management professionals do blame them for their obesity and unhealthy behaviours as it is their own fault. Even in case professional do not say that, or do not even mean to say that.

Obesity management is useless without an healthy environment. Why promoting eating an apple in the classroom when all other children are eating cookies, because commercials on TV encourage us to think that fruit cookies are as healthy as an apple. Why stimulating walking to school when other parents are showing unsafe and irresponsible behaviour in their cars. And what is the health benefit of sports when vending machines compensate for every calorie burned?

In the prevention area, evidence is increasing on the role of different environmental factors and stakeholders that have a responsibility in promoting health behaviour. Also, strong evidence is showing the effectiveness of multidisciplinary approaches to promote health behaviour and decreased obesity rates, in which different stakeholders are having a role, including stakeholders outside the health domain.

Prevention and management strategies need to collaborate and learn from each other. Management experts need to understand the power of environmental factors and how the obese child’s environment looks like. Only then, it can be understood why and how unhealthy behaviour has developed amongst the obese child.

And, management experts need to understand that a healthier environment is needed in order to make their so important management strategies successful in the long-term. Thinking the other way around, prevention experts need to learn to understand how to become supportive in health management strategies. As experts in the prevention area are working ‘behind the door’ they are very likely to have a key understanding be of the child’s environment in which she/he is trying to fight her/his obesity.

From examples in which policy makers, prevention experts, management experts and the obese child and parents come together and share expertise and efforts, it becomes more and more clear that obesity is not the consequence of an abnormal response to a normal environment, but that the majority of childhood obesity has developed as the result of normal responses to an abnormal environment.
Speakers - Day 3

Dr Michael Duncan
Dr Alison Fildes
Prof Claudio Maffeis
Dr Sophie Nicklaus
Dr Ricarda Schmidt
Prof Andrea Vania
Prof Daniel Weghuber
Dr Michael Duncan is a Principal Lecturer in Applied Sport and Exercise Science at Coventry University, Coventry UK. His main research interests are focused on the association between physical activity, exercise and weight status in children and adolescents and the effect of exercise interventions of weight status, psychological well-being and physiological variables in children and adolescents.

ABSTRACT

Title: Understanding fruit and vegetable eating behaviour in British primary school children: An application of the Theory of Planned Behaviour

Duncan, MJ, Clarke, ND, Birch, SL, Bryant, E, Eyre, ELJ.
Department of Biomolecular and Sports Sciences, Coventry University, UK

Introduction: Fruit/vegetable consumption in childhood has wide ranging implications including decreased risk of childhood obesity. Few studies have sought to predict children’s intention and behaviour related to fruit/vegetable consumption in the context of weight status. This study sought to test the utility of the Theory of Planned Behaviour (TPB) for the prediction of these variables.

Method: Following local ethics approval and parental and child consent, 72 children (29 boys, 43 girls, Mean age ± SD = 9 ± 1 years) completed a validated self report measures of Intention to consume 5 portions of fruit/vegetables daily, TPB variables (attitude, subjective norm, perceived behavioural control (PBC) related to fruit/vegetable consumption), measures of actual fruit/vegetable eating behaviour and were assessed for stature (m) and body mass (kg) from which body mass index (BMI) was determined. Two backwards linear regression analyses were conducted: In the first analysis, intention was regressed, on TPB variables and BMI; in the second analysis, fruit/vegetable scores were regressed, on intention, TPB variables and BMI.

Results: Attitude and subjective norm significantly predicted children’s intention to consume 5 portions of fruit/vegetables daily ($P=0.0001$, $AdjR^2=0.475$) predicting 47.5% of the variance in this measure. Intention, attitude, subjective norm and BMI significantly ($P=0.0001$, $AdjR^2=0.387$) accounted for 38.7% of the variance in fruit/vegetable eating behaviours.

Conclusion: This study suggests that TPB variables are predictive of fruit/vegetable eating intention and behaviour but that BMI is only predictive of fruit/vegetable eating behaviour, with higher BMI associated with lower daily consumption of fruit and vegetables in British children.

BIOGRAPHY

Dr Michael Duncan is a Principal Lecturer in Applied Sport and Exercise Science at Coventry University, Coventry UK. His main research interests are focused on the association between physical activity, exercise and weight status in children and adolescents and the effect of exercise interventions on weight status, psychological well-being and physiological variables in children and adolescents.
ABSTRACT

Title: The effect of ‘green exercise’ on post exercise hypotension in children: An exploratory study

Duncan, MJ, Clarke, ND, Birch, SL, Wilson, L, Tallis, J, Hankey, J, Bryant, E, Eyre, EIJ.
Department of Biomolecular and Sports Sciences, Coventry University, UK

Introduction: Recent adult data has suggested that ‘green exercise’ where exercise is undertaken viewing scenes of nature may enhance health. No studies to date have examined this in children. This study sought to explore the effect of green exercise on the cardiovascular responses in children.

Method: Following ethics approval and parental and child consent, 10 prepubertal children (6 boys, 4 girls, Mean age ± SD = 9.4 ± 0.5 years) undertook two bouts of moderate intensity (50% heart rate reserve) cycling for 15 minutes. In one condition children cycled with no stimulus (Control) whereas in the other children cycled whilst viewing a simulated cycle in a pleasant ‘green’ environment (Green Exercise). Pre exercise, post exercise and 15 minutes post exercise systolic (SBP) and diastolic (DBP) blood pressure was assessed using automated sphygmomanometry (Bosu Medicus, Bosu, Italy) as was heart rate (Polar Electro, Finland).

Results: Repeated measures ANOVA indicated no significant effects for DBP or heart rate (all P >.05). However, there was a significant condition X time interaction for SBP ($F_{1, 9} = 5.02, P = .05, \eta^2 = .358$) whereby SBP was significantly lower 15 minutes post exercise in the green exercise condition compared to the control condition.

Conclusion: This exploratory study suggests that acute aerobic exercise undertaken when viewing scenes of nature may elicit greater postexercise hypotension in prepubertal children compared to exercise alone. The results are limited due to the small sample size but do offer promise as a means to potentially augment the health enhancing effects of aerobic exercise in children.
Dr Alison Fildes
University College London, UK

BIOGRAPHY

Alison’s research focuses on the aetiology and modification of food preferences in infancy and early childhood. She is currently completing her PhD at University College London using data from Gemini, a large population-based twin cohort, to answer questions about the contribution of genes and environment to children’s food preferences and related eating behaviours. She focuses on the period of early childhood because of the importance of this period for programming later health outcomes. Her work also involves developing effective interventions to modify children’s food preferences with the particular aim of increasing fruit and vegetable consumption.

ABSTRACT

Title: Common genetic architecture underlying food fussiness in children, and preference for fruits and vegetables

University College London, London, UK

Introduction: Fussy eating is common in early childhood and is associated with unhealthy dietary patterns; in particular a decreased preference for vegetables and fruits. Food preferences and fussiness are heritable in childhood. Observed associations between these phenotypes could be because there are common genes that influence them all.

Objective: To quantify the extent of shared genetic influence underlying preferences for fruits and vegetables, and food fussiness in early childhood.

Methods: Data were from the Gemini cohort, a population-based study of twins born in England and Wales in 2007. Parents completed questionnaire measures of food preferences and food fussiness when their children were 3 years of age (N= 1343 pairs). Multivariate genetic model-fitting using the twin design examined common genetic influences underlying fruit preference (FP), vegetable preference (VP) and food fussiness (FF).

Results: The genetic correlations between FP, VP and FF were all significant and moderate to large in size (0.44 – 0.65), indicating a substantial proportion of the genes influencing each phenotype are the same. Common genes underlying the three behavioural phenotypes accounted for 57-69% of the observed phenotypic correlations between them.

Conclusion: FP, VP and FF in 3 year old children share a large proportion of common genetic factors, which are important drivers of the observed phenotypic associations between them. These findings help to explain why fussy young children typically reject fruits and vegetables.
Title: Screening for impaired glucose tolerance in obese children and adolescents: a validation and implementation study

Morandi A1, Maschio M1, Marigliano M1, Miraglia Del Giudice E2, Moro B3, Peverelli P4 and Maffeis C1
1Department of Life & Reproduction Sciences, Section of Pediatrics, Regional Center for Pediatric Diabetes, Clinical Nutrition & Obesity, University of Verona, Verona, Italy; 2Department of Pediatrics, Second University of Naples, Naples, Italy; 3Pediatric Unit, Ospedale Civile, Piove di Sacco, Padua, Italy; 4Pediatric Unit, Ospedale Civile, Feltre, Belluno, Italy

Introduction: Impaired glucose tolerance (IGT) is a strong risk factor for Type 2 diabetes and cardiovascular disease. The aim of this study was to validate metabolic predictors of IGT measured in fasting conditions.

Methods: 817 Italian obese children and adolescents (8–18.4 years) were recruited and underwent clinical examination, fasting blood analysis and oral glucose tolerance test (OGTT). The discriminative properties of TG>1.17 mmol L-1 - cut-off previously proposed by others - was: 71.4 % sensitivity and 64.1 % specificity. The possible contribution of other metabolic variables was evaluated by assessing the net reclassification improvement (NRI).

Results: Thirty-nine children (4.7%) had IGT. The 1.17 mmol L-1 TG threshold showed 66.6 % sensitivity and 68.2 % specificity, thus successfully validated. Fasting plasma glucose (FPG) was independently associated with IGT (odds ratio = 3.86 [2.09–7.14], P < 0.001), besides TG. The bivariate criterion of TG>1.13 mmol L-1 plus FPG > 4.44 mmol L-1 had a 66.4 % sensitivity and a 78.2 % specificity, thus displaying a 12.6 % NRI (P < 0.001) compared with TG>1.17 mmol L-1.

Conclusions: TG>1.17 mmol L-1 is a useful criterion to detect roughly 66% of obese children with IGT through OGTT performed in about 33% of all obese children. However, the ‘TG>1.13 mmol L-1 plus FPG>4.44 mmol L-1’ criterion improved discrimination accuracy, leading to the possibility of detecting even more than 66% of obese children with IGT though limiting OGTT to just 25% of all obese children.
Dr Sophie Nicklaus, a research scientist based at INRA – Institut National de la Recherche Agronomique at the Centre des Sciences du Goût et de l’Alimentation (CSGA) in Dijon (France), is coordinator of the OPALINE project (the Observatory of Infant and Children’s Food Preferences) and is involved in European projects such as HabEat. The OPALINE project has followed intensively the food preferences of a cohort of 314 children monitored from their birth to the age of 2 and has since been extended to collect data at ages 3, 4 and 6 years. Dr Nicklaus is an expert on taste development and on food preferences established early in life tracking into later life. Her research in early life has been instrumental in elaborating the importance of taste exposure in milk and during weaning in shaping food preferences and intake.

**ABSTRACT**

**Title: Learning to eat: critical periods in development**

Eating is essential for survival, and we are born well equipped to ensure proper food ingestion. However, all aspects of eating habits are learned, essentially during the first years of life [1]. For this reason, it is fundamental to understand the most important periods for the acquisition of healthy eating habits. Early events may contribute to shape eating behaviour [2]. Flavour learning may happen during pregnancy and lactation, through the exposure of the infant to flavours from the mother’s diet. Parent-child interactions in the feeding situation start to take place during the milk feeding period, especially in situations where the mother, rather than the child, may control ingestion. Beyond this stage of flavour discoveries, the most important phase for learning to eat is likely to be the transition from milk feeding to a diversified diet, i.e. the beginning of complementary feeding. At this moment, infants start to discover the sensory (texture, taste and flavour) and nutritional properties (energy density) of the foods that will ultimately compose their adult diet, and parents are still in charge of providing appropriate foods, timing, context for eating. Because complementary feeding drives the infant towards his/her family’s diet, it incorporates many cultural and personal beliefs about appropriate eating behaviours concerning what, when and how to eat. At this stage, nutrition is still critical for child development, so parental choices bear a key importance for future health. Moreover, eating habits established in these early years will contribute to the development of subsequent eating habits [3,4,5]. For these reasons, it is very important to understand the learning processes that occur concurrently with complementary feeding [6]. This presentation will highlight some factors that favour the development of food acceptance at the beginning of complementary feeding. In particular, the influence of complementary feeding practices such as repeated exposure, introducing a variety of foods, and of food sensory properties on the acceptance of new foods by infants will be outlined [7].

