A Strategy for Europe on Nutrition, Overweight and Obesity-related health issues"

Workshop: How can Science support policy makers addressing the nutritional challenges of Europe?

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Structure of the presentation

- Summary of the "EU Strategy on Nutrition, Overweight and Obesity-related health issues"
- High Level Group on Nutrition and Physical Activity
- EU Platform for action on Diet, Physical Activity and Health
- Mid-term implementation progress report for the Nutrition Strategy
- Priorities for the period 2011 – 2013
Overweight and Obesity-related health issues

- **Non-communicable diseases** represent 77% of disease burden and 86% of mortality in the European region (WHO EURO Nov 2010)

- Obesity is a known risk factor for numerous **non-communicable diseases** (OECD, 2010c)

- Mortality increases sharply once the overweight threshold is crossed (OECD, 2010c)

- Globally, at least 2.8 million people/year die as a result of being overweight or obese (WHO, Global status report on non-communicable diseases 2011)

- Excess weight problems in childhood are associated with an increased risk of becoming an obese adult, and with other health concerns (OECD, 2010c; Currie et al., 2008)
Why is prevention important?

- Eating a healthy diet, increasing physical activity and avoiding tobacco use can prevent:
  - 80% of premature heart disease,
  - 80% of type 2 diabetes cases, and
  - 40% of cancers.
  (World Health Organization, 2009)

- Lifestyles habits are forged at childhood, so childhood is an important period for forming healthy behaviours
Focus on overweight and obesity
Quick facts: adults

- More than half (50.1%) of the adult population in the European Union are overweight or obese.
- The prevalence of overweight and obesity among adults exceeds 50% in no less than 15 of 27 EU countries.
- The rate of obesity has more than doubled over the past 20 years in most EU countries for which data are available.
Focus on overweight and obesity

Quick facts: children

- On average 1 in 4 children aged 6-9 years old were overweight or obese (Measured data collected by WHO European Childhood Obesity Surveillance Initiative, COSI, 2008)

- Only 1 in 5 children (between 11 and 15 yrs) in EU countries report to undertake moderate-to-vigorous exercise regularly (Health Behaviour in School-aged children survey -WHO collaborative study 2006)

- Only around 1 in 3 boys and 2 in 5 girls aged 11-15 years ate at least one piece of fruit daily (Health Behaviour in School-aged Children (HBSC) survey (Currie et al., 2008))
Mean Body Mass Index in EU-27, 2005

Source: WHO (Global Infobase)
In 2007, the Commission had analyzed the results of a public consultation on: “Promoting healthy diets and physical activity: a European dimension for the prevention of overweight, obesity and chronic diseases”

In May 2007, the Council adopts Conclusions on ‘Strengthening of health promotion and disease prevention by means of balanced nutrition and sufficient physical activity’, inviting the Commission to table a comprehensive strategy

In May 2007, the Commission adopts the Strategy for Europe on Nutrition, Overweight and Obesity related health issues

In November 2007, the High Level Group on Nutrition and Physical Activity has its first Plenary meeting
The European Commission’s approach

- Our work is based on the **Strategy for Europe on Nutrition, Overweight and Obesity related health issues**, adopted in 2007

- A partnership for action at European level is vital:
  - High Level Group on Nutrition and Physical Activity
  - EU Platform for action on Diet, Physical Activity and Health
The Strategy on Nutrition, Overweight and Obesity-related health issues – six priority areas

- Better informed consumers
- Making the healthy option available
- Encouraging physical activity
- Children and low socio-economic groups as priority
- Develop the evidence base to support policy making
- Developing monitoring systems
Mid term-review of the Strategy: implementation progress report

- Great deal of activity at EU level, among Member States, and by stakeholders
- But – level of implementation shows substantial variation, both between policy areas and Member States:
  - Information and education campaigns, encouraging PA and including PA in school curricula had highest level of implementation – frequency and duration of PA??
  - Encouragement of codes of conduct – advertising to children of HFSS foods – work in progress
  - External evaluation of Platform concluded with results achieved, in particular for self-regulatory activities – marketing and advertising to children and food reformulation
  - But – room for improvement, relevance and impact of Platform commitments
Mid term-review of the Strategy: implementation progress report

- Little sign of change in the negative trends for overweight/obesity
- And, challenging economic situation for many MS
- But – the impossibility of counterfactual evidence
- Public health initiatives developed through EU’s Health Programme

➡ The Commission remains committed to tackle the crucial health issues related to nutrition, overweight and obesity, by promoting healthier diets and more PA

➡ Reduction of obesity can only be achieved through collaborative effort with national governments and with stakeholders
Mid term of the Strategy implementation: boosting action

- **Renewed framework on reformulation of selected nutrients** (saturated fat; trans fat; energy; total fat; added sugars; portion sizes, and consumption frequency)
- **Renewed focus on children and vulnerable groups in Platform commitments**
- **Support to stakeholders’ initiatives, i.e.**
  - the Health Programme and
  - the EU School Fruit Scheme
- **EU-wide study on local community approaches to reduce childhood obesity, including school based initiatives**
The EU Platform on Diet, Physical Activity and Health consists of 33 Platform Members.

78 active Platform Actors have implemented around 300 commitments.

In June 2010, under the Spanish presidency, the Council adopted Conclusions calling Member States to actively participate in the development of salt reduction initiatives.
In July 2010, the external evaluation of the Platform showed a positive assessment of self-regulation initiatives in crucial areas such as responsible advertising to children and food reformulation.

In December 2010, the mid-term review of the Strategy for Europe on Nutrition, Overweight and Obesity-related health issues is discussed at a Presidency conference.
In February 2011, the High Level Group on Nutrition and Physical Activity adopts a framework for action on other nutrients.

In February 2011, the Platform renews its objectives for more focused commitments and reinforced working methods.

Commission - WHO monitoring structures are in place - The work started in 2007 and the first snapshot was done in 2008.
Today’s global political context

- **OECD**: Final Communiqué from the Health Ministerial meeting in Paris, October 2010
- **Council of Europe**: Recommendation of the Parliamentary Assembly on ‘Preventive health care policies’, approved 28 January, 2011
- **Council Conclusions on chronic diseases** adopted under the Belgian Presidency, in December 2010, emphasising *inter alia* health promotion and disease prevention aspects
Today’s global political context

- **WHO**: Focus on NCS, report April 2011
- **US**: Children’s Food and Beverage Advertising Initiative (launched in November, 2006) announced uniform nutrition criteria in US 14 July 2011
- **UN**: High-Level Summit on Non-Communicable Diseases in New York, 19-20 September 2011
Combining regulatory and self-regulatory measures

- Helping informed choices with Regulations on food labelling and health claims

- High-Level Group on Nutrition and Physical Activity – salt reduction, and agreement on EU framework for national initiatives on selected nutrients

- EU Platform for action on Diet, Physical Activity and Health - Promoting multi-stakeholder action in food reformulation, marketing & advertising, consumer information and education
Regulatory measures – nutrition labelling

- In January 2008 Commission proposed to make nutrition labelling mandatory on the front of pack for the majority of processed food.

- Why?
  - to respond to consumers interest and demand for such information
  - to provide information to enable informed choices
  - to encourage healthier dietary choices
  - it can also be an incentive for product reformulation

- Where are we now?
  - The new Regulation on food information to consumers was approved by the European Parliament in July 2011.
  - This new law is a significant step forward to boost consumer empowerment. It can also contribute to the fight against obesity and chronic diseases.
Main features of the new Regulation

- Mandatory nutrition information (energy, fat, saturates, carbohydrate, sugars, protein and salt) must be provided on all pre-packed foods.
- Mandatory information on allergens will ensure better protection of citizens' health. Allergens will be highlighted in the list of ingredients.
- A minimum font size will apply to mandatory information.
- Mandatory country-of-origin labelling of meat will be extended to meat from pigs, sheep, goats and poultry.
Regulatory aspects - nutrition and health claims

- Nutrition and health claims on foods: should not be false, ambiguous, or misleading
- The Commission is working on implementing measures to ensure reliable and truthful information for consumers
  - Revising the positive list for nutrition claims
  - Approving health claims: EFSA is assessing the evidence backing up health claims to ensure that claims are based on reliable scientific evidence not to mislead consumers
  - Setting nutrient profiles: claims are used to attract consumers attention, the concept of nutrient profiles was introduced to balance this marketing effect
High Level Group on Nutrition and Physical Activity
Self-regulatory measures – EU framework for national initiatives on salt reduction

- **EU framework for national initiatives on salt reduction** was agreed in 2008 with a common benchmark for overall salt reduction by minimum 16% over a period of 4 years, against individual country baseline levels for 2008 baseline levels.

- **In June 2010**, under the Spanish presidency, the Council adopted Conclusions calling Member States to actively participate in the development of salt reduction initiatives.
Self-regulatory measures - Renewed framework on selected nutrients

- Two expert meetings, one in November 2009, one in November 2010
- Agreement on a **general framework** in the High Level Group meeting 3 February 2011
- Selected nutrients and nutritional components include saturated fat; trans fat; energy; total fat; added sugars; portion sizes, and consumption frequency
- Flexible approach, which must take account of diet specificities in Member States, and efforts in the Platform context
EU Platform on Diet, Physical Activity and Health

Agree to formal and verifiable commitments

Contribute to integration into EU policies

Food industry, retailers and catering industry

Agree to increase level of resources and effort

Advertising industry, broadcasting associations

Share with potential partners across the European Union

European consumer and health NGOs

Observers: WHO, EFSA, ECOSOC, certain Member States, EP, relevant scientists

Other Commission services
Renewed objectives of the Platform

Agreement reached in Platform Plenary meeting 15 February 2011:

- to step up action to tackle the growing problem of overweight and obesity related health problems;

- to boost activities that contribute to the objectives of the Nutrition Strategy by 2013
Priority areas and target groups 2011-2013 for Platform commitments

- Vulnerable groups, including children and adolescents and low socio-economic groups

- Improvements of already existing commitments in the area of responsible advertising and marketing to children

- Improvements of already existing commitments in the area of reformulation

- Physical activity and sports

- Reaching out to schools with the aim of increasing physical activity and making the healthy option available
Renewed objectives of the Platform

- In addition, Platform members approved consolidated working methods and minimum requirements for Platform commitments.
- Agreed to reinforce the relation between the Platform and the High Level Group; to open up to other EU policies.
- Agreed on a more structured approach to debate on the commitments.
Thank you!