Dr Ricarda Schmidt
Leipzig University Medical Center, DE

Dr Ricarda Schmidt is a Research Fellow and PhD student at the Integrated Research and Treatment Center AdiposityDiseases Leipzig, Behavioral Medicine since 2012 working on the project: “Treatment of Binge Eating Disorder in Adolescents (BEDA)”. She holds a Diploma in Psychology by the University of Leipzig. During her studies, between 2009-2012 she worked as a student research assistant at the Department of Medical Psychology and Medical Sociology, Leipzig University Medical Centre.

ABSTRACT

Title: A community study on psychosocial functioning of overweight and obese pre-school children in Germany
Schmidt, R1, Hilbert, A1
1Leipzig University Medical Center, Integrated Research and Treatment Center AdiposityDiseases

Introduction: While evidence exists that some aspects of psychopathology may be associated with overweight (including obesity) in older children and adults, this association has less empirical support in younger children. Beyond this, little is known about the influence of parental psychopathology on young overweight children. The aim of this study was to examine psychosocial functioning in non-clinical overweight pre-schoolers considering maternal mental health (MMH).

Methods: Nationally representative data on a subset of 449 mother-child-dyads from the German Socio-Economic Panel Study (SOEP) were analysed cross-sectionally. Mothers provided data on children’s psychosocial functioning (Strengths and Difficulties Questionnaire, SDQ), and their own mental health (SF12v2). Weight status was calculated on parent-reported weight and height. Multivariate logistic and linear regression analyses were performed.

Results: Using body-mass index (BMI) percentiles for age and sex based on the German reference data, 4.6% of the children were considered overweight (p90 < p97), 7.4% were obese (≥ p97). Although overweight children had higher problem scores than nonoverweight children, differences between groups were small and substantially reduced when analyses controlled for sociodemographic characteristics. Lower MMH was independently associated with higher problem scores on three SDQ scales (odds ratio, OR 2.6 – 2.8) as compared to average MMH. Between-group analyses revealed that MMH predicted children’s psychosocial functioning on all SDQ scales in nonoverweight children, but predicted only hyperactivity symptoms in obese, not overweight children.

Conclusion: The results suggest that child overweight made no independent contribution to child psychosocial functioning, while MMH was a significant predictor.
Prof. Andrea Vania is Full Researcher and Aggregate Professor at the Department of Paediatrics and Paediatric Neuropsychiatry of the Faculty of Pharmacy and Medicine of “Sapienza” University of Rome. He is also author or co-author of almost 500 items including published papers and lectures, over 170 of which are of international relevance. His main interest research areas are: Paediatric Obesity, Paediatric Nutrition, General Paediatrics, Human Nutrition, Paediatric Psychology, Teaching Aspects of Paediatrics; other interests, mainly in the past time, were: Paediatric Haematology, Gastroenterology, Infectious Diseases, Immunology. At clinical level, he is Responsible for the Centre for Paediatric Nutrition and Dietetics in the same Department. As an Aggregate Professor, he teaches General Paediatrics, as well as Paediatric Nutrition.

ABSTRACT

Title: NAFLD-Nonalcoholic fatty liver disease in overweight/obese child (ow / ob) born SGA (Small for Gestational Age)

A.Mosca (1), V. Giorgio (2), I.C. De Lucia (1), D. Liccardo (1), M. Podagrosi (1), A. Piedimonte (1), R. Mercurio (1), V. Nobili (2), A. Vania (1)

(1) Dept. of Paediatrics and Paediatric Neuropsychiatry, Rome “Sapienza” University, Italy; (2) Hepato-metabolic Unit, Bambino Gesù Children Hospital, Rome, Italy.

We wanted to investigate the association between being born SGA and nonalcoholic fatty liver disease (NAFLD) documented by ultrasound, to test the hypothesis found in the literature, that the fetal growth retardation and a quick catch-up growth (with prepubertal ow/ob) could be factors responsible for NAFLD associated with insulin resistance (HOMA-IR) and WHtR>0.5 (1). One hundred and thirteen ow/ob children, aged 10.59±2.54, were examined (z-BMI 2.10±0.41 W/h 0.59±0.04) and blood samples were collected. Each of them underwent liver ultrasound examination, because of HOMA-IR>2.5 and/or ALT>40U/l. Of these, 24 (21.23%) were born SGA and 89 AGA: among SGA, 58.33% (14 patients) showed steatosis on ultrasound, vs. 51.69% in the AGA group. SGA children with steatosis (SGA-S) had glucose values significantly higher than the SGA without steatosis (SGA-NS) (87.80±8.52 vs. 83.29±5.94, p<0.05); also insulin (16.63±10.74 vs. 14.74±6.04) and HOMA-IR (3.84±3.36 vs. 3.05±3.23) were higher but not significantly; again, SGA-S had WHtR values greater than SGA-NS (0.60±0.05 vs. 0.57±0.04). SGA-S had WHtR values greater than AGA-S (3.84±3.36 vs. 3.23±1.38), but again not significantly. Finally, we found that being born SGA represents a greater risk for NAFLD (OR =1.66, p=0.04). NAFLD should be considered as one of the issues to be investigated in the SGA with excessive weight gain in the first years of life. Adequate food intake early in life is essential in order to prevent metabolic syndrome and NAFLD.

Daniel Weghuber, MD, is an alumni of Vienna Medical School. He is Assoc. Prof. of Pediatrics at Paracelsus Medical School in Salzburg, Austria. Clinically, he works at the Department of Pediatrics, heading the Division of Pediatric Gastroenterology, Hepatology and Nutrition. He is also heading an interdisciplinary obesity research team, focusing on metabolic, orthopedic and psychological comorbidities of juvenile obesity. He currently is president of the Obesity Academy Austria which offers post-graduate training (clinical assessment, prevention and treatment of childhood obesity) and board member of the European Childhood Obesity Group.

ABSTRACT

Title: Novel ideas and perspectives

The obesity burden has many drivers and demands actions on many levels. The lecture will present an arbitrary selection of some new ideas that are currently being discussed. These include findings from recent basic science such as white-brown adipocyte plasticity and its potential for new therapeutic strategies. In addition, evidence is cumulating over the last few years that there is not only an association between gut microbiota and metabolic diseases but a potential cause-and-effect relationship. Thus, new opportunities to identify targets and predictive biomarkers based on the host to microbiota interaction, as well as new strategies for pharmacological, immunomodulatory vaccines and nutritional applications have been introduced. Further, the concept of infectobesity harnesses the potential beneficial properties of adipogenic microbes. In addition, there is much interest in the role of vitamin D in regard to obesity, with preventive and therapeutic implications being debated. In contrast to the ideas mentioned, the concept of national regulatory systems restricting commercial marketing of foods and beverages to children will be presented as concept of prevention that calls for immediate political action. Finally, new pharmacological treatment options in the pediatric age group which are being scrutinized in ongoing studies will be introduced.
Poster Abstracts

Abstracts in this section are the originals from the authors and have not been edited by ECOG
Abstract list

**Topic 1: Public health and public health policies: designing a healthy environment**

**P01** - Risk behaviors and sports facilities do not explain the relationship between neighborhood socioeconomic context and childhood obesity in a city in Southern Europe, Paloma A.
**P02** - Network of professionals for the prevention and treatment of childhood obesity, Gil Barcenilla B.
**P03** - Health program “6-10-14 for Health” as an example of comprehensive environmental activities in the field of children obesity – study protocol and primary results, Brzezinski M.
**P04** - Prevalence and tendency of overweight and obesity in a 6-7 years old children after a 3 to 6 years long observation, Brzezinski M.
**P05** - Bi-directional longitudinal associations between overweight and health-related quality of life from 4-11 years: Longitudinal Study of Australian Children, Jansen PW.
**P06** - Parental education and immigrant background status predict child eating behavior in a population-based study of 876 families with 4-years-olds in Sweden, Nowicka P.
**P07** - Income of parents, and not their education level, is associated with the weight status of their preschool children, Nowicka P.
**P08** - The implementing process of evidence based intervention to prevent childhood obesity; Participatory Action Research (PAR) used in the “Healthy future” study, Øen G.
**P09** - The Healthy Future study; baseline results in the implementing process of childhood obesity preventive interventions, Øen G.
**P10** - Development of an evidence-based practice guideline for UK public health nurses (health visitors) to use with parents of infants at risk of obesity. Redsell SA.
**P11** - Family-based childhood weight management programme: service evaluation of BeeZee Bodies run in deprived community settings, Rennie KL.
**P12** - Effects of living area distance from paediatric nutritional centres on childhood overweight/obesity, Vania A.
**P13** - Overweight/obesity from early childhood to adolescence, Vania A.
**P14** - Needs for tailored nutritional intervention in critical periods of development? Vania A.
**P15** - Concrete actions of the private sector to promote children’s health, Nanni R.
**P16** - SBAM! A programme to make healthy children in the region of Apulia. Caroli M.

**Topic 2: Psychology in the spotlight and its role in prevention and treatment**

**P17** - Psychological mechanisms inderlying overweight and obesity during adolescence: ‘Triads study from the EDUDORA’ project, Degrange S.
**P18** - The importance of psycho-social effects in family-based interventions, Edmunds LD.
**P19** - Association between BMI, body dissatisfaction and optimism among adolescents enrolled in a pediatric Obesity Treatment Program, Fonseca H.
**P20** - Psychosocial status and mental health in adolescents before and after bariatric surgery: A systematic literature review, Herget S.
**P21** - Obesity and student retention among teenagers: correlational analyses in high schools in Québec (Canada), Lamari M.
**P22** - The role of the family in childhood and adolescent binge eating - A systematic review, Tetzlaff A.
**P23** - Reward Sensitivity, Punishment Sensitivity and weight status in children: crosssectional and logitudinal associations, Vervoort L.
**P24** - Is motivational interviewing effective as treatment for childhood obesity? Tang MJ.
**P25** - Efficacy of a six-month biopsychosocial intervention for treatment of children and adolescents with excess weight refractory to conventional therapy, Garcia Fuentes R.
Topic 3: Learning to eat: critical periods in development

P26 - Applying learning theory to improve liking and intake of vegetables in pre-school age children, Cecil J.
P27 - Should we always change bad dietary habits in obese children or not? Colombo RR.
P28 - Early exposure to vegetable variety on infants’ liking and consumption: the TASTE intervention study, Cooke L.
P29 - Understanding fruit and vegetable eating behaviour in British primary school children: An application of the Theory of Planned Behaviour, Duncan MJ.
P30 - Nature and nurture in paediatric food preference, Fildes A.

Topic 4: Novel ideas and new developments

P31 - Phenotypical characteristics of diabetes mellitus in Hungarian children, Horváth P.
P32 - Obesity-related complications in children attending a specialised pediatric obesity center, Maggio ABR.
P33 - Effect of physical activity guidance for girls and boys in the child and adolescent obesity outpatient office, Montoro SB.
P34 - Obesity in childhood and precocious puberty - diagnostic difficulties, Prokopowicz Z.
P35 - The impact of Ramadan fast on BMI and cardiometabolic factors in ethnic obese adolescents, Radhikishun NNE.
P36 - Moderator variables of lifestyle and treatment adherence in overweight adolescents, Sousa P.
P37 - Moderators of quality of life among overweight adolescents: influence of body mass index, sociodemographics, behavioral, motivational and clinical variables, Sousa P.
P38 - Facing the challenges? Tvedt KE.
P39 - Family history of cardiovascular risk factors in overweight/obese (ow/ob) children with hyperhomocysteinemia (HHcy), Vania A.
P40 - Effect of violent and non-violent video games on stress markers and test meal intakes: a randomized control trial in overweight young men, Gan J.
P41 - Do the thyroid volume and TSH level are related to lipids and carbohydrates metabolism disturbances in obese children and adolescents? - The pilot study, Zachurzok A.
P42 - The Role of Vitamin D in Atherosclerosis Inflammation Revisited: More Bystander than Player? Weghuber D.
P43 - Markers of bone turnover in obese children - relationship to the nutritional status and oxidative stress level, Matusik P.
Risk behaviors and sports facilities do not explain the relationship between neighborhood socioeconomic context and childhood obesity in a city in Southern Europe

Astasio P1, Ortega P1, Albaladejo R1, Villanueva R1, Santos JM1, Regidor E1
1 Dept. of Preventive Medicine and Public Health, Faculty of Medicine. Universidad Complutense de Madrid. Madrid, Spain

Introduction: To evaluate whether the relation between neighborhood socioeconomic context and childhood obesity can be explained by household socioeconomic position, obesity-related risk behaviours and sports facilities.