For more information:
A successful nutrition & lifestyle intervention

Liisa Valsta, Adjunct Professor
Ph.D (Human Nutrition), M.Sc (Food Toxicology)
University of Helsinki, Finland
The Finnish experience

- How to influence?
- Main actions and actors in the Finnish nutrition policy
- Changes in food habits
- Case 1 – Fat quality
- Case 2 – Salt
- Changes in health and risk factors
- Summary
Gloomy inspiration for success

Mortality rates of ischaemic heart disease among men in selected countries

CHD mortality per 100,000 men in 1973

Finland, USA, Australia, England, Canada, Czechoslovakia, Norway, Hungary, Denmark, BRD, Poland, Austria, Holland, Sweden, Italy, Portugal, France, Japan

(Source: National Institute for Health and Welfare), THL
How to influence?

- Research and monitoring
- Nutrition policy – collaboration
- Legislation
- Education (nutritionists, dietitians, nurses, doctors, teachers, food scientists)
- Population interventions
- Nutrition recommendation and dietary guidelines
- Implementation programs of the recommendations and guidelines
- Enrichment of foods and fertilisers
- Food production
- Catering services
Main actions and actors in the Finnish nutrition policy
Main Emphasis in Nutrition Policy in Finland

- Historically (since 1940’s): preventing various deficiencies
  - e.g. free school lunches, fortification programmes

- Chronic disease prevention since 1970’s:
  - reduction of blood cholesterol and blood pressure levels

- More recently:
  - also weight control and prevention of diabetes
Important bodies behind Finnish nutrition policy

- Government / Ministries – Legislation
- The National Nutrition Council since 1954
- Schools, universities (nutritional education since 1947), other educational institutions
- Primary health care
- Research and expert organisations, e.g. National Institute for Health and Welfare (former National Public Health Institute)
  - nutrition and health related research, monitoring and other activities since 1980s’
- Non-governmental organisations (e.g. the Finnish Heart Association, The Finnish Diabetes Association, The Medical Society Duodecim)
- Food industry, businesses
- Funding bodies of nutrition research
National Nutrition Council

- An expert body established in 1954
- It is appointed by the Ministry of Agriculture and Forestry
- The members serve three-year terms
- The members are representatives of authorities handling nutrition issues, consumer, health promotion and catering organisations, food industry and agricultural organisations.
- Chair: Prof. Pekka Puska, secretary general
  Ms. Raija Kara since 2004 (raija.kara@evira.fi)

(Source: Finnish NNC)
Nutrition recommendations and dietary guidelines

- 1968: Nordic nutrition recommendations (adopted officially in 1978)
- 1981: National Committee on Diet and Health: Dietary guidelines
- 1998: NNC: Nutrition recommendations and dietary guidelines
- 2003: NNC: Program on implementation of the Nutrition Recommendations
- 2005: NNC: Recommendations on dietary intake and physical activity
- 2008: NNC: Beverage report and guidelines

(NNC= National Nutrition Council)
Enrichment and supplementation procedures

- 1941  Enrichment of margarine with vitamins A and D
- 1949  Enrichment of salt with iodine
- 1959  Addition of fluorine to drinking water in Kuopio city
- 1974  Enrichment of milled wheat with thiamine and iron
- 1985  Selenium supplementation of all fertilizers
- 1992  Enrichment of skimmed and low-fat milk with vitamin D
- 1993  Addition of fluorine to drinking water in Kuopio finished
- 1994  Enrichment of milled wheat with thiamine and iron finished
- 1995  Finland became a member of the EU
- 1998  Ministry of Trade and Industry: Decision on Common rules for enrichment of foods with vitamins and other nutrients
- 2003  Enrichment of certain foods with vitamin D renewed
- 2010  Enrichment levels of certain foods with vitamin D increased
Examples of interventions

- The North Karelia Project (population based prevention program, S–Chol, RR, smoking)
- The Finnish Diabetes Prevention Study (DPS)
- The implementation project for the prevention of type 2 diabetes in Finland (FIN-D2D)
- Good ageing in Lahti region programme for good ageing – building a regional model for preventing type 2 diabetes.

Source: Puska/THL, Lindstrom et al 2010)
Why success in North Karelia

- Appropriate epidemiological and behavioural framework
- Restricted, well defined targets
- Good monitoring of immediate targets (behaviours, process)
- Flexible intervention
- Emphasis in changing environment and social norms
- Working closely with the community
- Positive feedback, work with media
- International collaboration, support from WHO
- Close interaction with national health policy, integration with National Public Health Institute
- Long term, dedicated leadership

Source: NATIONAL INSTITUTE FOR HEALTH AND WELFARE
Changes in food consumption
Food consumption in Finland 1950–2005

kg/person/year

(Food balance sheets)
Food habits in the population aged 15–64 years in Finland in 1978–2010

Source: National Institute for Health and Welfare (THL), Health Behaviour and Health among the Finnish Adult Population -surveys 1978-2010
Beverage consumption in Finland

Kg/person/year

Source: Food balance sheets
Case 1 – Fat quality
Type of bread spread in Finland, men 1978–2010

Source: National Institute for Health and Welfare (THL), Health Behaviour and Health among the Finnish Adult Population -surveys 1978-2010
Fat used for cooking at home in Finland in 1978–2010

Source: National Institute for Health and Welfare (THL), Health Behaviour and Health among the Finnish Adult Population -surveys 1978-2010
Type of milk usually consumed in Finland in 1978–2010, women

Dietary fats and medicines explaining the change in serum cholesterol levels

(Valsta et al. 2010)
Case 2 – Salt
Thirty years of systematic work

- Recommendation to reduce salt intake by the National Nutrition Council in 1978
- 1979–1982 The North Karelia Salt project with population surveys in 1979 and 1982
- Mass media campaigns, cooperation with food industry to reduce salt voluntarily, education of health care personnel
- Expanded after the 3–year project to the whole country
- The public became aware of salt and BP, regular monitoring was established at KTL, and the first national labelling decrees were launched in the 1980s
Salt reduction – an integrated approach

- **Research**: salt reduction interventions (North Karelia Salt Project, local projects, e.g. Turku area etc.)

- **Monitoring** (The National Public Health Institute, KTL, since 1.1.2009 The National Institute for Health and Welfare):

  24h sodium excretions studies, sodium in the food composition database since early 1980s (updates).
Salt reduction and CVD

Tuomilehto et al. 2001:

- The 1982 and 1987 cohorts form North Karelia and Kuopio with 24-h urines with follow-up for CVD events
- 100 mmol higher Na increased risk of CHD by 51%, CVD mortality by 45 % and all-cause mortality by 26%
Monitoring sodium excretion in Finland

24-h urinary collections:

- 1979: North Karelia Salt Project
- 1982 and 1987: FINMONICA salt substudy
  - 2002: FINRISK salt substudy
Monitoring salt intake in dietary surveys and FBS

- Findiet studies
  - Dietary substudies of FINRISK surveys
  - 1992: 3 day food diary
  - 1997: 24–h recall
  - 2002: 48–h recall
  - 2007: 48–h recall
  - Area, 10–year age group and sex stratified random samples of the population aged 25–64 years

FINRISK study areas

- Oulu area 1997-
- Kuopio area 1982-
- North Karelia 1982-
- Southwestern Finland 1982 -
- Helsinki area 1992 -
Salt intake in Finland 1977–2007

(Source: National Institute for Health and Welfare, THL)

Salt reduction – an integrated approach

- Legislation, consumer information (Ministry of Agriculture and Forestry/The Finnish Food Authority)
- Product development: e.g. mineral salt (Prof. Heikki Karpmanen, Univ. Of Helsinki), meat products (Prof. Eero Puolanne, UH), bread (Prof. Hannu Salovaara, UH)
- Salt seminars (publications) for the nutrition experts and medical community (e.g. the Finnish Food Industry, Finnish Association for Nutrition Research etc.)
- Information on salt reduction: NGOs, e.g. The Finnish Heart Association, Consumer organisations
## Lowest feasible sodium / salt levels / 100g

<table>
<thead>
<tr>
<th>Food group</th>
<th>Sodium mg/100g f.w.</th>
<th>NaCl g/100g f.w.</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh bread</td>
<td>280</td>
<td>0.7</td>
<td>Baking technology does not limit the sodium content - baking is possible also without added salt</td>
</tr>
<tr>
<td>Crisp bread</td>
<td>480</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Whole meat products/cold cuts</td>
<td>760</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>Cold cut sausages and other cooked sausages</td>
<td>600</td>
<td>1.5</td>
<td>A lower sodium/salt content (560 mg sodium or 1.4 g salt) is reached, when mineral salt is used</td>
</tr>
<tr>
<td>Processed foods of fish, meat and vegetables</td>
<td>400</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Ripened cheese and similar products</td>
<td>480</td>
<td>1.2</td>
<td>Popular Emmental cheeses with sodium content of 300 mg/0.75 g salt</td>
</tr>
</tbody>
</table>
Compulsory labelling of salt:

- Cheese
- Sausages and other meat products
- Fish products
- Bread, crisp bread and thin crisp bread
- Broths, soups and sauces, also as powder and concentrate
- Other prepared or semi-prepared foods
- Mixed spices containing table salt
### Labelling of salt after 1.7.2007 (1.7.2009)

<table>
<thead>
<tr>
<th>Food category</th>
<th>NaCl % limits</th>
<th>&quot;Reduced salt&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&quot;Highly salty&quot; (reduced by 0.1 %)</td>
<td>&gt;25 % less salt than normal product</td>
</tr>
<tr>
<td>Fresh bread</td>
<td>&gt;1.2</td>
<td>max 0.9</td>
</tr>
<tr>
<td>Crisp bread</td>
<td>&gt;1.6</td>
<td>max 1.2</td>
</tr>
<tr>
<td>Cheese</td>
<td>&gt;1.3</td>
<td>max 1.0</td>
</tr>
<tr>
<td>Sausages</td>
<td>&gt;1.7</td>
<td>max 1.3</td>
</tr>
<tr>
<td>Cold whole meat cuts</td>
<td>&gt;1.9</td>
<td>max 1.4</td>
</tr>
<tr>
<td>Breakfast cereals</td>
<td>&gt;1.6</td>
<td>max 1.2</td>
</tr>
<tr>
<td>Soups, broths, sauces</td>
<td>&gt;0.9</td>
<td>max 0.7</td>
</tr>
<tr>
<td>Prepared and semi-prepared foods</td>
<td>&gt;1.1</td>
<td>max 0.8</td>
</tr>
</tbody>
</table>
Distribution of salt intake by choice of low or high-salt products (Findiet 2002, men)