Methods: 727 children and adolescent representative of the population aged 6-15 years resident in Madrid (Spain) in 2005 were analyzed. Using odds ratios calculated by multilevel logistic regression, the association between two indicators of neighborhood socioeconomic context -per capita income and percentage of population with tertiary education- and overweight and obesity was estimated.

Results: With respect to the richest neighborhoods and with respect to the neighborhoods having the highest percentage of population with university studies, children and adolescents living in the neighborhoods with the lowest per capita income and with lowest percentage of population with university studies, had an age- and sex adjusted odds ratios for overweight 1.84 and 1.68 times greater, respectively. After adjusting for household socioeconomic position, unhealthy diet and physical inactivity the odds ratios were 1.80 and 1.56, respectively. In the case of obesity the age- and sex adjusted odds ratios were 3.35 and 3.29, and its magnitude was increased 3.77 and 3.42 after adjustment for the rest of variables. No relation was found between the number of sports facilities and physical inactivity.

Conclusion: The relation of socioeconomic context with childhood obesity could not be explained by household socioeconomic position or obesity-related risk behaviours. Availability of sport facilities does not explain this relation either.

Network of professionals for the prevention and treatment of childhood obesity

Gil, B1, Lupiñáez, A2, Longo, G3
1 Servicio Andaluz de Salud, Andalucía, España (Andalusian Health Service), 2 Escuela Andaluza de Salud Pública, Andalucía, España (Andalusian School of Public Health), 3 Consejería de Salud y Bienestar Social, Andalucía, España (Health and Social Welfare Ministry)

Introduction: Obesity in Andalusia is a big problem: 20.71% of children from 2 to 15 years of age are overweight and 17.56% are obese. One of the main objectives of The Andalusian Childhood Obesity Comprehensive Plan is to train the professionals and get their engagement and involvement in order to tackle this epidemic.

Methods: In 2011 a Childood Obesity Training Program was designed and a non hierarchical network of professionals with experience in childhood obesity was created to start the training programme. It is a network of connected professionals, working on the same project and with resources to carry it out. The network has a virtual community www.laredelasandia.org to allow members to keep in contact, an open space for visitors and a restricted space for members only, training resources, health education resources, bibliography and discussion forums. It also organizes training activities.

Results: The network currently has 600 professionals and has organized 6 training activities (train for trainers and updating on children obesity) for 162 professionals. The network members have carried out 378 continuous training activities on childhood obesity for 4,190 professionals. In 2012, 28744 children with obesity were treated.

Conclusion: Professional networks help knowledge management and detect new needs which arise from professional practice.

The network has become an important tool for training as well as for improving the comprehensive care of childhood obesity and an element which generates innovation.
Health program “6-10-14 for Health” as an example of comprehensive environmental activities in the field of children obesity – study protocol and primary results

Michał Brzeziński1,2, Marek Jankowski1,3, Aleksandra Niedzielska1, Agnieszka Jankowska2, Marzena Zarzeczna-Baran3, Barbara Kamińska2
1University Clinical Center, Gdansk, Poland, 2 Department of Pediatrics, Pediatric Gastroenterology, Hepatology and Nutrition, Medical University of Gdansk, Poland, 3 Center for Promotion of Children’s Health and Fitness, Gdansk, Poland

Introduction: The problem of children’s overweight and obesity is more common problem now than ever. This calls for developing effective and cost-effective interventions on local and global scale. Apart from legal changes in children we are very much more restricted to environmental programs devoted to behavioral changes. Understanding this process we have introduced a behavioral intervention for children and parents.

Methods: Main prevention and screening groups were targeted at age groups 6, 9-11 and 14 years old children. After the screening phase all children with overweight and were invited to a multidisciplinary health intervention. The protocol of this intervention includes four meetings in the scheme 0-3-6-12 months with medical doctor, dietician, physical activity specialist and psychologist.

Results: Since September 2011 and March 2013 14658 were screened in the program. Of which 5999 were 6-year-old, 4850 aged 9-11 and 3809 aged 14. Out of these population 2268 (15.47%) was classified as overweight or obese. The prevalence of excess weight differed significantly between age groups. From these group of children with NCD’s main risk factor already 170 finished the intervention after four visits (133 overweight and 37 obese children). The mean BMI centile dropped on about 4 centiles during one year of intervention.

Conclusions: This preliminary data show difference in prevalence of obesity and overweight in different age groups, they double during 3-6 years development period. From children included in the program those who finish have a significant drop of mean BMI.

Prevalence and tendency of overweight and obesity in a 6-7 years old children after a 3 to 6 years long observation

Michał Brzeziński1, Marek Jankowski2, Barbara Kamińska1
1Chair and Department of Pediatrics, Gastroenterology, Hepatology and Children Nutrition Medical University of Gdansk, Poland, 2 Center for Promotion of Children’s Health and Fitness, Gdansk, Poland

Introduction: There are publications showing the risk of prevalence of obesity in adulthood depending on body mass in different age during childhood. Few are showing changes of body mass in a group of children before and after the puberty age. The aim of this paper is assessing the prevalence of obesity in 6-7 years old children and assessing the trends in changing the body mass during 3-6 years long observation period.

Methods: Results of physical examination and assessment of 5275 children that took part in two health programs organized by Center for Promotion of Children’s Health and Fitness during 1992-2011 were assessed. The age during first examination was 6-7 years old and they were 9-13 years old at the second examination. We were analyzing they BMI centile (using polish reference charts – OLAF charts) of each age group and migration of children between set centile sections during the years of observation.

Results: Children aged 6-7 that were below the 75 centile of BMI had over 3.5 lower risk of developing obesity in the next 3-6 years than children with BMI between 75-84 centile. Children with BMI centile below 75 had a much higher probability on staying in their centile section than children between 75-84 centile of BMI.

Conclusions: Although BMI between 75-84 centile is assessed to be a proper body mass it gives a much higher probability in developing overweight and obesity in a short term observation of 3-6 years in a developing age of pre- and post pubertal children.
Introduction: Overweight youth often have a low health-related quality of life (HRQoL). It is generally assumed that overweight influences functioning, but a poor HRQoL may also cause excessive weight gain. This study aims (1) to examine timing and strength of the association between HRQoL and body mass index (BMI) across childhood, and (2) investigate directionality and the impact of cumulative burden in the HRQoL-BMI association.

Methods: Participants were 3,898 children from the Longitudinal Study of Australian Children assessed at four biennial waves from age 4-5 years (2004) onwards. At every wave, parents completed the Pediatric Quality of Life Inventory; poor HRQoL was defined following recommended cut points of one standard deviation below the mean. Measured BMI (kg/m²) was converted into BMIz and overweight using international norms.

Results: Cross-sectional associations between higher BMI and poorer HRQoL (both Physical and Psychosocial Health) emerged at age 8-9 years then strengthened by 10-11 years. In longitudinal analyses, higher number of times having a poor Physical (but not Psychosocial) Health predicted slightly higher mean BMIz at age 10-11 years (p for trend=0.008). The reverse association was much stronger, showing a cumulative association between number of times overweight through ages 4-11 years and progressively poorer Physical and Psychosocial Health at age 10-11 years (p-values for trend<0.001).

Conclusions: Unlike in adults, cumulative burden of overweight across childhood predicted poorer HRQoL far more strongly than the reverse. Besides affecting risks for later life disease, promoting normal body weight also has the potential to improve children’s well-being.

Introduction: Subscales of the Child Eating Behaviour Questionnaire (CEBQ), the most used assessment of children eating behaviours worldwide, are predictive of pediatric obesity. This population-based study tested for this first time the independent contributions of parental BMI, education, and country of origin to child CEBQ subscales scores. Associations between child BMI and CEBQ subscales were also tested.

Methods: Mothers (n=876) to 4-year-olds (48% girls) from Sweden’s most culturally diverse city, Malmö, filled out the CEBQ and a demographic questionnaire. The families were recruited from the population registry. Parent’s education (60% ≥ 12 yrs of school), BMI (31% with BMI ≥ 25) and country of origin (43% born abroad) resembled well the Malmö population. Multiple linear regression models were developed for each subscale to identify independent predictors of variance.

Results: In the final models for the subscales Emotional OverEating/Food Responsiveness and Desire to Drink the significant predictors included were mother’s and child’s BMI as well as parental education and immigrant background, which explained between 7-11 % of variance for each subscale (all p<0.000). For the subscales Satiety Responsiveness and Slowness in Eating only parental immigrant background and child’s BMI were identified as significant predictors explaining 6.2% resp. 6.4% of variance (p=0.004 and p<0.000). Subscales Food Fussiness and Emotional UnderEating were not influenced by any of the parental or child characteristics.

Conclusion: Although child’s BMI influences on CEBQ scores have been indicated previously, the importance of parental immigrant background on obesity related eating patterns in preschoolers is novel and noteworthy.
Income of parents, and not their education level, is associated with the weight status of their preschool children

Nowicka, P 1,2, Ek, A 1, Filipsson, D 3, Marcus, C 1, Ulijaszek S 2
1Division of Pediatrics, Department of Clinical Sciences, Intervention and Technology (CLINTEC), Karolinska Institute, Stockholm, Sweden, 2Unit for Biocultural Variation and Obesity, School of Anthropology and Museum Ethnography, University of Oxford, Oxford, UK, 3Department of Public Health Sciences, Karolinska Institute, Stockholm, Sweden

Introduction: While parental education level, often used as a single proxy for family’s socioeconomic status (SES), has recently been shown to be a powerful determinant of childhood obesity, the importance of other SES indicators, such as income, have so far not been effectively examined.

Methods: To explore associations between different SES indicators with child’s weight status (expressed as BMI SDS) we used data from a clinical sample consisting of families with preschool children aged 4 to 6 years (n=28, mean age 4.9 years, 50% boys, 31% with both parents born in Sweden) with obesity (mean BMI SDS 3.0) who were referred by Stockholm County child care centres to a treatment study. Both parents filled out a comprehensive demographic questionnaire; the child’s weight and height was measured at the baseline. Pearson’s correlations, linear regression models and univariate general linear models were used to explore the associations between SES and child’s BMI SDS.

Results: Among studied SES indicators such as family’s type of neighbourhood, educational level, income, parental workload, type of accommodation and the subjective assessment of economic situation (reported as having a comfortable life) only mother’s income, father’s perception of comfortable life and child’s gender were significantly associated with child’s BMI SDS. The associations remained significant after adjusting for parent’s immigrant background, gender and others potential confounders.

Conclusion: The surprising association with income needs to be confirmed in larger samples. In Liverpool we will present results including an additional 20 children who we recently recruited to the study.

The implementing process of evidence based intervention to prevent childhood obesity; Participatory Action Research (PAR) used in the “Healthy future” study

Oen, Gudbjørg1 and Stormark, Kjell Morten 2
1Haugesund/Stord University College, Klingenbergveien 8, 5414 Stord, Norway. 2Uni research, Uni health, Krinkelkroken 1, 5020 Bergen, Norway

Introduction: The objective is to describe the design of the developmental project Healthy Future which aims to implement new evidence based program for the prevention of childhood obesity, and the collaboration and sharing of work between specialist and community health care professionals in a county in Norway.

Method: Comprehensive Participatory Planning and Evaluation (CPPE) process as an action oriented research approach was chosen, using mixed methods.

Results: A bottom-up approach might decrease the barriers when new evidence based childhood prevention interventions are going to be implemented. It is crucial to build partnership, shared understanding, motivation and vision, but also to consider the frames of the organizations, such as competence, and time to carry out the interventions at the right level of health care service and adapting these to the overweight children and the needs of their families.