(Source: Pietinen & al. 2007)
"The Keys of Health" on TV in early 1980s’
• About 800 "Heart symbol foods" on the market
• More than 96 food companies
• The Heart Meal has also been launched
• Better choice in a food category (salt, total fat/ fat quality, sugar)
• In some food categories also fibre, sugar and cholesterol)
• Food group based criteria available: http://www.sydanmerkki.fi

(Source: www.sydanliitto.fi)
Conclusions

- Salt intake has decreased by about 30% in Finland since the end of 1970s.
- Intake is still far from the recommendations.
- Reducing salt intake in the population requires long-lasting, systematic work.
- National legislation works – especially setting maximum salt levels for normal products.
- Consumer education is very important.
- Overall agreement within Europe helps – food travels.
- Challenges remain.
Changes in health and risk factors
- 80% decrease in the age adjusted coronary heart disease (CHD) mortality among men

- 75% decrease in age adjusted stroke mortality among men

- About 10% decrease in blood pressure

(Source: National Institute for Health and Welfare, THL)
Observed and Predicted Declines in Coronary Mortality in Eastern Finland, Men

Source: NATIONAL INSTITUTE FOR HEALTH AND WELFARE
Summary 2

- Consumer education is important
- Society can support the consumers by making the healthy choices the easy ones. (Ottawa charter)
- Both public and high risk prevention strategies in use
- "Health in all policies"
Both – more effective

(Source: Puska, P. National Institute for Health and Welfare, THL)
Finland Has Shown

- Prevention of major chronic diseases is possible and pays off.
- Population based prevention in the most cost effective and sustainable public health approach to chronic disease control.
- Prevention call for simple changes in some lifestyles (individual, family, community, national and global level action).
- Influencing lifestyles is a key issue.
- Many results of prevention occur surprisingly quickly (CVD, diabetes) and also at relatively late age.
- Comprehensive action, broad collaboration with dedicated leadership and strong government policy support.

Source: Puska P. National Institute for Health and Welfare (THL)
Nutrition and consumer behaviour

Richard Shepherd

University of Surrey
Outline of presentation

- Types of policies and behaviour change
  - EURRECA project
- Consumer food choice
- Health claims
  - HEALTHGRAIN project
- Front of pack nutrition labelling
  - FLABEL project
- Concluding comments
What is policy

What is policy – little agreement

• “what governments choose to do or not to do” (Dye, 2002, p.2)
• “a position taken on an issue by an organization or individual in a position of authority (Baggott, 2007, p.2)
• “a web of decisions and actions that allocate… values (Eston, 1953, p.130)

Central elements of policy (Colebatch, 2002)

• Systematic and consistent approach, that often changes over time
• Includes a statement of values
• It is legitimised by authority of individuals, offices or organisations
• Non-action and non-decision is also policy
• Those responsible for policy decisions rarely implement them
Renewed interest in behaviour change

- Recognition that increasingly global problems require partnerships and local solutions
- Focus is increasingly on prevention rather than treatment
- Move from “state in control” to “state as facilitator” – where the state’s role is to manage multiple interests and perspectives in society

**The state is in control**
- Assumption about rational choice basis of behaviour
- State as expert and moral guide
- Instrumental policies
- Trust: Competence and legitimacy of regulation largely unchallenged
- e.g. BSE crisis

**The state as facilitator**
- Plural influences and modes of reasoning and behaving
- State as facilitator, mediator and co-creator
- Governance rather than government
- Increasing scientific uncertainty and scrutiny, distrust of science/need for long-term solutions
- e.g. regulation of mobile phones risk
• What kind of behaviour is being targeted?
• How do behaviours and patterns of behaviour differ across population groups?
• What motivates behaviour and to what extent is it a conscious act as opposed to the matter of habit?
• In what way do scientists’ and stakeholders’ beliefs about consumer awareness, understanding of nutrition influence how recommendations are developed?
FIGURE 1 - FACTORS AFFECTING BEHAVIOURAL CHANGE

Prendergrast et al, 2008 [http://www.smf.co.uk/creatures-of-habit.html]
Types of policies

**Inducements** (proverbial carrots and sticks – threat of a penalty or a promise of reward); e.g. penalty for smoking in public places

**Rules** (commands to act or not act in certain way); e.g. legislation on labelling, on food safety, on health claims

**Facts** (information that will change people’s mindset); e.g. information and education such as 5-a-day, breastfeeding campaign

**Rights** (are strategies that allow individuals or groups or organizations to invoke government power on their behalf) e.g. right to have access to secure food or free health service; consumer right of free choice

**Powers** (strategies that seek to alter the content of decisions by shifting the power of decision making to different people, e.g. shifting the decision-making from one part of government to another); e.g. separating the body regulating consumer and industry issues
Consumer behaviour: food choice
Factors affecting food choice

**Food**
- Physical/chemical properties
- Nutrient content
- Physiological effects e.g. satiety, hunger, thirst, appetite

**Person**
- Perception of sensory attributes e.g. appearance, aroma, taste, texture
- Psychological factors e.g. personality, experience, mood, beliefs

**Economic and social**
- Price, availability
- Brand
- Social/cultural
- Attitudes e.g. to: sensory properties, health/nutrition, price/value

**Food choice**
**Food intake**

From Shepherd (1985)
Improving diet

• Information and understanding or something else?

• Change behaviour
  – Increase consumption of a healthy food (e.g. wholemeal bread, fruit and vegetables)

• Change foods
  – Functional foods, e.g. increase healthy components

• Still need to know the influences on choice even for functional foods
Health claims: consumer acceptance

• Base product is more important than type of claim (e.g. Bech-Larsen & Grunert, 2003)

• Consumers less likely to accept modification of products already seen as ‘healthy’, e.g. fruit juice, yogurt and organic (Bech-Larsen & Grunert, 2003)

• But in other studies (e.g. van Kleef et al., 2005) more ‘healthy’ products seen as more appropriate for functional claims:
  – Yogurt, margarine, brown bread and pills seen as appropriate for functional claims
  – Not chewing gum, ice cream and chocolate
Welcome to HEALTHGRAIN!

HEALTHGRAIN is the acronym for "Exploiting Bioactivity of European Cereal Grains for Improved Nutrition and Health Benefits", an Integrated Project of the European Union's Sixth Framework Programme.

HEALTHGRAIN continued till June 2010. HEALTHGRAIN related activities are now continued in the HEALTHGRAIN Forum association (www.healthgrain.org). Organisations supporting the aims of the forum are welcome to join as member. The forum is maintaining the HEALTHGRAIN project website www.healthgrain.eu, with its wealth of information as an archive.

Events:

Successful final HEALTHGRAIN Conference
May 5-7, 2010,
Lund, Sweden
Presentations now available!

Project:

The HEALTHGRAIN Book
(Final HEALTHGRAIN Conference, Lund)
Download for free (PDF file, 190 pages)
Conjoint plan: fractional factorial design

4 attributes and 11 levels (9 cards):

- **Product**
  - bread
  - yoghurt with added cereals
  - cake

- **Claim**
  - no claim
  - weak claim
  - strong claim

- **Cue factor (symbol)**
  - no cue
  - Natural
  - medical

- **Wholegrain label**
  - no wholegrain
  - contains wholegrain
Relative importance of base-product, claim, visual cue, wholegrain on perception of:

"healthy product"

"likelihood to buy the product"
Importance of wholegrain on perception of “healthy” and “likelihood of buying”
Importance of each level of claim on perception of “healthy” and “likelihood of buying”

UK (n=547)  FIN (n=682)  GER (n=504)  IT (n=661)

-0.4  -0.3  -0.2  -0.1  0  0.1  0.2  0.3  0.4

strong  weak  no claim
Importance of each level of cue on perception of "healthy" and "likelihood of buying"

![Graphs showing the importance of each level of cue on perception of "healthy" and "likelihood of buying" for different countries.]
Introducing FLABEL

Welcome to the project website of FLABEL (Food Labelling to Advance Better Education for Life). Here you can find all relevant information and latest news from the EU-funded research consortium that is dedicated for 3 years (2008 – 2011) to establish the role of and identify what can be achieved when communicating nutrition information to consumers via food packaging labels.

Click here to download the FLABEL project leaflet

NEW - Status of the FLABEL project at mid-point

FLABEL reached its mid-point at the end of January 2010, and a status of the different work packages is available in the form of a summary report. To review the achievements so far, please click here.

First FLABEL results now available

The first results from the FLABEL project are now available. Following 6 months of research, in 28 countries (27 EU Members States & Turkey), more than 37,000 products have been audited to determine the penetration of nutrition labelling in Europe today.
Conceptual framework

Label availability

Search

Exposure

Perception

Conscious, subconscious

Liking

Understanding

and inferences

Perceived, Objective

Use

One-time, extended
direct, indirect

Effect on consumption

Environmental factors

Personal factors

Product related factors

label format
Consumer derived labelling typology

**Directive**
- e.g. Simple and graduated Health logos

**Semi-directive**
- e.g. Traffic light labels, hybrid labels and nutrition tables overlaid with traffic lights

**Non-directive**
- e.g. % GDA systems and nutrition tables with and without % GDA information.
Attention to, and reading of labels

- **Task/goal**
  - Preference
  - Health
  - Specific nutrient

- **Macro context**
  - # of alternatives
  - Shelf organisation

- **Micro context**
  - Label format
  - Familiarity
  - Information density

Resulting in

- **Healthy choice**
Attention and reading – findings

- **Healthy mindset** improves label attention and usage, especially for **nutrition-specific** goals

- Label in **low density area** of pack improves label attention

- **Consistency** (in exposure and location) improves attention to labels

- **Time pressure** reduces attention for nutrition labels, but not for simple directive logo

- Attention increases with **directiveness** (i.e., is highest for simple directive logo)

- **Inspection time** longer for more complex as opposed to simple directive logo

- Mixed results for **impact on choice** – simple directive logo worked best in Netherlands and Turkey, but results were more mixed in Poland and Germany
Attention and reading – conclusions

— Nutrition labels should

- Cater for general as well as (nutrient-) specific health goals
- Be easily attended to
- Be intuitive in terms of information processing
- Reach a high level of awareness
- Effectively impact on choice behaviour