Conclusion: The developmental process of new health care programs is complex, and multi leveled, and requires a framework to guide the process. By CPPE-approach evidence based health care practice can be delivered based on research, user knowledge, provider knowledge in the field of childhood overweight and obesity in a certain context.
**The Healthy Future study; baseline results in the implementing process of childhood obesity preventive interventions**

Oen, Gudbjørg1 and Stormark, Kjell Morten2

1Haugesund/Stord University College, Klingenbergveien 8, 5414 Stord, Norway. 2Uni research, Uni health, Krinkelbroen 1, 5020 Bergen, Norway

**Introduction:** As a starting point in The Healthy Future project, beliefs, praxis and the routines of health professionals were explored with regard to meeting overweight children and their families. Baseline results, before a developmental process starts to implement evidence-based interventions, are discussed.

**Methods:** Focus group discussions by health professionals were carried out with public health nurses, general practitioners, staff from hospital, both somatic and mental health pediatric units.

**Results:** Health professionals felt uncertain in managing overweight problems in children. They experienced lack of tools, time and effective methods. Public health professionals would refer the children to specialist health care, while the hospital staff point to the public health nurses and GP’s as important resources in helping children and families to a healthier lifestyle. GP’s felt they were not in the best position to be of help.

**Conclusion:** In one region in Norway the routine of referring overweight children to other levels of healthcare service was widespread, even if there was no suspicion of underlying somatic or mental health difficulties. This practice might cause false expectation within the family and might increase the drop-out rate because it might give the impression that no effective treatment is available.

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**Development of an evidence-based practice guideline for UK public health nurses (health visitors) to use with parents of infants at risk of obesity**

Redsell SA1, Edmonds BE2, Glazebrook C3, Swift J3, Nathan D3, Siriwardena AN1, Weng SF3, Atkinson5, PA, Watson, V5

1Anglia Ruskin University, 2The University of Nottingham, 3Nottingham University Hospitals NHS Trust, 4University of Lincoln, 5Nottingham CityCare Partnership

**Introduction:** Evidence about effective interventions that reduce obesity risk during infancy is needed. This project aimed to systematically review published Randomised Controlled Trials (RCTs) of behavioural and non-behavioural interventions which address potential risk factors for obesity to inform a guideline for UK health visitors.

**Methods:** A multiprofessional Guideline Development Group (GDG) was convened to undertake a systematic review, based on the National Institute for Health and Clinical Excellence (NICE) guidelines. Findings from the review were used to develop a guideline which was subsequently externally reviewed by national experts and practitioners.

**Results:** We identified 28 RCTs reporting behavioural and non-behavioural interventions delivered during infancy with breastfeeding and/or weight outcomes measured during the first two years of life. A number of ongoing studies were also identified. Inclusion criteria for intervention studies included parental breastfeeding intentions and first time parents. Good evidence exists for breastfeeding promotion and support interventions. Evidence exists for parental education around responsive feeding, aspects of infant diet and soothing/sleep expectations. These behavioural components informed the guideline. Despite good evidence that infants fed lower protein formula milk gained less weight compared to milk with higher protein levels, it was not possible to incorporate the evidence from the non-behavioural studies into the guideline.

**Conclusion:** Further research is needed to establish clinically effective interventions for obesity prevention during infancy. Continuous dialogue between commissioners, policy makers, health visitors and parents is essential to ensure existing UK policies are not a barrier to implementing obesity prevention strategies in the first year of life.
Family-based childhood weight management programme: service evaluation of BeeZee Bodies run in deprived community settings

Rennie KL1, Edmunds LD2, King S1, Mayhew H.3
1University of Hertfordshire, 2University of Oxford, 3BeeZee Bodies Community Interest Company

Introduction: BeeZee Bodies is a 17-week family-based intervention programme in deprived community settings for 7-15yr olds referred by a health professional. We evaluated the reach and completion of the programmes 2010-2012.

Methods: Socio-demographic data were collected from the parent/guardian and IMD score calculated from the home postcode. BMI was expressed as the sex- and age-specific standard deviation from expected BMI (Z-score) using the British 1990 growth reference data, and categorised as overweight or obese using British reference cut-offs (1990 category) and IOTF cut-offs (IOTF).

Results: 195 young people (86 boys and 109 girls) participated in the programmes in 3 deprived community settings. The mean IMD score was not significantly different from the community average, but the proportion of participants from Black and Minority Ethnicities was substantially higher. Mean baseline BMI Z-score was 2.77 (SD 0.57) in boys and 2.61 (SD 0.59) in girls with 65% classified as obese by IOTF and 84% by the 1990 category. 84% participants completed the programme with no differences in completion by gender, ethnicity, IMD score, baseline BMI or age. Mean BMI and BMI Z-score significantly decreased in completers of the programme (BMI = -0.59 (SE 0.09), BMI Z-score= -0.16 (SE 0.02), p<0.001), with no differences observed in BMI change between genders, ethnicity or age.

Conclusion: These preliminary results suggest the programme reaches and retains obese/overweight young people and has beneficial short-term effects in addressing health inequalities in obesity. Further evaluation is currently being undertaken on programme components and its sustainability at 6-months and 12-months post-programme.

Effects of living area distance from paediatric nutritional centres on childhood overweight/obesity

R. Mercurio, M. Podagrosi, A. Piedimonte, I.C. De Lucia, A. Mosca and A. Vania
Dept. of Paediatrics and Paediatric Neuropsychiatry, Rome “Sapienza” University, Italy

Introduction: NHS-Centres of paediatric nutrition are not distributed evenly. Therefore, patients are often addressed to private and/or non-paediatric Centres, that, usually, they only access when the situation worsens.

Methods: a random group of 527 patients (M = 224) were selected according to their district area and distance from our Centre: group A (Rome) 366 (M 163), mean age 10.44±2.77; B (Rome Province) 115 (M 43), age 9.97±2.77; C (other municipalities, any region) 46 (M 18), age 9.24±2.67. z-BMI and WTHR at 1st visit were considered.

Results: the degree of overweight was lower in patients from Rome and surrounding municipalities (z-BMI A=1.83±0.66; B=1.82±0.91) compared with those from other provinces/regions (z-BMI C=1.96±0.65), NS differences. WtHR (index of visceral adiposity and cardio metabolic complications risk factor) was progressively increased (p=0.02) from Rome outward (A=0.57±0.06; B=0.59±0.06; C=0.59±0.05).

Conclusions: data on an extended sample will be presented at the Meeting. Nonetheless, seems to be directly proportional to the overweight degree, expressed in both z-BMI and WTHR. A more even distribution of paediatric Centres of nutrition would guarantee greater accessibility for patients at an earlier stage, and a wider cooperation with health-care workers spread across the country.
Introduction: We wondered if overweight/obesity presents with different severity and can be ascribed to different factors in different age groups.

Methods and results: 732 patients 2-18 yrs (M = 330) were considered: early childhood (A, 2-6 years old) 50 (6.8%), late childhood (B, 6-10 years old) 255 (34.8%), pre-adolescence (C) 57 (7.8%), adolescence (D, until growth’s end) 370 (50.6%). z-BMI ranks downwards from A to D: we observed statistically significant differences (p <0.01) among all groups except C vs D (A = 2.54, B = 2.09, C = 1.80, D = 1.75).

When comparing groups for lifestyle and eating habits, weekly sedentary hours distribute upwards from A to D (A=2.34, B=2.54, C=3.49, D=3.57 hrs, p <0.01 for all groups except A vs B e C vs D). Weekly sports hours are A=1.27, B=2.38, C=3.28, D=2.84 hrs; there are again significant differences in all groups except C vs D. Eating habits: lunch is most adequate in B (50.2%, possible effect of the adequacy of school cafeterias); quali-quantitative errors range from 8.5% (B) to 40.1% (D); similar results, but higher percentages of errors, for dinner. Sugary drinks consumption decreases from A (1/day) to D (4/week).

Conclusions: The apparent better conditions of D patients might be linked to the increased adolescent interest to “physical fitness”, with an eye to sport and sugary drinks consumption. What seems to lack, however, is a full awareness of the importance of reducing sedentary lifestyles while improving eating habits.

Needs for tailored nutritional intervention in critical periods of development?

M. Podagrosi, R. Mercurio, A. Piedimonte, I.C. De Lucia, P. Cimbolli, A. Mosca and A. Vania
Dept. of Paediatrics and Paediatric Neuropsychiatry, Rome “Sapienza” University, Italy

Introduction: Introduction: aim of paediatric nutritional approach is eating education, needing patient and family full cooperation. We present a male patient who attended our Centre 4 times through 11 years, with progressive deterioration.

Methods and results: M first approach to our Centre was in 2002 (10 years old): mild obesity (H 161.4, W 63.7, both pc >99.9, BMI 25.22, pc >99.9) no organ damage, mild hypertension (BP 130/90, pc >97). Prescribed balanced low-calorie diet (1350 kcal/day), quarterly checks without improvement. Back in 2008, with a slight improvement (H 191, pc 98, W 110.4, pc <99.9, BMI 30.26, pc >99.9, Waist 105, WtHR 0.55), also in the next check (BMI 30.18, pc >99.9). After a new drop-out, M reappears at 18: further deterioration (H 191.5, W 128, BMI 34.90, Waist 119.4, WtHR 0.62), hypertension with two-drugs treatment, cardiac hypertrophy, hypertriglyceridemia, hypertransaminasemia, hyperinsulinism at OGTT (basal HOMA-IR 2.31). M drops out again after just one check and poor compliance to diet (1800 kcal). Back again at 21, severe deterioration of the nutritional status (H 192.1, W 135, BMI 35.5, Waist 122, WtHR 0.63), hypertension with three-drugs therapy, NAFLD, severe hypertriglyceridemia, basal hyperinsulinism (HOMA-IR 6.3). Presently the patient checks regularly, but with poor compliance despite focused nutritional instructions.

Conclusions: This therapeutic failure is probably due to: obese parents with low SES, bad environmental context, critical moment (adolescence and post-adolescence). For similar cases it is hoped a different management with closer checks and more tailored interventions, at best before nutritional habits consolidate and complications appears.
Concrete actions of the private sector to promote children’s health

Nanni R. and Quatrale C.
Coop Italia

The role of food industry and retailers in preventing childhood obesity is primarily to improve products nutritional quality and, secondarily, to collaborate in informing consumers.

To this purpose, Coop has created a “Scientific Committee” with ECOG and SIO (Italian Obesity Association) and developed significant actions to promote children’s health.

1. Creation of a range of “virtuous” food products for children 4-10 years old. The line includes products which have been reformulated eliminating colorants, tropical fats and artificial flavourings, reducing calories, fats, saturated fats, simple sugars, preservatives and sodium and increasing fibres. Products that could not be reformulated were eliminated from the range.

2. Specific voluntary labelling: extended nutritional chart per portion, where possible RDA for kids, per portion (calories, simple sugars, total and saturated fats, sodium).

3. Alert on the label to suggest a moderate consumption by children on around 60 Coop private label products intended for adults (soft drinks, chips, nectars, some chocolate-based snacks).

4. Information and education campaign on nutrition, on the website www.alimentazionebambini.it, with the supervision of experts in prevention and treatment of obesity from ECOG and SIO and with dedicated sections on: recipes, games, tales and rhymes for mothers and children; information articles on proper children’s diet; users questions answered by experts.

Products reformulation took around 2 years, which confirms the possibility to act in the short term. The website’s visitors are constantly increasing, confirming the positive results of a correct partnership between the public and private sectors.

SBAM! A programme to make healthy children in region of Apulia

Caroli M¹, Pesare A², Longo F³
¹Nutrition Unit, Dept of Prevention, ASL Brindisi, ²Health Education Unit, Dept of Prevention ASL Taranto, ³PATP Assessorato al Welfare Regione Puglia Bari

In the region of Puglia in 2010 the rate of childhood overweight was 26% and that of obesity 14%. Prevention of childhood obesity, through its risk factors modification, is a public health aim of the regional government. During the last years several initiatives have been taken to promote healthy nutrition and increasing physical activity. However, the huge number of activities promoted by health, political institutions, NGOs, etc. highlighted the limits of the lack of coordination among the main stakeholders, as well limited the impact and the comparison of the outcomes of the different programmes.