— Combination of simple directive and analytical (semi-directive or non-directive) label
Liking and attractiveness of labels

Label format
- Non-directive; Semi-directive; Directive
- 5 formats in total

Type of product
- Hedonic
- Utilitarian

Consumer characteristics

Liking and attractiveness
Liking and attractiveness – conclusions

- The GDA/TL hybrid system receives the highest scores for both liking and intended use.
- There is some correspondence between awareness and preferences.
- Very small differences in the monadic evaluation.
- Labels with the highest amount of information and complexity are liked most, and liking depends on previous exposure.
Understanding and health inferences from labels

Label format
- Non-directive
- Semi-directive
- Directive

Type of product
- Hedonic
- Utilitarian

Correctness of health inferences

Consumer characteristics
Understanding/health inferences - stimuli

<table>
<thead>
<tr>
<th></th>
<th>Calories</th>
<th>Sugar (11.7g)</th>
<th>Fat (2.3g)</th>
<th>Saturates (1.4g)</th>
<th>Salt (0.3g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Each 150g portion (one pot) contains</td>
<td>105</td>
<td>11.7g</td>
<td>2.3g</td>
<td>1.4g</td>
<td>0.3g</td>
</tr>
<tr>
<td></td>
<td>5%</td>
<td>13%</td>
<td>3%</td>
<td>7%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Each 150g portion (one pot) contains:

- Calories: MED
- Sugar: LOW
- Fat: LOW
- Saturates: LOW
- Salt: LOW

<table>
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- Calories: MED
- Sugar: LOW
- Fat: LOW
- Saturates: LOW
- Salt: LOW
Understanding/health inferences - approach

• FOP labelling systems tested across 12 food products representing 3 levels of healthiness within each of 3 food categories; pizzas, yoghurts, biscuits thus testing the full flexibility of each system

• Participants required to provide subjective healthiness ratings for 3 product variants in a given food category with baseline labelling system prior to being exposed to same 3 foods with FOP labelling

• Comparison of subjective health ratings with SSAg/1 as a benchmark

• N=2000 across 4 countries (UK, Germany, Poland, Turkey)
Understanding/health inferences - approach
Understanding/health inferences - biscuits

**Conclusion:** Improvement in correct health inferences (as measured by SSAg/1) brought about by labelling systems beyond baseline label is very small.
In-store use of labels

- **Label format**
  - Existing formats
  - Basic/augmented label

- Types of decision-making

- **Consumer characteristics**

- **Attention Arousal Choices**
In-store use of labels - methodology

**Obtrusive and unobtrusive methods**

- Mobile eye tracking, electrodermal response
- Point of sale interviews
- Hidden observations
- Sales figures from scanner data
FOP labelling: Preliminary conclusions

• Provision of information on energy and key nutrients (fat, saturated fat, sugar, salt), in calories/grams per 100g, in a consistent way in terms of position, font, size, colour and background, combined with a health logo, will improve attention to food labelling, lead to good understanding, and facilitate healthy choices.

• Additional label elements such as GDAs, colour coding, and provision of text “low/medium/high” will not increase attention and will not result in major improvements in understanding, but will increase consumer liking of the label and may nevertheless facilitate healthy choices.

— Working hypotheses as to why could label elements beyond the baseline label have an effect on healthy choice:

  • prime the health motive
  • increase perceived self-efficacy in making healthy choices
Overall concluding comments

• Consumer behaviour important in implementing policy

• Consumer food choice is influenced by a range of different factors

• Health claims have an impact on how healthy products are seen but this does not necessarily translate to intention to buy

• Front of pack nutrition labelling can have an impact but there is little difference in the impact of different formats
Acknowledgements

• Financial support from the European Commission for funding on EURRECA, HEALTHGRAIN, FLABEL

• Websites
  – HEALTHGRAIN: www.healthgrain.eu
  – EURRECA: www.eurreca.org
  – FLABEL: www.flabel.org
Sănătatea la... pozitiv
Increasing the access of children and adolescents to evidence based prevention services for Non Communicable diseases (NCDs) in Romania - physical activity and healthy nutrition

Dr. Cristina Vladu, former Project Leader

September 29th, 2011

ISPRA JRC
OUR OBJECTIVES

TO DEVELOP PRIMORDIAL PREVENTION POLICIES FOR NONCOMMUNICABLE DISEASES THAT ARE BASED ON EVIDENCE;

TO SUPPORT HEALTHY CHILDREN TO REMAIN HEALTHY ADULTS
OUR OBJECTIVES - continuation

TO DEFINE

METHODOLOGIES, PATTERNS FOR ACTION THAT SHALL BE USED BY PUBLICLY FUNDED BEHAVIOR CHANGE CAMPAIGNS
OUR PARTNERS

• THE ROMANIAN MINISTRY OF EDUCATION, RESEARCH, YOUTH AND SPORTS

• THE NORVEGIAN INSTITUTE OF PUBLIC HEALTH

• THE ASSOCIATION OF HEALTH PSYCHOLOGY

• THE EUROPEAN COMMISSION JOINT RESEARCH CENTER- INSTITUTE FOR HEALTH AND CONSUMER PROTECTION
REFERENCES WE HAD STARTED FROM

GUIDELINES FROM THE NATIONAL INSTITUTE OF CLINICAL EXCELLENCE, UNITED KINGDOM

For being effective, policies and programs that are aiming to change behaviors should address simultaneously more levels:

• POPULATIONAL
• COMMUNITY
• INDIVIDUAL
What was the key of our approach?

TO SEND THE SAME MESSAGE THROUGH MORE CHANNELS AT MORE LEVELS IN A SIMULTANEOUS, ORCHESTRATED WAY
III. EVALUARE
AUTO-EFICACITATE

IV. PLANIFICAREA
PENTRU
ADOPTAREA
NOULUI
COMPORTAMENT

V. ADOPTAREA
COMPORTAMENTULUI
NOU

I. CONȘTIENTIZARE

II. ÎNTIEREA
DORINTELOR A
ADOPTA
COMPORTAMENTUL

STEPS OF A BEHAVIOR CHANGE PROCESS
LEVEL THAT MOST OF THE CAMPAIGNS ARE FOCCUSING
LEVELS OF ACTION FOR THE CAMPAIGN
CAMPANIA VIATA - PROJECT COMPONENTS

I. SEARCH FOR EVIDENCE/RESEARCH

II. PR

IV. CROSS CUTTING (MANUAL)

III. INSTITUTIONAL DEVELOPMENT
I. RESEARCH

- HBSC 2010
- SOCIAL MARKETING RESEARCH
- EVALUATION RESEARCH
Soft drink consumption in children of 11 and 13 years old in Europe, HBSC 2005-2006
Moderate to vigorous physical activity of at least one hour in children of 11 and 13 years old in Europe, HBSC 2005-2006
Screen time (TV, computer) in children of 11 and 13 years old in Europe, HBSC 2005-2006
II. PROMOTION CAMPAIGN

DEVELOPMENT OF:

• LOGO VIATA
• CAMPAIGN MESSAGES, 3 VIDEOSPOTS AND 4 RADIO SPOTS
• PRINTED MATERIALS, POSTERS, ETC
• DEDICATED PROEJCT WEB SITE
TARGET BEHAVIORS IDENTIFIED AND PROMOTED THROUGH THE CAMPAIGN
III. INSTITUTIONAL DEVELOPMENT

• FACILITATION OF INTERINSTITUTIONAL PARTNERSHIP AND ACTION PLANS DEVELOPMENT AT COUNTY LEVEL;

• IDENTIFYING DEMONSTRATIVE (101) AND STANDARD (400) MICRO-PROJECTS IN SCHOOLS AND KINDERGARTENS

• TRAINING OF DECISION MAKERS AND PROFESSIONALS
DEMONSTRATION MICROPROJECTS
IV. CROSS CUTTING

DEVELOPMENT OF A GUIDE FOR ACTION

• CHAPTER 1 - DOCUMENTING EVIDENCE (JRC, NIPH, NIPH OSLO, RESEARCH TEAM);
• CHAPTERS 2, 3 (Project & Research Team)
• CHAPTERS 4, 5 WORKING WITHIN THE SCHOOLS AND KINDERGARTENS (Research Team, teachers, educators)
• CHAPTER 6 – WORKING WITH FAMILY DOCTORS (National Center for Research in Family Medicine)
THE DOWRY

• 42 PARTNERSHIPS SIGNED AT THE COUNTY LEVEL

• 1 RESEARCH ON BEHAVIOURS ON REGIONAL/NATIONAL SAMPLE AND 1 RESEARCH ON SOCIAL MARKETING

• 1 MANUAL FOR INTERVENTIONS ON COMMUNITY LEVEL

• OVER 800 PROFESSIONALS TRAINED FOR APPLYING THE MANUAL AT GRASS ROOT LEVELS
THE DOWRY VIATA

• INTERVENTION MODELS (501 MICRO-PROJECTS FOR IMPLEMENTING THE COUNTY ACTION PLANS)
• 42 ACTION PLANS AT THE LEVEL OF EACH COUNTY
• CAMPAIGN INSTRUMENTS DEVELOPED
  • IDENTITY AND COMMON MESSAGES
  • RADIO AND VIDEO SPOTS
  • WWW.COMUNITATE-SANATOASA.MS.RO – ON-LINE RESOURCE CENTER FOR VIATA CAMPAIGN 2011-2015
  • POSTERS, OTHER PR RELATED MATERIAL
THE DOWRY

Capacity building/ education

• 900 teachers / educators trained in chapters 4 and 5 of the manual

• 120 decision makers at county level trained in project/ programme planning/ monitoring/ supervision

• 12 decision makers at national level trained in prevention health policies
NEXT IMPLEMENTATION STEPS

- THE ADOPTION/ LAUNCHING OF THE NATIONAL PLAN FOR ACTION/ NATIONAL RENEWED PARTNERSHIP BETWEEN MoH, MoEDUCATION, MoCULTURE, etc, LAUNCHING OF THE CAMPAIGN MANUAL - OCTOBER- NOVEMBER 2011


- THE ADOPTION OF A COHERENT HEALTH BEHAVIOR RESEARCH AND MONITORING STRATEGY AT COUNTY AND NATIONAL LEVEL

- THE ADOPTION OF THE CAMPAIGN METHODOLOGY AS A MODEL FOR PUBLIC CAMPAIGNS AIMING TO CHANGE BEHAVIORS
CONCLUSIONS:
• Expert knowledge alone represent a first step, a little drop in the ocean if one wishes to follow the journey of effective behavior change.
• There is a need for strong leadership / coordination/ orchestration from top down and strong ownership from bottom up.
• International expert / political advice is crucial in following an evidence based path.
• Monitoring and evaluation of the actual implementation of the Campaign VIATA should be performed with close attention; lessons learned should result in continuous refinement of the campaign.
WE ARE WAITING FOR YOU ON ...
Nutritional challenges – Research opportunities and funding by the European Commission
Presentation outline

• Context of nutrition research today - why and how?
• EU Programmes which fund nutrition research
• FP7 – Theme 2 – what kind of research is funded?
• Policy initiatives which require support from nutrition research
• Future funding possibilities
Global challenges with impact on nutrition research

- Economic and financial crisis
  - Unemployment
- Globalisation
  - Increasing world Population, poverty and migration
- Ageing population
  - Functional and cognitive decline
- Malnutrition and diet-related diseases
  - Metabolic Disorders, Allergies, Obesity, …
- Climate change
Nutrition research at EU level

Objectives

• Filling the gaps of scientific knowledge
• Addressing socio-economic issues
• Fostering innovation
• Support policies
• Considering the entire life span

Obstacles

• Complex regulations and interactions
• Insufficient research investment
• Fragmentation of research efforts
• Lack of appropriate infrastructures
Factors influencing nutrition research

- Social challenges
- Environmental challenges
- Economic challenges
- Genes
- Environment
- Consumer behaviour
Consumers
Influence & determinants

NUTRITION TRENDS: Taste, Health, Convenience

Healthy eating & dietary habits

FOOD AVAILABILITY

FOOD ACCESSIBILITY

FOOD KNOWLEDGE

INDIVIDUAL CHOICES

NEEDS AND TASTE

FAMILY PRACTICES

Healthy eating & dietary habits

Consumers
Influence & determinants

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Healthy eating & dietary habits

FOOD AVAILABILITY

FOOD ACCESSIBILITY

FOOD KNOWLEDGE

INDIVIDUAL CHOICES

NEEDS AND TASTE

FAMILY PRACTICES

Healthy eating & dietary habits
EU programmes of interest

Research Framework Programme
- funding research

Health Programme 2008-2013
- support to public health

Structural Funds & Cohesion Fund
- funding research infrastructures and networks
FP7 - Who May Participate?

Member States
Associated Accession Countries
Associated Countries
Joint Research Centres

Same rights and obligations for participants
Relevant FP7 specific programmes

• Cooperation – collaborative research
  - Theme 1 – Health
  - Theme 2 – Food, Agriculture and Fisheries and Biotechnology
  - Theme 8 - Socio-Economic Sciences and the Humanities

• Ideas – basic and frontier research
• Capacities – infrastructure and SMEs programme
• People – individual training and trainings networks
Prevention
Area 2.2.1 Consumers

**Focus:**
Understanding consumer behaviour and preferences

**Consecutive research:**
- Consumer perception and attitudes towards food
- Societal and cultural trends
- Identifying determinants of food choice and consumer access to food

**Potential outcome:**
Inform and empower consumers to make the healthy choice
Prevention Area 2.2.2 Nutrition

**Focus:**
- Prevention of diet-related diseases including obesity
- Healthy aging
- Quality of life

**Consecutive research:**
- Investigation of new dietary strategies;
- Development and application of new technologies;
- Study interactions between nutrition physiological and psychological functions

**Potential outcome:**
- Reformulation of processed foods
- Innovative developments of:
  - novel foods & ingredients
  - dietetic foods
  - foods with nutritional & health claims
Running projects


- **epidemiological** work - several cohorts from 4 European countries

- **experimental** part in two sections:
  - identifying the key mechanisms of learning
  - new strategies for changing from poor to healthy habits
Running projects

Molecular Targets Open for Regulation by the gut flora – New Avenues for improved Diet to Optimize European health - http://www.fp7tornado.eu/

• Increase knowledge of the impact of diet on the gut flora and the impact of gut flora and specific groups of micro-organisms on the immune system and the interaction with other organ systems

• Provide first class scientific data to substantiate health claims
Contribution to policy initiatives at EU level in Nutrition

- White Paper ‘A Strategy on Nutrition, Overweight and Obesity-related Health issues’
- European School Fruit Scheme
- EU Platform on Diet, Physical Activity and Health
- Regulation on Nutrition and Health Claims/Food Labelling
- ETP ’Food for life’
- EIP on active and healthy ageing
- JPI ‘A healthy diet for a healthy life’
Future tendencies

Content wise:
• Societal challenges/impact oriented research
• Programme approach (as opposite to project approach)

Implementation:
• Funding through the Joint Programming Initiative “A healthy diet for a healthy life”
• EIPs/EIT/JTIs/Article185/ERA-nets/ERA-nets plus;
• P2Ps – Public-Public Partnerships;
• PPPs – Public-Private Partnerships

FAHRE – Food and Health Research in Europe (FP7 project)
Foresight study - to be done
Useful links

- All published calls
  http://ec.europa.eu/research/participants/portal/page/fp7_calls
- Research Executive Agency (REA) - manages FP7-People, FP7-Capacities for SME-targeted projects:
  http://ec.europa.eu/research/rea/
- European Research Council (ERC) - manages FP7-Ideas: http://erc.europa.eu
- FP7 National Contact Points: www.cordis.europa.eu/fp7/ncp.en.html/
- FP7 Helpdesk: www.eu.europa.eu/research/enquiries
- SME service: http://ec.europa.eu/research/sme-techweb/index_en.cfm
Thank you!
Mediterranean Diet as a concept for obese
Croatia and EU countries

Irena Colić Barić, Full Professor
Department for Food Quality Control and Nutrition
University of Zagreb Faculty of Food Technology and Biotechnology, Zagreb, Croatia

Donatella Verbanac, Assistant Professor
Center for Translational and Clinical Research
University of Zagreb School of Medicine, Zagreb, Croatia
CROATIA

Republic, 4.5 million people, independent since 1991.
Top 10 Fattest Countries in the world, based on national health surveys WHO compiled between 2000 and 2008 (% of overweight population)

1. American Samoa - 93.5
2. Kiribati - 81.5
3. USA - 66.7
4. Germany - 66.5
5. Egypt - 66.0
6. Bosnia-Herzegovina - 62.9
7. New Zealand - 62.7
8. Israel - 61.9
9. Croatia - 61.4
10. UK – 61.0
Cardiovascular diseases are the leading cause of death in Croatia. However, the available data suggests that there is a substantial lack of relevant information on the prevalence of various cardiovascular risk factors and other information that could be useful in decision making and health policy creating. In an attempt to provide more information for policy, Andrija Stampar School of Public Health, Canadian Society for Statistics, Croatian National Institute for Public Health and Croatian Ministry of Health and Social Welfare have launched Croatian Adult Health Survey, a large cross-sectional survey of the adult population of Croatia. The survey was initiated in 2001 and the first cycle was carried out in 2003. The survey sampled a total of 9,070 respondents from all regions of Croatia, providing the common platform for public health research, with focus on cardiovascular diseases and risk factors prevalence.

This issue of Collegium Antropolologicum provides an overview of the cardiovascular health in Croatia, with the main focus on the results from the Croatian Adult Health Survey 2008 (CAHS). It consists of a total of 27 articles that were written by a total of 72 authors, and covers wide range of topics related to cardiovascular health and other relevant public health topics. These cover the ten-year cardiovascular morbidity and mortality trends, regional patterns of various cardiovascular risk factors prevalence, studies that investigate the association of cardiovascular risk factors and behavioral patterns and psycho-social determinants, as well as other relevant topics, including e.g. a study which investigates and compares the prevalence of cardiovascular risk factors in the mainland and island populations or a study that analyzes the legal and organizational aspects of cardiovascular disease prevention in Croatia.

Although the results presented here are mainly from the cross-sectional nature of the data, Croatian Adult Health Survey was not designed as a one-off project. The Croatian Ministry of Science, Education and Sports has provided funding for the project continuation. The second project cycle began in 2008, but the basic study design has changed into a follow-up study, by re-surveying the original 2003 CAHS sample. By doing this not only that we will continue providing relevant information for policy, but also we will be able to provide better answers on the general health of Croatian population, and be able to suggest where the biggest problems in terms of cardiovascular risk factors are.

I would sincerely like to thank to all the colleagues who were or currently are involved in this project for their sincere willingness to contribute and develop it further, and perhaps, as a principal investigator, I may be allowed to hope that it may one day become a regular survey of the Croatian adult population. Also, I have to thank to the Editor-in-Chief and the Editorial Board of Collegium Antropolologicum for the offer to present the results in this supplement of Collegium Antropolologicum.

Silvije Vučetić and Ozren Polašek
What do we know about nutrition vs. longevity in Croatia?
Cardiovascular risk factors in Croatia: struggling to provide the evidence for developing policy recommendations

Summary points

Cardiovascular mortality is the leading public health problem in Croatia

Prevalence of cardiovascular risk factors is generally high, but the hierarchy varies between regions and by sex

The prevalence of hypertension in all regions exceeds 50% in men and 44% in women

Public health programmes should be targeted at reducing the prevalence of hypertension, obesity, smoking, and alcohol drinking, and promoting physical activity and healthy diet

Local governments should adjust the national recommendations to fit the specifics of their region

Kern J, Strnad M, Coric T, Vuletic S. Cardiovascular risk factors in Croatia: struggling to provide the evidence for developing policy recommendations. BMJ 2005; 331; 208
What do we know about nutritional habits in Croatia?

Evaluation of diet quality with the mediterranean dietary quality index in university students

Figure 1. Distribution of subjects according to the score for the M-DQI (% subjects) (n = 663).

What do we know about consumers habits in Croatia?