To create a unique preventive programme 5 regional departments (Health, Sport, Agriculture, Education, and Urbanization) unified their financial, human, and strategic resources to promote healthy lifestyle. In addition, a memorandum of understanding was established between the regional health department and the Regional Education Office to develop shared high quality initiatives to promote health education in schools. From this alliance was developed the programme “SBAM!”, composed by different actions financed by the different departments, but all together pieces of only one programme. The programme involved 19,000 children 8 years old attending the 3rd class of the primary school. Sport dept. financed 1 more hour of physical education per week; agriculture dept. financed a laboratory of horticulture and 1 explanatory meeting with parents; health dept. financed 1 meeting with parents and 1 with teachers, as well as meetings with children during the school hours; education dept. paid all the booklets; urbanization dept. financed children’s ideas to improve the city’s urban design.
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Psychological mechanisms underlying overweight and obesity during adolescence: Triads study from the EDUDORA² project

Degrange, S¹, Legrand, C¹, Pôtrè, B¹, Ziegler, O², Bonnefoy, M³, Vesque, C³, Lair², Schmit, S³, Scheen, A³, Guillaume, M³
¹Ecole de Santé publique, Université de Liège, Liège, ²Diabétologie et Nutrition, CHU Nancy, Nancy, ³Orsas-Lorraine, Vandoeuvre-Lès-Nancy, ⁴Crp-Santé, Luxembourg, ⁵Diabétologie, Université de Liège, Liège.

Introduction: Strategies for prevention and treatment of obesity in adolescents are too often limited to lifestyle modifications and dietary counseling prescribed by the physician or dietician. One objective of the EDUDORA² (Education thérapeutique et préventive face au Diabète et à l’Obésité à Risque chez l’Adulte et l’Adolescent) project focused on going beyond this dyadic and biological vision.

Methods: 12 triads were recruited in regions of Belgium, Luxembourg and France, each including an overweight or obese adolescent, the attending healthcare professional (pediatrician or dietician) and a family member. Each subject of the triad was interviewed individually using the “life story” technique. Psychosocial factors influencing the degree of adherence to the prescribed treatment were assessed by speech thematic analysis.

Results: The most common strategy inside a triad remained focused on symptoms limiting the change of lifestyle or diet. More complex and generally ignored underlying psychological mechanisms were highlighted: interaction with peers was a factor of awareness and strength for change, while food compensation difficulties (psychological, emotional, and personal), body image and devalued self-esteem were inhibitory factors for weight management. Psychological behavior affecting adolescence with respect to body ratio as well as projection of the mother’s experience with her own weight further strengthened these factors.

Conclusion: Adolescents should be considered as major actors of their own health. Having a global view of obesity is also essential, at least when integrated in real life situations and in the psychological development during adolescence. Hence, Therapeutic Patient Education (TPE) appears as a real opportunity provided professionals are properly trained.

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The importance of psycho-social effects in family-based interventions

Edmunds LD¹, Rennie KL², King S¹, Mayhew H.³
¹University of Oxford, ²University of Hertfordshire, ³BeeZee Bodies Community Interest Company

Introduction: The search for effective community-based, child weight management interventions continues and guidelines recommend including a qualitative element in evaluations. The opinions and reflections presented here belong to those taking part in the BeeZee Bodies family-based weight-management programmes for 7-15yr olds in 2010 and 2011.

Methods: Six focus groups were conducted with 35 participants (24 parents and 11 adolescents) 3 months post intervention. Analyses were thematic and iterative.

Results: One of the main themes was social interactions and the role they play in establishing and sustaining behaviour change. Participants reported building new relationships between themselves and the children as being very important – they talked of “bonding” and “gelling”. For some, these friendships facilitated continued involvement in social and physical activities post-intervention. Apart from the open, accepting and encouraging attitudes of the interventionists, this “bonding” was enhanced for children by the enjoyment of taking part in physical activities where they did not feel judged, unlike the school environment. Parents also found the physical activities significant, both personally and in seeing their children’s pleasure. Another key aspect was the social cohesion generated by the ‘parenting’ element of the intervention which enabled parents to openly discuss individual challenges in a supportive environment. This also enabled some parents to engage less helpful partners and relatives in the change process.

Conclusion: Encouraging social interactions and building friendships authentically amongst parents and children, and facilitated parental reflection were key drivers for participation and sustaining newly established patterns of behaviour beyond the end of the intervention.
Fonseca, H., Falcato, L., Martins, S., Palmeira, A.

Department of Pediatrics, Pediatric Obesity Clinic, Hospital de Santa Maria, Lisboa, Portugal, Exercise and Health Study Center, Faculty of Sports and Physical Education, Lusofona University, Lisboa, Portugal, CIPER - Faculty of Human Movement, Technical University of Lisbon, Portugal

**Introduction:** Obese adolescents are at increased risk of a negative perception of their physical appearance, impaired emotional well being, and social functioning. Our purpose was to analyze the association between Body Mass Index (BMI), perceived body size and dispositional optimism in two cohorts of the TOP (Tratamento da Obesidade Pediátrica) Program at baseline.

**Methods:** Body dissatisfaction was assessed through the difference between perceived actual and ideal body size of the Figure Rating Scale (Williamson et al. 1989). The Revised Life Orientation test (LOT – R) was used to measure optimism. Statistical analysis was performed using nonparametric tests (Spearman correlation and Kruskal-Wallis test).

**Results:** The sample included 34 obese adolescents (BMI > 95th percentile), 12 to 17 year old, mean age 14.21 (SD=1.29), 64.7% females. Twenty participants (58.83%) assessed themselves as normal weight and 14 as overweight (41.17%). No significant gender differences were found in anthropometric variables, body size perception, body dissatisfaction and optimism. Higher BMI (rho=0.52, p=0.002) and hip circumference (rho=0.46, p=0.007) were associated with higher body size dissatisfaction. The adolescents who perceived themselves as overweight had higher BMI (X2=9.69, p=0.002), and larger abdominal (X2=6.32, p=0.012) and hip circumferences (X2=9.58, p=0.002) than those who perceived themselves as having a normal BMI. The adolescents with higher dissatisfaction were those who showed a correct perception of their body size (x2=16.263, p=0.001). No associations were found with the optimism construct.

**Conclusion:** An inadequate body size perception may make the therapeutic process more difficult. Future research should focus on the association between body size dissatisfaction, optimism and successful weight management.

**Psychosocial status and mental health in adolescents before and after bariatric surgery: A systematic literature review**

Herget Sabine, Rudolph Almut, Hilbert Anja, Blüher Susann

1Integrated Research and Treatment Center, AdiposityDiseases, University of Leipzig, Philipp-Rosenthal-Straße 27, 04103 Leipzig, Germany

**Introduction:** Conservative treatment for juvenile obesity often shows limited efficacy. Therefore, bariatric surgery is increasingly considered a treatment option for extremely obese adolescents. For designing appropriate pre- and postoperative care, mental health status and psychological comorbidities of this target group need to be elucidated.

**Methods:** A systematic literature review on pre- and post-operative depressive, anxiety and eating disorder symptoms of adolescent patients was performed in PsychINFO, Pubmed and Medline.

**Results:** Eleven studies met inclusion criteria. Results suggested that preoperatively a third of adolescents suffered from moderate to severe depressive disorder symptoms and a quarter from anxiety disorder symptoms, while 50 to 70% showed eating disorder symptoms. Post-operatively, levels of depressive disorder symptoms significantly improved. Postoperative reports on anxiety and eating disorder symptoms among adolescents were not found.

**Conclusions:** Further attention is needed in clinical assessment and treatment of mental health disturbances in adolescents presenting for bariatric surgery, while future research should focus on eating disorder and anxiety symptoms as well as psychological predictors of weight loss in adolescents after bariatric surgery.
Obesity and student retention among teenagers: correlational analyses in high schools in Quebec (Canada)

Moktar Lamari¹, Mélanie Michaud¹, Marie-Claude Jean¹, Linda Tanguay¹
¹École nationale d'administration publique, Quebec University, Center for research and expertise in evaluation (CREXE), (Québec, Canada)

Introduction: Can we establish a relationship between obesity and student retention? Several studies confirm that the adoption of certain lifestyles such as physical activity and healthy eating are closely linked to student success. Healthier children perform better in school and in life, and conversely, those who do better in school are also healthier.

Method: As part of a larger research project, a correlational survey was conducted in winter 2013 among 248 young people aged 14 to 19 in the Outaouais region (Quebec, Canada) on the impact of government policies and other measures to adopt healthy lifestyles. We especially analyzed the links between obesity prevention and parental involvement on the school performance and academic achievement of these young people. Our survey was used to measure attitude, perception and behavior variables, using a Likert scale.

Results: Our results suggest that, despite efforts by public programs, parents and teachers, one-third of the teenagers do not have access to awareness campaigns on the benefits of a healthy lifestyle. Almost one-fifth of the teenagers are not sufficiently supported by their parents in the adoption of healthy lifestyles. Furthermore, this research shows strong correlations between parental involvement and both student retention and acquisition of healthy habits in their children.

The role of the family in childhood and adolescent binge eating – A systematic review

Tetzlaff, A¹, Hilbert, A¹
¹Leipzig University Medical Center, Integrated Research and Treatment Center AdiposityDiseases

Introduction: The family has been deemed central in the development and maintenance of childhood and adolescent eating disorders. While family factors in anorexia nervosa, bulimia nervosa and obesity are well-documented and were often reviewed before, less is known about these influences on binge eating. Because family plays an important role especially in childhood and adolescence, the aims of this systematic review are to give an overview on family factors and to describe the parental role in the development and maintenance of binge eating.

Methods: We searched four major databases for studies on associations between binge eating, loss of control eating and family outcomes published up to April, 2013 in German and English language.

Results: Among the 278 non-duplicate citations, 26 studies met inclusion criteria for this study. Consistent evidence for the influence on binge eating was found in lower frequency of family meals, insecure attachment of the child, lower family functioning and more critical comments about weight or shape by parents. Rather inconsistent findings referred to the influence of family structures, a family history of eating disorders, family dieting and parental knowledge about their child’s eating behaviour. Gender differences in associations with family relationships and parental weight stigmatization were identified.

Conclusion: These findings underline the importance and the specificity of familial factors in binge eating as compared to other eating disorders and obesity. Therefore, family assessment and family-based interventions might be helpful in the treatment of childhood and adolescent binge eating. Further research should clarify inconsistent findings using prospective designs.
Understanding eating behaviour in individuals is not possible without studying individual reward circuits. Reward Sensitivity (RS) and Punishment Sensitivity (PS) are psychological concepts reflecting sensitivity of the neurological Behavioral Approach (BAS) and Inhibition (BIS) Systems respectively (Gray, 1987). Under normal conditions, BIS and BAS independently drive behaviour, but in extreme cases, one overactive system might disproportionately suppress the influence of the other (Corr, 2001, 2002, Vervoort, Wolters, Hogendoorn, de Haan, Bocx, & Prins, 2010). While research provides evidence for the role of RS and PS in several behaviour, little is known about the their implications for eating behavior and the development of obesity.

Cross-sectional studies in adults (Davis & Fox, 2008) and children (Verbeken, Braet, Lammertyn, Goossens & Mocns, 2012) support a dynamic vulnerability model of the association between self-reported RS and bodyweight. We replicate and extend these findings by describing cross-sectional and longitudinal associations between RS and measured bodyweight and by exploring the role of PS in the association between RS and bodyweight.

Cross-sectional and longitudinal associations of RS and weight outcomes are tested by fitting quadratic regression models of RS on weight measures, controlling for gender and age effects. The role of RS and PS in the prediction of weight outcomes is tested by separate regression analyses for obese and non-obese individuals. The cross-sectional associations are studied in a Flemish sample of 10-15 year olds, the longitudinal associations are studied in Dutch youngsters participating in the TRAILS study.

Is motivational interviewing effective as treatment for childhood obesity?

Tang, MJ¹, Verboom, AJ¹
¹Westfriesgasthuis, Hoorn, the Netherlands

Introduction: Little is known about the efficacy of motivational interviewing (MI) - a client-centered counseling style for eliciting behavior change - as an intervention for overweight and obese children. This study aims to assess the effects of MI on body mass index (BMI) z-scores in a group of overweight and obese children. We also assessed the trend in BMI z-scores prior to and during treatment.

Methods: We performed a retrospective chart review of overweight and obese pediatric patients, who received MI through consultation by a pediatrician.