Differences between younger and older populations in nutrition label reading habits


<table>
<thead>
<tr>
<th>Table I. Nutrition label reading when purchasing food during the last 12 months</th>
<th>n</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>1,011</td>
<td>100</td>
</tr>
<tr>
<td>Never</td>
<td>360</td>
<td>35.6</td>
</tr>
<tr>
<td>Rarely</td>
<td>251</td>
<td>21.8</td>
</tr>
<tr>
<td>Always</td>
<td>190</td>
<td>18.8</td>
</tr>
<tr>
<td>Sometimes</td>
<td>156</td>
<td>15.4</td>
</tr>
<tr>
<td>Only at first-time purchasing food</td>
<td>40</td>
<td>4.0</td>
</tr>
<tr>
<td>Do not know/do not want to tell</td>
<td>14</td>
<td>1.4</td>
</tr>
</tbody>
</table>

| Table III. Reasons for nutrition label reading of "label users" (per cent) |
|-----------------------------|-------|
| Total                       | 638a  |
| Curiosity                   | 222   | 34.8   |
| Wish for healthy eating     | 188   | 29.5   |
| Having had nutrition counselling | 105 | 16.5   |
| Other                       | 46    | 7.2    |
| Product comparisons         | 27    | 4.2    |
| Family member habits        | 22    | 3.4    |
| Do not know/ do not want to tell | 16 | 2.5    |
| Other special diets         | 12    | 1.9    |

Notes: "Label users" answered always, sometimes, rarely and only at first-time purchasing food had read nutrition label, when purchasing food during the last 12 months.
What do we know about attitudes to healthy eating in Croatia?

The Croatian government has approved an action plan to combat obesity (BMI > 30) that affects 21 % of Croatians.

The Plan would include various measures aimed at combating the epidemic.

The government will start the plan by labeling healthy foods on the shelves of the shops and eliminating "junk food" from vending machines. Most measures are expected to be implemented by 2012.

Part of the plan involves encouraging a healthy lifestyle, raising awareness about the importance of healthy weight and the prevention of harmful habits.

1st Civil Society for prevention of overweight in Croatia, since October 2002.
Croatia Obesity facts and measures

Croatian Obesity Society (COS), member of the European Association for the Study of Obesity (EASO)

- 4th guidelines on diagnosis and treatment of obesity (2010)

Croatian action on salt and health (CRASH) (2007) - Less salt-more health

Academy of Medical Sciences
Croatian Society of Hypertension
Croatian Atheroskleorosis Society
Croatian Cardiac Society
Croatian Food Agency
The new “Holistic Food Pyramid”, optimised according to the basic principles of the Mediterranean diet, our metabolic needs and cellular physiology.

Some outputs…

Conferences

Public Initiatives

Outreach activities

http://www.hzjz.hr/epocetna.htm

http://www.hah.hr/

http://www.pbn.hr/en/aboutsoc.html

http://www.hlz.hr/portal/index.php

http://www.worldactiononsalt.com/publications/books.htm

www.zagreboliveinstitute.hr
Questions!
How can science support policy makers addressing the nutritional challenges of Europe?

Nutrition in Iceland

Professor Inga Thorsdottir, Unit for Nutrition Research
Faculty of Food Science and Nutrition
University of Iceland & Landspitali University Hospital
Food based dietary guidelines and recommendations for nutrients (PHI, INC)
Unit for Nutrition Research
www.rin.hi.is

- UNR have performed and coordinated large intervention studies, validation studies on methods used in the nutritional sciences and cross sectional studies

- Diet in infancy and health is one of the key research fields of the UNR

- UNR also studied food habits and nutrition of other age groups such as children, adolescents and the elderly, as well as nutrition in pregnancy and it’s effects on health of mother and child

- UNR has a widespread network of international collaborators

Inga Thorsdottir 2011
Nutrition in Infancy – longitudinal to the age of 6 yrs

Studies:
1995-7............2001-3
2005-6..............2011
Iron status

Comparison

- **Iron deficient anaemia** (Hb<105 µg/l, MCV<74 fl, SF<12 µg/l)
  - 2.7% → 0

- **Iron deficiency** (MCV<74 fl, SF<12 µg/l)
  - 20% → 1.4%

- **Low iron stores** (SF<12 µg/l)
  - 41% → 5.8%

- Hb & SF were significantly higher now than in prior study (p<0.001)
Mean consumption of milk
Comparison

Amount (g)

Iron-fortified follow-on milk
Breastmilk
Formula
Unmodified cow's milk
Total milk consumption

2005-2007
1995-1997
Results

Breastfeeding 2005-2006

![Bar chart showing breastfeeding and exclusive breastfeeding proportions by age (months) from 1 to 12 months. The y-axis represents the proportion (%) and the x-axis represents age (months). The chart indicates a decline in breastfeeding and exclusive breastfeeding as the age increases.](image-url)
Conclusion

- Iron status has improved
- Icelandic parents follow the recommendations for infant nutrition
- Socioeconomic factors have impact on compliance to public health recommendations
- Iron-fortified follow-on milk has largely replaced unmodified cow’s milk
- Fruit consumption has increased
- Vitamin C intake has increased
- Compliance to breastfeeding and other factors needs further improvement
- New public health recommendations can improve infants nutritional status
Nutrition in School Children
Promotion of Healthy Eating
7-9 yrs old
Food-Based Dietary Guidelines (FBDGs)

- **Fruits & Vegetables**, at least 200 g F and 200 g V
- Fish, at least twice a week
- Fish liver oil, teaspoon a day
- Milk, 2 portions per day
School based intervention on 7-9-year-olds

Fall 2006
Baseline measures

School-based intervention

Fall 2008
Follow-up measures

Food intake was assessed with 3-day-weighed dietary records at baseline and follow-up.
Evaluation of the nutrition intervention

• Increased fruit and vegetable intake in the intervention schools.

• Increased fish intake in both intervention and control schools.

• The changes in food intake were mirrored in macro and micronutrient intake.
Effects of the intervention on fruit and vegetable intake among 7-9 year olds
School based intervention on 7-9-year-olds

**Intervention components**

- Classroom component ++
- Family component ++
- School canteen component -
Total consumption of F & V in tertiles accord. to baseline values
Conclusions

The results of the 7-9 year old intervention suggest that a multi-component intervention can improve the quality of the diet of school children.

It should also be considered that large national school programs may have the potential of reaching almost all children.

This is especially relevant, given that promoting healthy eating in school children is expected to have positive effects on health in the whole population.
Nutrition in Iceland

How can science support policy makers addressing the nutritional challenges of Europe?

Institute for Health and Consumer Protection
29-30th September 2011 Ispra Italy

Laufey Steingrímsdóttir professor
Unit for Nutrition Research
Faculty for Food Science and Nutrition
University of Iceland and Landspitali University Hospital
Nutrition related challenges in Iceland

- Obesity
- Reversal of favorable trends in vegetable and fruit intake after bank collapse
- Inequity and emerging poverty
- High salt intake
- Poor vitamin D status
OECD Health at a Glance, Europe 2010

2.8.2. Increasing obesity rates among adults in EU countries

20% in 2007
12% in 2002
8% in 1990
Dietary changes in Iceland

Sharp decline in whole milk, butter, margarine, lamb, mutton and fish. Mainly replaced by chicken, pork, vegetable oils as well as increased fruit and vegetable consumption.

Food supply
kg/person/year
National food and nutrition policy introduced in 1987
Emphasized decreased intake of saturated fat and increased fruit and vegetable intake

Fats and oils, kg/person/year
Vegetable consumption - Food statistics, kg/pers/year

People having difficulties making ends meet increased from 10% in 2005 to 31% in 2010
Serum cholesterol
Men and women 45-64 years of age
1967-2007
73% of mortality decrease attributed to changes in population risk factors:

- Cholesterol 32%
- Smoking 22%
- Systolic blood pressure 22%
- Physical activity 5%
National Nutrition Surveys

- Dietary surveys have been conducted by the Icelandic Nutrition Council, later Public Health Institute in the years 1979, 1990, 2002 and 2010-2011.
- The 2010-11 survey is now completed, used 2x 24 hr recall in combination with food frequency questions. First results will be reported in November 2011.
- This last survey is a cooperative project between The Public Health Institute, Unit for Nutrition Research, University of Iceland and The Icelandic Food and Veterinary Authority.
Salt content of bread

• Pubic Health Institute in cooperation with bread makers and The Food Agency planned a project in 2007 attempting to decrease salt content of breads.

• Salt has decreased significantly in some brands, but others are still too high. According to the National Nutrition Survey 2010-2011, sodium intake has decreased by 6% since 2002.
Seasonal variation in mean s-25(OH)D by supplemental vitamin D intake Icelandic adults

Few Icelandic foods fortified with vit D. One milk drink fortified containing 0.38µg/100g

Laufey Steingrimsdottir et al 2005
Cod liver oil given in all elementary schools until 1956

Thank you!
Nutritional facts and issues in the Republic of Macedonia

Dr. Igor Spiroski (i.spiroski@iph.mk)
Dr. Valentina Velkoska (valentina.velkoska@ugd.edu.mk)

JRC Nutritional challenges workshop
Ispra, Italy, 29.09.2011
Population: 2 077 328 (July 2011 est.)
Life expectancy at birth: total population - 75.14 years; male: 72.61 y; female: 77.87 y (2011 est.)
Infant mortality rate: 8.54 deaths/1000 live births (2011 est.)
GDP per capita (PPP): $9700 (2010 est.)
Total health expenditure as % of GDP: 7% (EU region average 7.56%)

Sources: CIA The World Factbook; WHO HFA Database
Second action plan on food and nutrition in Republic of Macedonia for 2009-2014

Health challenges and sets of actions

<table>
<thead>
<tr>
<th>Health challenges</th>
<th>Set of actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-infectious food-related diseases</td>
<td>1. Support for healthy start</td>
</tr>
<tr>
<td>Obesities in children and adolescents</td>
<td>2. Sustainable supply of safe and healthy food</td>
</tr>
<tr>
<td>Micronutrients deficit</td>
<td>3. Providing comprehensive information and education for consumers</td>
</tr>
<tr>
<td>Unsafe food-related diseases</td>
<td>4. Taking integral activities regarding related determinants</td>
</tr>
<tr>
<td></td>
<td>5. Enhancing the nutrition and food safety in the health sector</td>
</tr>
<tr>
<td></td>
<td>6. Monitoring and evaluation</td>
</tr>
</tbody>
</table>

Inter sectorial level (MoH, IPH, Faculty of Medicine...)
SSA and IPH: Estimation of average daily food intake according to the SSA report on household consumption in the country

Table: Macronutrients intake and its portion in the ADI (2009)

<table>
<thead>
<tr>
<th>Energy value of the daily meal (kcal)</th>
<th>Proteins</th>
<th>Fats</th>
<th>Carbohydrates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>g</td>
<td>kcal</td>
<td>g</td>
</tr>
<tr>
<td>2883,9</td>
<td>85,3</td>
<td>341,2</td>
<td>114,3</td>
</tr>
</tbody>
</table>
## Micronutrients (2009)

<table>
<thead>
<tr>
<th>Vitamins</th>
<th>R.E μg</th>
<th>A-R.E μg</th>
<th>B1 mg</th>
<th>B2 mg</th>
<th>PP mg</th>
<th>B6 mg</th>
<th>C mg</th>
<th>E μg</th>
<th>D μg</th>
<th>K μg</th>
<th>B12 μg</th>
<th>Folate μg</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADI</td>
<td>1076,72</td>
<td>664,57</td>
<td>1,18</td>
<td>1,44</td>
<td>14,53</td>
<td>1,34</td>
<td>179,54</td>
<td>0,00</td>
<td>0,00</td>
<td>0,00</td>
<td>0,00</td>
<td>0,00</td>
</tr>
<tr>
<td>RDA</td>
<td>720 - 880</td>
<td>1,0 - 1,2</td>
<td>1,1 - 1,4</td>
<td>13 - 19</td>
<td>1,3 - 1,6</td>
<td>63 - 77</td>
<td>7 - 9</td>
<td>4,5 - 5,5</td>
<td>59 - 72</td>
<td>1,8 - 2,2</td>
<td>180 - 220</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Na mg</th>
<th>K mg</th>
<th>Ca mg</th>
<th>Mg mg</th>
<th>P mg</th>
<th>Fe mg</th>
<th>Zn mg</th>
<th>Cu mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADI</td>
<td>8977,7</td>
<td>3110,43</td>
<td>621,97</td>
<td>247,6</td>
<td>1260,77</td>
<td>13,57</td>
<td>5,09</td>
<td>1,16</td>
</tr>
</tbody>
</table>
Increased trend of consumption of fruit and vegetables, but also meat (other than fish) and sugar and sweets (source IPH 2010)

Table: Trend of average daily intake

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td><strong>Product groups</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetables (fresh)</td>
<td>179</td>
<td>152</td>
<td>171</td>
<td>162</td>
<td>189</td>
<td>211</td>
<td>272</td>
<td>246</td>
<td>264</td>
</tr>
<tr>
<td>Potatoes</td>
<td>48</td>
<td>42</td>
<td>64</td>
<td>65</td>
<td>76</td>
<td>86</td>
<td>85</td>
<td>77</td>
<td>84</td>
</tr>
<tr>
<td>Fruit (fresh)</td>
<td>162</td>
<td>177</td>
<td>153</td>
<td>156</td>
<td>158</td>
<td>256</td>
<td>202</td>
<td>190</td>
<td>213</td>
</tr>
<tr>
<td>Cereals (including bread, flour, rice and pasta)</td>
<td>401</td>
<td>352</td>
<td>562</td>
<td>537</td>
<td>400</td>
<td>425</td>
<td>404</td>
<td>408</td>
<td>377</td>
</tr>
<tr>
<td>Legumes</td>
<td>14</td>
<td>13</td>
<td>43</td>
<td>29</td>
<td>22</td>
<td>26</td>
<td>31</td>
<td>28</td>
<td>26</td>
</tr>
<tr>
<td>Milk and dairy</td>
<td>179</td>
<td>254</td>
<td>264</td>
<td>226</td>
<td>209</td>
<td>287</td>
<td>210</td>
<td>192</td>
<td>221</td>
</tr>
<tr>
<td>Meat and products</td>
<td>69</td>
<td>85</td>
<td>78</td>
<td>98</td>
<td>70</td>
<td>129</td>
<td>150</td>
<td>142</td>
<td>200</td>
</tr>
<tr>
<td>Fish</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>10</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Fats and oils</td>
<td>40</td>
<td>42</td>
<td>46</td>
<td>48</td>
<td>46</td>
<td>65</td>
<td>45</td>
<td>52.7</td>
<td>66</td>
</tr>
<tr>
<td>Sugar and sweets</td>
<td>42</td>
<td>40</td>
<td>44</td>
<td>46</td>
<td>44</td>
<td>40</td>
<td>54</td>
<td>53</td>
<td>70</td>
</tr>
</tbody>
</table>

Table salt: **15.62 g/day**, also high Na intake (2009)
Nutritional deficiencies/obesity

- COSI, 6-9 years old children (2010), WHO standards
- COSI, preliminary results, 2010
- 18 EUR countries (24% children o/w or obese)

<table>
<thead>
<tr>
<th>Gender</th>
<th>w/a %, BMI/age %</th>
<th>h/a %, BMI/age %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;-3SD</td>
<td>&lt;-2SD*</td>
</tr>
<tr>
<td>Boys</td>
<td>0,1</td>
<td>1</td>
</tr>
<tr>
<td>Girls</td>
<td>0,4</td>
<td>1,4</td>
</tr>
<tr>
<td>Average</td>
<td>0,4</td>
<td>1,4</td>
</tr>
</tbody>
</table>

*% <-2SD includes %<-3SD

*% <-2SD includes %<-3SD; %>+1SD** includes %>+2SD%>+3SD ;***% >+2SD includes %>+3SD
General population (Dimitrovska, Spiroski et al., IPH, 2006)

BMI distribution by categories (%)

- Underweight: <18.5
- Normal: 18.5-24.99
- Overweight: 25-29.99
- Obesity class I: 30.0-34.99
- Obesity class II: 35.0-39.99
- Obesity class III: 40.0-
THANK YOU
Montenegro - general overview and nutritional issues

Ivana Joksimović M.D.
Specialist of Hygiene
Institute of Public Health - Montenegro
Montenegro - general facts

**Area:** Montenegro (13,938 sq. km.).

**Capital:** Podgorica.

**Terrain:** Montenegro’s terrain is varied. It includes mountainous regions with thick forests in the north; central plains; and a rocky Adriatic coast with very few islands.

**Climate:** Generally continental; Mediterranean along the coast.


**Religions** (2011 census): Orthodox 72.07%, Islam 15.97%, Muslim 3.14%, Catholic 3.44%, other 5%.

**Ethnic groups** (2011 census): Montenegrin 44.98%, Serb 28.73%, Bosniak 8.65%, Albanian 4.91%, Muslim 3.31%, other (Croatian, Roma) 4.36%; 4.87% did not respond.

**Health** (2010 EU Progress Report): Infant mortality rate (2009 data)--5.7 deaths/1,000. Life expectancy (2009 data)-male 71.7 years, female 76.6 years.
The action plan for nutrition and food safety 2010-2014 in Montenegro is the umbrella document which should provide the basic guidelines for a comprehensive and coordinated response to improving public health related to food and nutrition. Priority goals of the Action Plan for Nutrition and Food Safety 2010-2014 are:

- to reduce the prevalence of non communicable diseases related to diet;
- to reverse the trend of obesity among children and adolescents;
- to reduce the prevalence of micronutrient deficiency;
- to reduce the incidence of diseases transmitted by foodstuffs.
In the area of nutrition following objectives are to be achieved (in line with FAO/WHO recommendations):

- <10% of daily energy intake from saturated fatty acids
- <1% of daily energy intake from trans fatty acids
- <10% of daily energy intake from free sugars
- ≥ 400 g fruits and vegetables daily
- <5 g of salt daily.
- Infants should be exclusively breastfed for the first six months of life and continuously breastfed until at least 12 months.
Based on LSMS (The Living Standards Measurement Study) research on the health status of the Montenegrin population in 2000 is estimated that in the adult population (persons over 20 years of age), the prevalence of people with overweight was 34.8% (27.2% women and 41.9% men) while the prevalence of obese individuals was 12.8% (12.1% women and 13.3% men), 47.6% of the total adult population.

The results of the same survey in 2008 showed that during the period of 8 years there has been a further increase in overweight prevalence among the population of Montenegro. In fact, in 2008, prevalence of people with excess weight was 40.0% (32.2% women and 48.4% men), while the prevalence of obese individuals was 15.1% (14.5% women and 15.8% men).
According to the same survey three quarters of children and adolescents aged 7-19 years in Montenegro had a healthy weight. The survey showed that in relation to BMI 3.8% of children were underweight, while a total of 21.2% were overweight or obese.

In Montenegro, 25.2% of women started breastfeeding within one hour of birth. The percentage was highest among the women from the north of Montenegro (58%), whereas among women in the southern region, only 5%. The differences depend on education and socio-economic family status.

According to the mother’s education level, percentage of women who started breastfeeding within one hour of birth is reduced from 42% of mothers with primary education or no education to 22% with secondary education, up to 15% of women with higher education.
• The same indicator is growing from 8 percent for the richest to the poorest 40 percent. Only 19.3% of children younger than six months are exclusively breast fed. In the age of 6-9 months, 35% of children receive complementary foods with breastfeeding.

• At the age 12-15 months, 25% of children were breastfed and in the age 20-23 months, this percentage was 13%. About 30% of children aged 6-8 months were breast fed and had used complementary foods at least two times a day.

(Source: Montenegro Multiple Indicator Cluster Survey 2005, Final Report)
Recent projects and studies related to nutrition

The results of Multiple Indicator Cluster Survey in 1996 and 2000 showed that prevalence of hemoglobin is less than 110 g / l, and in children under the age of five years was 29.4%.

In urban environment the prevalence of anemia due to lack of iron in children aged up to five years was 31.9% while in rural 26.8%.

Prevalence of sideropenic anemia in women aged 15 - 49 years was 26.7%. On average in this population group wasn’t statistically significant differences in the prevalence of anemia between urban and rural communities.

Recent projects and studies related to nutrition

The general objective of the FOCUS-BALKANS project was to improve competencies and understanding in the field of consumer food science in the Western Balkan countries (WBC). Main focus was on products with positive nutritional properties (fruits and health/Diet foods) and sustainability (organic and traditional food products).

Some conclusions for Montenegro population are:

Green markets remain the main place for the supply of fresh fruit, while in the supermarkets buying mostly processed and dried fruit.

Consumers prefer the domestic production compared to industrially processed, and when purchasing prefer domestic compared to fruit from other WBC and the EU.

Offer and consumption of products with N&H statements is increasing.
• The main barrier for consumption of N&H claims products is the price and taste
• Younger consumers pay more attention to content of labeling compare to older consumers, especially women.
• Older and younger consumers do not fully understand the labels on products, especially those written in small font. They pay more attention to expire date, manufacturer and prize.
• Montenegrians find traditional products as healthy, natural and high quality products, without preservatives, without artificial coloring, or other additives.
• In general participants of focus groups identified traditional food at the opposite side of industrial food.
• (Official presentation of the project is on the site: www.focusbalkans.org)
Food Safety Management System

- The activities of state administration in the area of food safety and animal feed perform:
  - Ministry of Agriculture, Forestry and Water Management
  - Ministry of Health
  - The administrative organ responsible for veterinary care;
  - The administrative organ responsible for phytosanitary activities.