Results: We included 44 (88%) of 55 reviewed children. Twenty-four patients (54%) received continued treatment for weight loss from another health care provider (dietician, physiotherapist, etc.), and were included in a combined treatment group. After treatment with MI, the mean BMI z-score for all children decreased by 0.23 (CI: 0.12-0.36 p< 0.001). Patients receiving only MI and combined treatment had a decreased mean BMI z-score of 0.22 (CI: 0.11-0.33) and 0.26 (CI: 0.05-0.46), respectively. Linear regression analysis showed that BMI z-scores increased prior to treatment (β: 0.02, p<0.001) and decreased during treatment (β: -0.01, p<0.05). Separate analyses showed that the MI only and combined treatment groups both showed significant trends of declining BMI z-scores during treatment (β: -0.023 and β: -0.008, respectively).

Conclusions: MI seems to contribute to reduction of BMI z-scores and alteration in BMI z-score trends towards a decline in overweight and obese children. Future studies are needed to determine long-term effects and to assess whether combined treatment strategies are more effective.
Efficacy of a six-month biopsychosocial intervention for treatment of children and adolescents with excess weight refractory to conventional therapy

Lanza Saiz R.1, García Fuentes M.1,2,3, Gaite Pindado L.1,4, Alvarez Granda L.1,2,3, Pesquera Cabezas R.1,5, Artal Simón J.4, Cabero Perez M.J.1,2,3.

Introduction: Obesity is associated with an increased risk for hypertension and cardiovascular disease in children and adults, leading to long-term morbidity and early mortality. Body mass index (BMI) and waist circumference (WC) are good predictors of cardiovascular risk. The aim of this prospective study was to determine the efficacy of a six-month biopsychosocial intervention to lower BMI and WC in a group of children and adolescents with excess weight refractory to conventional therapy.

Participants and methods: A total of 127 children and adolescents with excess weight were enrolled, following referral from primary care paediatricians, into a biopsychosocial program for weight management at the “Childhood Obesity Unit” of the University Hospital “Marqués de Valdecilla”. Participants received up to eleven sessions, usually lasting 30 minutes, during a 6-months period. A paired samples t-test was used to evaluate change over the intervention period comparing pre and post treatment BMI and WC values. Values of p < .05 were considered significant.

Results: Of the 127 patients enrolled, 117 (52 boys and 65 girls) completed the 6-month intervention. Their mean age was 11 years (SD = 2.6) and 90 fulfilled Cole criteria for obesity. There was a statistically significant decrease in mean BMI pre and post treatment (27.98, SD = 4.06 to 25.59, SD = 4.27), t (116) = 16.10, p < .0005 (two-tailed). The mean decrease in BMI was 2.39 with a 95% confidence interval (CI) ranging from 2.10 to 2.69. There were also a reduction in WC after treatment from 94.14 cm, SD = 10.78 to 89.47 cm, SD = 11.50, t (116) = 10.72, p < .0005 (two-tailed). The mean reduction in WC was 4.67 cm with a 95% CI ranging from 3.81 to 5.54. In both cases the eta square statistic (.69 and .49) indicated a large effect size.

Conclusion: This six-month intervention has good acceptability for children and parents since 92% finished the treatment. Furthermore, a significant reduction of BMI and AC was obtained in this group of child and adolescents. This is a remarkable finding since these patients were previously refractory to conventional treatment (dietary and/or exercise). However, assessment of the long term efficacy of this intervention requires further research.
Applying learning theory to improve liking and intake of vegetables in pre-school age children

Introduction: Establishing liking and intake of vegetables early in life facilitates later healthy eating and may reduce risk of obesity. Importantly, food preferences are not fixed in infancy. Short-term liking for the taste of vegetables can be improved in children through flavour consequence learning (FCL), whereby degree of liking for specific vegetables is associated with degree of post-ingestive consequence.

Methods: To investigate FCL in influencing vegetable rank preference and liking (using measured intake), 33 pre-schoolers were recruited from nurseries in St Andrews and Leeds, and tested in groups in nursery settings. Rank preference and liking (intake) of vegetables (carrot, pepper, celery) and smoothie drink were assessed pre and post intervention. Children received 8-10 exposures (intervention) to their moderately preferred (target) vegetable via a smoothie drink (100g). Eating behaviour profile was measured.

Results: The novel vegetable smoothie drink (intervention) was accepted over 8-10 consecutive occasions. Inter-individual variation in consumption was present, where intake of smoothie was negatively correlated to child food fussiness. Exposure to a moderately preferred (target) vegetable smoothie drink did not increase intake of the target vegetable. Evaluative conditioning did not generalise to other vegetables in this context and intake of vegetables remained stable.

Conclusion: The most effective means to increase pure vegetable intake is not through FCL. Data on acceptance of the vegetable smoothie suggest that repeated exposure may be sufficient to increase acceptance of vegetables in some children. Food fussiness is a barrier to acceptance of new tastes, and may compromise healthy eating and later health outcomes.

Should we always change bad dietary habits in obese children or not?

Introduction: That’s the question coming out by a psychological point of view, reviewing the cases we have treated in our Service recently. Treating childhood obesity with multidisciplinary approach we detected some problems in obese families in term of psychological dynamics frequently.

Methods: We analyzed cases seen in 2012: 157 people aging mean 11,35 y (sd 3,02), with starting BMI mean 27,28 (sd 4,22); we detected both psychological aspects related to the family and to the child.

Results: We found mild-severe problems in 48% of cases in the family area 1) bad quality in relationship between parents (24% infighting with divorced one or being about to separate); 2) severe health problems in families, which are able to lead to global emotional distress (38%). Furthermore in term of psycho-physical state we saw in 35% of children evaluated several health evidences in addition to overweight like: dyslexia or specific learning disabilities (26%), behavior diseases (15%), anxiety or emotional distress (24%), tics (5%), migraine (8%); 7% showed neurological pathologies (like cognitive delays) or organic pathologies associated (15%).

Conclusion: Binge eating and related obesity seem to be an answer to psychological request in term of emotional distress of the origin familiar unit. So we have really to effort the importance of psychological approach at the same time of nutritional and environmental attention due to young obese patients. Nevertheless we can recommend to value in a very strong way how a radical change could be destabilizing in term of emotional homeostasis when important changes in food habits occur.
Early exposure to vegetable variety on infants' liking and consumption: the TASTE intervention study

Fildes, A1, Wardle, J1 & Cooke, L1
1 Health Behaviour Research Centre, UCL, London, UK

**Introduction**: Research suggests that repeatedly offering infants a variety of vegetables early during weaning increases intake and liking of these vegetables and may facilitate acceptance of novel foods.

**Methods**: Sixty mothers of 4-6 month old infants were randomised to an intervention group who were given guidance on introducing vegetables as first weaning foods, or a control group who received usual care. Mothers were visited at home at the start of complementary feeding. The intervention comprised an interview at which the importance of early introduction to a variety of vegetables was stressed and mothers were encouraged to offer tastes of five different vegetables only for the first 15 days of weaning. Leaflets reinforcing these messages were provided. Control participants were also visited, but received no advice. The infants' liking and consumption (g) of an unfamiliar vegetable followed by an unfamiliar fruit was assessed at a 'taste test' 1 month post-intervention.

**Results**: Infants in the Intervention group ate significantly more of an unfamiliar vegetable than infants in the Control group (p=0.014) and were rated as liking the vegetable significantly more than those in the control group by both mothers (p>0.001) and researchers (p>0.001). There were no significant group differences in infants' liking or intake of the fruit.

**Conclusion**: It may be beneficial to introduce a variety of vegetables early in complementary feeding. The TASTE intervention was well received by parents, is straightforward and would be easily disseminable via health professionals or directly to parents.

Understanding fruit and vegetable eating behaviour in British primary school children: An application of the Theory of Planned Behaviour

Duncan, MJ, Clarke, ND, Birch, SL, Bryant, E, Eyre, EIJ
Department of Biomolecular and Sports Sciences, Coventry University, UK

**Introduction**: Fruit/vegetable consumption in childhood has wide ranging implications including decreased risk of childhood obesity. Few studies have sought to predict children's intention and behaviour related to fruit/vegetable consumption in the context of weight status. This study sought to test the utility of the Theory of Planned Behaviour (TPB) for the prediction of these variables.

**Method**: Following local ethics approval and parental and child consent, 72 children (29 boys, 43 girls, Mean age ± SD = 9 ± 1 years) completed a validated self-report measures of Intention to consume 5 portions of fruit/vegetables daily, TPB variables (attitude, subjective norm, perceived behavioural control (PBC) related to fruit/vegetable consumption), measures of actual fruit/vegetable eating behaviour and were assessed for stature (m) and body mass (kg) from which body mass index (BMI) was determined. Two backwards linear regression analyses were conducted: In the first analysis, intention was regressed, on TPB variables and BMI; in the second analysis, fruit/vegetable scores were regressed, on intention, TPB variables and BMI.

**Results**: Attitude and subjective norm significantly predicted children's intention to consume 5 portions of fruit/vegetables daily (P=0.0001, AdjR²=0.475) predicting 47.5% of the variance in this measure. Intention, attitude, subjective norm and BMI significantly (P=0.0001, AdjR²=0.387) accounted for 38.7% of the variance in fruit/vegetable eating behaviours.

**Conclusion**: This study suggests that TPB variables are predictive of fruit/vegetable eating intention and behaviour but that BMI is only predictive of fruit/vegetable eating behaviour, with higher BMI associated with lower daily consumption of fruit and vegetables in British children.
Background: Food preferences strongly predict dietary intake. Understanding the aetiology of food preferences has practical implications for dietary interventions aiming to modifying these traits. However, studies of genetic influences on food preferences are scarce, and limited by sample size and methodology.

Objective: To quantify genetic and environmental influences on preferences for five empirically derived food groups in young children.

Methods: Data are from 1343 families with twins participating in the Gemini study, a population-based cohort born in 2007. Parents completed a 115-item food preference questionnaire when their children were 3 years old. Five food groups (fruit, vegetables, protein, dairy and none-core) comprising 56 foods emerged from Principal Components Analysis. Heritability of each food group was estimated using quantitative genetic model-fitting.

Results: Heritability was strong for fruits (56%; 95% Confidence Interval (CI): 50-62%), vegetables (50%; CI:45-56%), and protein (49%; CI:43-56%) and moderate for dairy (32%; CI:27-37%) and non-core (32%; CI:27-37%). Shared environmental effects were strong for ‘none-core’ (53%; CI:48-58%) and ‘dairy’ foods (CI:50-59%) and moderate for fruits (31%; CI:25-37%), vegetables (38%; CI:33-43%) and protein foods (34%; CI:28-40%). Non-shared environmental effects were small but significant for all five food groups (11 to 16%).

Conclusions: Preferences for food groups are moderately heritable in young children, particularly for ‘fruits’, ‘vegetables’ and ‘protein’ foods. However, shared environmental factors also played an important role, particularly for ‘dairy’ and ‘non-core’ foods. Identifying key environmental drivers of food preferences in childhood may aid interventions to increase preference for fruits and vegetables, and reduce preference for less healthy foods.
**Introduction:** The incidence of type 1 and type 2 diabetes mellitus (T1DM, T2DM) parallel with the increasing rate of obesity reported to be increased among children over the past decade. It is known that there are diabetic patients who show overlapping diabetes phenotype typical of both forms. The aim of the present study was to analyze, retrospectively, the phenotypical characteristics of patients followed-up at the Diabetic Clinic of our Department in the last thirty years.

**Patients and method:** Altogether 274 children (boys 126) were examined (mean age±SD, 7.8±4.2 years; initial mean HbA1c level±SD: 11.5±2.6 %). Anthropometric measurements and laboratory tests were performed, Statistical analyses were done by SPSS Windows 15.00 programme.

**Results:** At the diagnosis 96 children (35 %) were presented by diabetic ketoacidosis. These children were significantly younger compared to the other patients (mean±SD: 6.9±4.4 vs 8.6±3.9 years; p<0.01). Nine children (3.2 %) were found to have Maturity Onset Diabetes in the Young (MODY). At the diagnosis these children were significantly older compared to the T1DM patients (mean±SD: 8.7±5.2 vs 7.9±4.1 years; p<0.05), and the initial HbA1c level was significantly decreased (mean±SD: 6.5±0.4 vs 11.4±2.7 %; p< 0.001) while C-peptid levels were significantly increased (mean±SD: 1.6±1.0 vs 0.6±0.4 ng/ml; p< 0.001). Autoimmun thyroiditis were found in 24 patients (8.7 %), while celiac disease was diagnosed in 27 children (9.8%).

**Conclusion:** At the time of diagnosis sometimes it’s difficult to be certain of diabetes types, although it would be very important because of the treatment strategies and associated disorders.

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**Introduction:** The burden of disease from childhood obesity is considerable worldwide, as it is associated with several co-morbidities, such as dyslipidemia, hypertension, type 2 diabetes (T2DM), orthopedic and psychosocial problems. We aimed to determine the prevalence of these complications in a population of overweight and obese children and adolescents.

**Methods:** This is a cohort study including 774 new patients (1.7 - 17.9 yrs, mean 11.1±3.0) attending a pediatric obesity care center. We assessed personal and family medical histories, physical examination, systemic blood pressure, biochemical screening tests.

**Results:** Almost 90% of children suffered from at least one complication. Conditions related to well-being were the most frequent (79.4%), followed by orthopedic pathologies (54%), metabolic (42%) and cardiovascular anomalies (31%). Family history of dyslipidemia tends to correlate with the child’s lipids disturbance (p=.053), and ischemic events or T2DM were correlated with cardiovascular risk factors present in the child (p=.046; p=.038, respectively).

**Conclusion:** The majority of obese children suffer from physical and psychosocial complications that must be actively screened. A positive family history for cardiovascular diseases or T2DM should be warning signs to perform further complementary tests. Furthermore, well-being related-complaints should not be underestimated as they were extremely frequent.
Effect of physical activity guidance for girls and boys in the child and adolescent obesity outpatient office

Montoro, S.B.1; Bicudo, A.M.1; Arruda, M.1; Filho, A.B.1; Antônio M.A.R.G.1, Zambon, M.P.1, Mendes R.T1

1Department of Pediatrics / Faculty of Medical Sciences / State University of Campinas, Unicamp, Campinas, SP, Brazil
2Department of Science of Sports / Faculty of Physical Education / State University of Campinas - UNICAMP, Campinas, SP, Brazil.

The insertion of the physical education professional in hospital settings expands the capacity of multi-professional teams in evaluating the patient and proposing actions. The Objective was evaluate the effect of physical education professional guidance in the performance and clinical parameters of obese children and teenagers the Hospital de Clínicas - Unicamp. A total of 33 obese children and adolescents (16 girls) between 07 and 19 years old with BMI ≥ 95 percentile of the CDC curve.

It was evaluated the performance in two moments: the first up to 30 days after first consultation and the second between 12 and 24 months. The 20-meter shuttle-run by LÉGER et.al. (1982-1989), anthropometry, blood pressure, heart rate maximum on effort tests were used. The Statistical Analysis: descriptive, average and standard deviation; Kolmogorov–Smirnov, Shapiro-Wilk and Wilcoxon tests, with ≤ 5% significance. The statistical analyses were performed with the SPSS, version 13.0 program.

The distance run by girls on the 2nd evaluation was 16% greater and boys was an increase of 32% than on the 1st evaluation, increasing the BMI on both groups (p<5%), which cannot be attributed to the increase of physical activity, but might be partly due to the maturation and inappropriate eating habits.

The formula estimating VO2 max based on the 20-meter shuttle run by Léger, is not appropriate for the population of obese children and adolescents. Regarding SBP, DBP and maximum HR, there were no statistically significant differences, maybe due to the small number of children evaluated.

Obesity in childhood and precocious puberty - diagnostic difficulties

Prokopowicz Z.1, Matusik P.1, Szymczyk K.2, Dziurok A.2, Cogiel E.2, Francuz Ł.2, Czober T.2, Osuch M.2, Małecka-Tendera E1

1Department of Pediatrics, Pediatric Endocrinology and Diabetes, Medical University of Silesia, Katowice, Poland
2Scientific Society of Medical Students, Medical University of Silesia, Katowice, Poland

Manifestation of precocious puberty (PP) is one of the most distressing medical problems for both parents and the doctors. It is concerned that the most useful parameter to differentiate central precocious puberty (CPP) from isolated mild variants is the bone age (BA). On the other hand, obesity in childhood can accelerate physical development. The aim of this study was to evaluate whether the coexistence of obesity in children with precocious puberty symptoms influences significantly the diagnostic process.

Material and Methods: We retrospectively analyzed a group of 200 children’s records (F/M 164/36) hospitalized because of precocious puberty suspicion. The analysis evaluated the nutritional status based on BMI percentile level, compatibility between the bone age and the chronological age; and the final clinical diagnosis.

Results: In the analyzed group excessive body weight was found in 66 (33%) children - overweight in 34 (17%) and obesity in 32 (16%) patients respectively. It is noticeable that children with excessive body weight are significantly more likely to have mild variants of precocious puberty (71% vs. 66.4%) despite the fact that the accelerated bone age in this group was more frequently observed (47% vs. 24.6%). In the group with mild variant of PP and accelerated bone age (n = 41 (28.9%)) up to 75.6% of children were overweight or obese. In the group of CPP accelerated BA was observed only in 23 (52.3%) children. Frequently recognized variant of PP in obese children was premature pubarche (n = 20 (62.5%)).

Conclusions: Obesity and overweight significantly modifies puberty, and by accelerating the bone age can hinder the initial diagnosis of PP. The bone age acceleration seems to be poor indicator of central precocious puberty, especially in obese children. The population of overweight and obese children is dominated by a mild variant of precocious puberty – premature pubarche.
**P35**

The impact of Ramadan fast on BMI and cardiometabolic factors in ethnic obese adolescents

Radhakishun, NNE¹,², Blokhuis, C¹, van Vliet, M¹, von Rosenstiel, IA¹, Weijer, O¹, Heymans, MW², Beijnen, JH¹, Brandjes, DPM¹, Diamant, M²

¹ Slotervaart Hospital, Amsterdam, the Netherlands / ² VU University Medical Centre, Amsterdam, the Netherlands

**Introduction:** The radical change of lifestyle during Ramadan fast has shown to affect cardiometabolic risk variables in adults. In youth however, no studies are available. We aimed to evaluate the effect of Ramadan fast on Body Mass Index (BMI) and cardiometabolic profile of obese adolescents.

**Methods:** A prospective cohort study was conducted. We measured weight, height, body composition, waist circumference, blood pressure, heart rate, glucose, insulin, total-, low-density lipoprotein (LDL)- and high-density lipoprotein (HDL)-cholesterol, triglycerides and high sensitivity C-reactive protein (hs-CRP) levels before, during the last week of Ramadan and at six weeks after Ramadan ending.

**Results:** Twenty-five obese adolescents were included. BMI and glucose metabolism did not change after Ramadan or at 6 week after cessation of Ramadan. At the end of Ramadan, a significant decrease in body fat percentage was observed, while significant increases in heart rate, total cholesterol, LDL-cholesterol, HDL-cholesterol and hs-CRP were found (all P<0.05). Six weeks after Ramadan, all parameters returned to baseline levels.

**Conclusion:** In this sample of 25 ethnic obese adolescents transient cardiometabolic changes were observed during Ramadan fast. Since most of these changes were reversible within six weeks, there seems no harm or benefit for obese adolescents to participate in Ramadan.

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**P36**

Moderator variables of lifestyle and treatment adherence in overweight adolescents

Sousa, P ¹,², Fonseca, H ³,⁴, Gaspar, P ¹,², Gaspar F ⁵

¹School of Health Sciences, Polytechnic Institute of Leiria, Portugal, ²Health Research Unit (UIS) of the Polytechnic Institute of Leiria, Portugal, ³Faculdade de Medicina da Universidade de Lisboa, Portugal, ⁴Pediatric Obesity Clinic, Department of Pediatrics, Hospital de Santa Maria (HSM), Lisboa, Portugal / ⁵School of Nursing of Lisbon, Portugal

**Introduction:** Adherence to behavior changes and a healthier lifestyle is crucial for the treatment of overweight adolescents. This study aims to evaluate the moderators of lifestyle and treatment adherence, based on socio-demographics, anthropometric, behavioral / motivational and clinical data.

**Methods:** The sample consists of 94 adolescents who are attending a Pediatric Obesity Clinic in Portugal, aged 12-18 years, 51.06% girls, average age 14.17 years (SD = 1.507). Lifestyle was assessed using the “Adolescent Lifestyle Profile” and treatment adherence through the “Therapeutic Adherence to Weight Control Questionnaire”. Statistical analysis was performed using nonparametric tests (Spearman correlation, Mann-Whitney U test and Kruskal-Wallis test).

**Results:** There was no significant relationship either between BMI Z-score and lifestyle or BMI Z-score and treatment adherence. However, adherence to weight control was positively influenced by various lifestyle domains (health responsibility, physical activity; nutrition, positive life perspective, stress management and spiritual health). The moderators influencing lifestyle that have been identified included gender, weekly physical activity and sedentary life. The moderators for adherence included waist circumference percentile, family support, treatment duration, previous attempts to lose weight and parental education.

**Conclusion:** These results underline the importance of behavioral change and the adoption of a healthier lifestyle as pillars for adherence to weight control.
**P37**

**Moderators of quality of life among overweight adolescents: influence of body mass index, sociodemographics, behavioral, motivational and clinical variables**

Sousa, P 1,2; Fonseca, H 3,4; Gaspar, P 1,2; Gaspar F5

1School of Health Sciences, Polytechnic Institute of Leiria, Portugal / 2Health Research Unit (UIS) of the Polytechnic Institute of Leiria, Portugal / 3Faculdade de Medicina da Universidade de Lisboa, Portugal / 4Pediatric Obesity Clinic, Department of Pediatrics, Hospital de Santa Maria (HSM), Lisboa, Portugal / 5School of Nursing of Lisbon, Portugal

**Introduction:** Overweight is an extra burden for adolescent development and triggers serious physical and psychosocial problems. Overweight in adolescence has been consistently associated with poorer psychosocial and emotional wellbeing. This study aims to evaluate moderators of quality of life in adolescents with excess weight.

**Methods:** The sample consists of 94 adolescents who are attending a specialized Pediatric Obesity Clinic, 46 boys (48.94%), median age of 14.17 years (SD = 1.51). Weight-related quality of life was assessed with the 27-item measure, developed by Kolotkin et al. (IWQOL-K: Impact of Weight on Quality of Life-Kids). Statistical analysis was performed using nonparametric tests (Spearman correlation, Mann-Whitney U test and Kruskal-Wallis test).

**Results:** Body Mass Index (BMI) z-score correlated negatively with quality of life in terms of physical comfort, social life and overall quality of life index. Gender, weight loss motivation, perception of body image, presence of binge eating episodes and mother’s education level were found to work as quality of life moderators.

**Conclusion:** These results underscore the importance of routinely assessing quality of life when treating overweight adolescents. Intervention programs should be designed not only to tailor the individual adolescent health needs but also take into account those moderators that have been identified.

**Facing the challenges?**

Tvedt Kari Eldal, Halding Anne-Grethe
Sogn og Fjordane University College

**Introduction:** Health care workers’ (HCW) experiences of working with families with obese children have received little attention. Through understanding how to conceive encounters with the families, treatment may be improved.

**Methods:** A qualitative design with three focus group interviews and an analysis inspired by Malterud’s guidelines was used. Six district nurses, one GP, one physiotherapist and one nurse participated, all with experience from working with families and children living with a weight problem.

**Results:** The following challenges were met by the respondents when meeting the families; It was hard to raise the issue of a child’s obesity, the dropout rate from treatment was high, and the families often responded with defensive explanations to conceal the severity of the problem. In response, HCW tried to counsel the parents how to use problem solving skills. HCW found it challenging to motivate parents, children and adolescents without threatening their integrity. Lack of time was a barrier and resources for implementing the treatment was needed. Further, insufficient cooperation between levels of the health care services was a burden.

**Conclusion and implications:** HCW found it challenging, but interesting, to collaborate with families with obese children. HCW found it hard to stay motivated when counselling families who were unable to perform changes in lifestyle. An effort should be made to educate more skilled professionals to handle the complexity of this work.
To investigate the relationship between family history of hypertension (IA), secondary hypercholesterolemia (HCOL), Myocardial Stroke (MSt) before the age of 55, and the presence of HHcy (≥ 6 μmol/l) (1), in a population of pubertal child ow/ob, associated or not with mutation of the MTHFR gene, 320 ow/ob children (56.87%F, age:11.29±3.72, z-BMI: 1.89±0.67) with HHcy, were screened for MTHFR mutation C677T: 29.30% were homozygous normal CC [Hcy 8.76±1.6], 46.87% heterozygous CT [9.01±5.41Hcy] and 23.83% homozygous TT [Hcy 19.40 ± 6.58] (p <0.01 TT vs.TC-CC).

In TT patients, family history is positive for MSt in 45.26%, HCOL in 58.72% and IA in 40.54%; in TC: MSt in 43.33%, HCOL in 46.66%, IA in 42.63%; in CC: MSt in 28.66%, HCOL in 31.57%, IA in 35.67%. We also investigated whether a family history of MSt/HCOL/IA, associated with MTHFR TT-CT mutation, is a risk for the development of metabolic syndrome (MS, present in 6.87%): TT-CT children with a family history of MSt have an OR=1.57 for MS, with a family history of HCOL have an OR=2.72, with a family history of IA have an OR=0.84 (p <0.05).

A family history of COL or MSt is more frequently present in children with TT-CT mutation, and this association is a real risk of developing MS in child ow/ob. Primary and secondary prevention is more important than ever for children ow/ob with positive family history for MSt/HCOL/IA, especially if a MTHFR mutation some sign of MS (2) are present.

(2) http://www.idf.org/home/index.cfm?node=1611

Effect of violent and non-violent video games on stress markers and test meal intakes: a randomized control trial in overweight young men

Gan, J1, Servio, M2, Fewtrell, M1, Wells, J1
1University College London, 2University of Newcastle

Introduction: Associations between sedentary activities and overweight/obesity have been demonstrated in experimental and epidemiological studies; traditionally this has been assumed to involve the displacement of physical activity, promoting positive energy balance and weight gain. Increasingly, researchers are challenging the utility of this ‘energy balance approach’, proposing that sedentary activities may promote weight gain through metabolic perturbations.

Method: A three arm, prospective, randomised control trial was conducted in 72 overweight/obese adult males, divided into three equal groups: (i) watching TV; or playing (ii) a non-violent video game; or (iii) a violent video game. The 1-hour intervention was followed by a 25-minute rest period where a selection of sweet and savoury snacks/drinks was available ad libitum. Data on stress (heart rate, blood pressure, and visual analogue scale (VAS)) were collected throughout.

Results: Heart rate, systolic blood pressure, and stress measured by VAS were all significantly higher (p<0.05) when playing video games (FIFA and COD groups combined) compared to watching TV. Ad libitum energy intake after playing video games was 173 kcal (p<0.03) higher than controls, in association with a preference for sweet and fatty foods (p<0.05). Furthermore, playing the violent video game (COD) was individually associated with stronger preference for sweet foods (p<0.01).

Conclusion: A 1-hour session of playing video games in overweight/obese adult males is associated with a stress response, and increased calorie intake, which might arise through stress-induced cerebral metabolic perturbations. Furthermore, playing the violent video game may cause an enhanced cerebral metabolic perturbation, associated with preference for sweet foods.
Do the thyroid volume and TSH level are related to lipids and carbohydrates metabolism disturbances in obese children and adolescents? – The pilot study

Zachurzok A, Matusik P.

1Department of Paediatrics, Paediatric Endocrinology and Diabetes, Medical University of Silesia, Katowice, Poland

In obese children subclinical hypothyroidism is found more often than in lean subjects. The relationship between TSH concentration and the risk of hyperlipidemia is still the matter of discussion. The aim of our study was to evaluate the relationship between thyroid volume and TSH concentration and lipids and carbohydrates metabolism disturbances in obese children and adolescents.

The study group comprised 36 obese children (19 boys and 17 girls) in the mean age 12.3±3.2 years. In all subjects the height, weight, neck (NC), waist (WC) and hip circumferences (HC) were measured and BMI z-score was calculated. Next ultrasound of the thyroid gland was performed and its volume was measured. TSH, fasting lipid profile, glucose and insulin concentration as well as glucose and insulin level after 120 minutes of OGTT were measured. The insulin resistance indexes were calculated (FIGR, R-HOMA).

In all patients the thyroid volume was within the normal values for the age and gender and TSH level was lower than 7.0 uIU/ml. The significant correlation between BMI z-score and thyroid volume was found (r=0.6, p<0.001). BMI z-score correlated significantly with triglycerides (TG) (r=0.5, p=0.01) and LDL-cholesterol concentration (r=0.5, p=0.03) as well as R-HOMA (r=0.4, p=0.04). There were no significant relationship between TSH level and anthropometrical measurements (BMI z-score, NC, WC, HC) as well as lipids and carbohydrates metabolism parameters. However TSH concentration above TSH >2.5 uIU/ml correlated significantly with hyperinsulinaemia (r=0.7, p=0.01) and hypertrygliceridaemia (r=0.7, p=0.01). Moreover significant relationship was found between the thyroid volume and fasting insulin level (r=0.4, p=0.04), TG (r=0.5, p=0.01) and insulin resistance indexes (FIGR: r=0.05, p=0.005; R-HOMA: r=0.6, p=0.002).

In obese children and adolescents thyroid volume and TSH concentration are significantly related to the excessive body weight and some parameters of lipids and carbohydrates metabolism. These preliminary findings need to be confirmed on the larger study population.

The Role of Vitamin D in Atherosclerosis Inflammation Revisited: More Bystander than Player?

Harald Mangge1, Daniel Weghuber2, Ruth Prassl3, Astrid Haara4, Wolfgang Schnedl5, Teodor T. Postolache6, Katharina Paulmichl2, Dietmar Fuchs4

1Clinical Institute of Medical and Chemical Laboratory Diagnosis, Medical University of Graz, Austria / 2Department of Pediatrics, Paracelsus Private Medical School Salzburg, Austria / 3Institute of Biophysics, Medical University of Graz, Austria / 4Division of Biological Chemistry, Biocenter, Innsbruck Medical University, Austria / 5General Practice for Internal Medicine, Bruck Mur, Austria / 6Mood and Anxiety Program, Department of Psychiatry, University of Maryland School of Medicine, Baltimore, MD, USA

Levels of 25-Hydroxy Vitamin D [25(OH)D] were reported to be decreased in cardiovascular disease (CVD) and in other chronic immunopathologies. In multiple studies, 25(OH)D has been shown to be significantly linked to mortality, and is thought to be a predictor of survival. Supplementation with Vitamin D2 or D3 has been suggested as a useful, therapeutic benefit to improve clinical outcomes and to prevent fatal clinical endpoints. Nevertheless, supplementation may require high doses to achieve efficient blood levels (>1,000 U/d) of 25(OH)D.

In contrast to this causal and corrective assumption, we hypothesize that decreased 25(OH)D levels, which are seen in patients with CVD and in other chronic immunopathologies, are secondary phenomena to inflammation, and thus, not as pathophysiologically relevant as suggested by the current hype. Under these conditions, low 25(OH)D levels might be caused by the oxidative stress that results from chronic, immune-mediated vascular and systemic inflammation encountered in patients with CVD. The oxidative environment most likely causes biodegradation of Vitamin D and interferes with key enzymes, disturbing the biosynthesis as well as biodegradation of 1,25(OH)D. There is no clear evidence of a beneficial effect of Vitamin D supplementation, except for treating Vitamin D deficiency (i.e. levels of < 50 nmol/L) for improvement of skeletal health. Moreover, a prolonged and/or high dose Vitamin D supplementation may even become immunologically harmful by downregulating Th1 immune responses and indirectly upregulating Th2 immune activation with potential detrimental metabolic and cardiovascular effects. Large randomized controlled studies of Vitamin D in relation to different outcomes (skeletal, metabolic, cardiovascular, mental) are urgently needed.
Markers of bone turnover in obese children - relationship to the nutritional status and oxidative stress level

Matusik, P1, Olszanecka-Glinianowicz, M2, Chudek, J3, Malecka-Tendera, E1
1Department of Pediatrics, Pediatric Endocrinology and Diabetes, Medical University of Silesia, Katowice, Poland
2Department of Pathophysiology, Medical University of Silesia, Katowice, Poland

Introduction: Recent data showed that some bone related markers (osteocalcin, 25OHD3) correlate with body mass index (BMI) in the pediatric population. From the other side, obesity in childhood can increase the risk of cardiovascular morbidity and mortality in adulthood. Increased oxidative stress can be one from the causative mechanisms involved in the pathophysiology of almost every complication in obesity. The aim of this study was to determine the relationship between bone turnover markers, nutritional status and oxidative stress markers in obese children comparing to the lean control group.

Material and methods: Bone turnover markers (osteocalcin (OC), N-terminal telopeptide of type I collagen (NTx), sRANKL), oxidative stress markers (TAC – total antioxidative capacity, glutathione peroxidase, oxy-LDL) and leptin were determined in 50 obese children and 79 healthy controls. Nutritional status assessed by BMI calculation and body composition parameters as: fat mass (FAT%), fat-free mass (FMM), predicted muscle mass (PMM) and total body water (TBW) were evaluated using bioelectrical impedance analyzer in all children.

Results: OC was significantly lower in obese children and correlated significantly (negatively p<0.01) with BMI in the lean group. There was also significant positive correlation between OC and TAC in obese children. NTx correlated significantly with oxy-LDL (positively) in either, obese and lean group (p<0.05 and p<0.01 respectively). In the lean group only, there were significant relations between NTx vs. leptin and body composition parameters (r = 0.245 vs. leptin, r = 0.245 vs. FAT%, r = -0.252 vs. PMM%, and r = -0.245 vs. FFM% respectively). There was no significant correlation between RANKL and every other parameter assessed in both studied groups.

Conclusions: 1. Bone turnover seems to be disturbed in the obese children and pathophysiological factor with can be involved in that mechanism may be an increase oxidative stress level. 2. Even in lean children nutritional status is inversely and directly related with osteocalcin and NTx respectively.
Publication

Speakers’ and posters’ abstracts will be published on Appetite - issue 74, which will be released on February 7th 2014.

Appetite is an international research journal specializing in behavioural nutrition and the cultural, sensory, and physiological influences on choices and intakes of foods and drinks. It covers normal and disordered eating and drinking, dietary attitudes and practices and all aspects of the bases of human and animal behaviour toward food.

www.journals.elsevier.com/appetite

Editors
Prof Andrea Vania
Prof Jason Halford
Dr Marie Laure Frelut
Dr Margherita Caroli
24th ECOG Congress

Salzburg

13-15 November 2014

1st Announcement

www.ecog-obesity.eu
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Dear colleague,

It is our pleasure to announce the 24th European Childhood Obesity Group (ECOG) congress. Next year’s congress, ECOG 2014, will take place in Salzburg from November 13th to 15th. Salzburg is a city rich of history, UNESCO World Heritage site, where music culture and baroque style create a unique atmosphere. The venue will be the Audimax, a superb new building that shows the city’s modern soul and reflects the incredible role that music plays in Salzburg.

On November 13th 2014, the congress foresees a training course designed to address the obesity topic based on recent evidences and dedicated to German speaking experts.

In parallel, during the morning, two consecutive workshops of 90 minutes will cover the following issues:
• The psychological approach of the eating behaviour of obese children
• Physical aptitudes of obese children

In the afternoon, a special session will cover the issue:
• Irresponsible or imperative: bariatric surgery for morbidly obese adolescents. Who? What? When?

Day 2 and 3 (November 14th and 15th) will be dedicated to the key topic of the congress:
• Early prevention of childhood obesity – promises versus evidence: pregnancy, infancy and toddlerhood

Moreover, ECOG is delighted to announce that the congress will host a joint session with the International Federation of Surgery of Obesity and Metabolic Disorder (IFSO). IFSO is a federation composed of national associations of bariatric surgeons. Currently, there are 51 official member societies.

We look forward to welcoming you in Salzburg.

Yours Sincerely,

President Elect Salzburg 2014

Daniel Weghuber
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The Federation of European Nutrition Societies (FENS)
is a European Institution supporting ECOG.
The Federation of European Nutrition Societies is a non-profit
Federation consisting of 26 European Nutrition societies, with
the idea of maintaining a permanent link for exchanges
between European nutritionists with basic and applied
perspectives.
The aim is to combine efforts for the development of research
and education in Nutrition Sciences and to promote the
importance of Nutrition for public health in Europe.
It promotes learning among nutritionists in general and
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