- Supervision over the diseases which are transmitted by food, and epidemiological researches carries out the Institute for Public Health and the relevant hygiene and epidemiological authorities in health centers.

- Under the Law on food safety surveillance implements Sanitary, Veterinary and Phytosanitary Inspection.
• Consumers have a right to expect the food they purchase and consume is correct and good quality. They have right to communicate their opinions about the procedures related to food control, standards and activities which governments and industry implemented to ensure that food which is provided has those characteristics.
• For consumers, the food control systems must provide substantial protection against real and significant risks.
• Information and communication with consumers is being implemented on the following basis: Information on requirements for food safety are available to the public through an annual document (Statistical Yearbook) published by the Institute of Public Health.
• In order to reduce the burden of food-borne diseases poster "WHO 5 keys to safer food" has been translated and used.
• In the framework of health promotion activities, the Center for Disease Control and Prevention IPH has implemented several brochures and guidelines.
• Brochures:
  - Shigellosis caused by Shigella dysenteriae
  - Save your health during the summer holidays with the Guidelines for the Protection of intestinal infectious diseases and food poisoning
  - Guidelines for the kitchen staff - preventing food poisoning
  - 10 golden rules for safe food preparation
Guidelines which are on the site of the Institute of Public Health:
  - Correct hand washing techniques
  - Salmonellosis - how to prevent and protect yourself
  - What is the trichinosis and how to protect yourself
  - Good hygiene habits in the prevention of infective diseases
CONCLUSION

• In the last few years in Montenegro, significant efforts and results have been achieved in drafting of legislation in the area of food safety.

• Laws and regulations are only tools, though very important in order to improve food safety system, but the biggest challenge is their implementation due to lack of financial resources, human resources, coordination and expertise.

• Continuous education, information and training of all subjects in the area of food safety is needed in order to ensure compliance with food safety systems of the EU. Adequate laboratory equipment needs to be provided in accordance with HACCP and ISO standards;

• It is necessary to promote and ensure the implementation of HACCP in food production;

• It is also necessary to ensure a high degree of transparency to make information available to the public and to carry out public campaigns in order to inform consumers about food safety.
Thank you for your attention!
CURRENT AND FUTURE NUTRITIONAL
ISSUES IN SERBIA

Prof. dr Nadja Vasiljevic, PhD
University of Belgrade-Faculty of Medicine

Prof. dr Sladjana Sobajic, PhD
University of Belgrade – Faculty of Pharmacy
Obesity and undernutrition

National Health Survey Serbia 2006, Key findings
Figure 10. Adult population by body mass index categories, Serbia, 2006

Overweight people - 54.5%
Figure 11. Adults population classified as obese and pre-obese by age groups, Serbia, 2006
The problem of obesity was recognized in Serbia 40 years ago

1969 First nutrition counseling outpatient unit
1991st Int. Symposium on Obesity
1993 2nd Int. Symposium
1997 3rd Int. Symposium on Obesity
1997 YASO Founding meeting
1999 Milan declaration
1999 IASO member
2007 SASO
Network of health care services capable of providing effective obesity treatment and/or preventive measures to combat epidemic of obesity

Obesity management centers attached to University clinics

- Obesity specialists
- Other specialist
- Nutrition counseling outpatient units
- Primary health care physicians

14,500 GP
Национални водић за леке у примарној здравственоj заштити
STANDARDS FOR NUTRITION SKILLS AND KNOWLEDGE FOR PRIMARY HEALTH PROFESSIONALS IN THE PREVENTION OF NUTRITION RELATED DISEASES

Prof. dr Nadja Vasiljevic
Prevention Centre
working groups
[for obesity, for nutrition and health promotion, for CND]
that analyze diet and nutrition of population and problems in connection with diet.
Center for childhood obesity - Zlatibor
National food-related legislative that could influence food choices

National Food Labelling Act (2003)

• Nutrition labelling is not obligatory
• Nutritional claims permitted were harmonized with EU REGULATION (EC) No 1924/2006
  (Low energy; Energy reduced; Energy free; Low fat; Fat free; Low sugar; Sugar free)

• No “traffic light” nutrition labelling applications
• No education programs for consumers on how to use and understand nutrition labels
Obesity and pharmacy sector in Serbia

Areas of action:
Prevention
Medication (prescribed and OTC)
Support and advice on nutrition and lifestyle
Advice on dietary supplements and dietary foods
Basic information during undergraduate studies (courses Food chemistry and Dietetics)

Continuing education courses

EPSA (European Pharmaceutical Student Association) summer school on obesity (2004), Zlatibor, Serbia
EU funded project “Raising standards in Serbia’s hospitals and pharmacies” - coordinator Crown Agents, 2001-2003
Consumer protection organizations activities

Consumers’ Protection Movement Belgrade (CPMB) participated in preparing, passing and improvement of consumers’ laws, standards and regulations in the field independently, and/or in cooperation with interested consumers’ organizations, Economy Chambers and expert associations.

CPMB project - Program of Comparative Testing and Evaluation Quality of Food from 1995

Current and Future Nutritional Issues in Switzerland

Workshop „How can science support policy makers addressing the nutritional challenges of Europe?“

29 September 2011 / Andreas Aeschlimann
Topics

1) Nutritional Situation in Switzerland
2) Current Diet Recommendations
3) Diet and Health
4) JPI-HDHL vs NRP 69 by SNSF
Preliminary Remarks

- Presentation based on preliminary version of the 6th Report on Nutrition „SEB“; will appear 2012
- 5th appeared in 2005
- All reports based on same methodology cover approximately 30 years
- “Food Consumption” is calculated based on agrarian production statistics ≠ “Food Intake”; therefore calculation of “Approximated Intake”
Nutritional Situation in Switzerland

- Macro- and micronutrients covered
- Ratio protein : fat : carbohydrates
  ≅ recommendations

But ≠ recommendations:
- Energy intake: +18-32 %, normal BMI & PAL 1.4-1.6
- Ratio fatty acids
- Vitamin D and folic acid
- Probably also true for Fe & Id in specific groups
Nutritional Situation... (Cont.)

Downwards trends stopped for
- Meat and meat products
- Milk and milk products

however for
- Fruits and alcoholic beverages continued

No increase for the first time: vegetables
Sugar, cereals and potatoes: constant
Energy intake: constant
Current Diet Recommendations

- Many players
- Bases for nutrient based recommendations = DACH-reference values
- Realisation by food based recommendations considering: tradition & diet related diseases
Diet and Health

Decreasing mortality for
- CHD & cancer

But available data not sufficient / reliable;
e.g. CHD: better early detection and treatment

Most likely increasing diet-related risk factors
- high blood pressure, fat metabolism, diabetes Type 2

⇒ Need for more studies (intake; risk factors...)
# JPI-HDHL vs NRP 69 “Healthy Nutrition and Sustainable Food Production”

<table>
<thead>
<tr>
<th>JPI-HDHL</th>
<th>Determinants of Diet and Physical Activity</th>
<th>Diet and Food Production</th>
<th>Diet-related Chronic Diseases</th>
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</thead>
<tbody>
<tr>
<td>NRP 69</td>
<td>Examining Eating Habits</td>
<td>Evaluating the Sustainability of Nutritional Systems</td>
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<td>Optimisation of Nutritional Systems</td>
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</tr>
<tr>
<td></td>
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<td>Synthesis</td>
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</table>
Notes on Nutrition in Turkey

Sedef Akgüngör
Dokuz Eylül University
Faculty of Business
Department of Economics
İzmir, Turkey

### Table 1: General Statistics of Turkey

<table>
<thead>
<tr>
<th>Indicator (a)</th>
<th>Year</th>
<th>Unit</th>
<th>indicator (b)</th>
<th>Year</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td><strong>A. Land in use for agriculture</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Agricultural land</td>
<td>2009</td>
<td>1000 ha</td>
<td>1996-98</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B. Livestock</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td><strong>C. Population</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Total population</td>
<td>2011</td>
<td>thousands</td>
<td>2010</td>
<td>% of total pop</td>
<td>26.4</td>
</tr>
<tr>
<td>2. 0-14 years</td>
<td>2010</td>
<td>% of total pop</td>
<td>2010</td>
<td></td>
<td>64.6</td>
</tr>
<tr>
<td>3. 14-60 years</td>
<td>2010</td>
<td>% of total pop</td>
<td>2010</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>4. 60+ years</td>
<td>2010</td>
<td>% of total pop</td>
<td>2010</td>
<td></td>
<td>0.8</td>
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<tr>
<td>5. 80+ years</td>
<td>2010</td>
<td>% of total pop</td>
<td>2010</td>
<td></td>
<td>29.9</td>
</tr>
<tr>
<td>6. Rural population</td>
<td>2011</td>
<td>% of total pop</td>
<td>2011</td>
<td></td>
<td>29.9</td>
</tr>
<tr>
<td>7. Annual population growth rate, Total</td>
<td>2000-10</td>
<td>% of total pop</td>
<td>2010</td>
<td></td>
<td>1.31</td>
</tr>
<tr>
<td>8. Annual population growth rate, Rural</td>
<td>2005-10</td>
<td>% of total pop</td>
<td>2010</td>
<td></td>
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<tr>
<td>9. Projected population in 2030</td>
<td>2030</td>
<td>thousands</td>
<td>2030</td>
<td></td>
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<td>10. Agricultural population</td>
<td>2011</td>
<td>% of total pop</td>
<td>2011</td>
<td></td>
<td>19.3</td>
</tr>
<tr>
<td>11. Population density</td>
<td>2010</td>
<td>pop. per sq Km</td>
<td>2010</td>
<td></td>
<td>93</td>
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<tr>
<td><strong>D. Level of Development</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1. GNP per capita, Atlas Method</td>
<td>2010</td>
<td>current US$</td>
<td>2010</td>
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<td>9500</td>
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<td>2. Human Development Index rating (new)</td>
<td>2010</td>
<td>min[0] - max[1]</td>
<td>2010</td>
<td></td>
<td>0.679</td>
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<tr>
<td>3. Incidence of poverty, Total</td>
<td></td>
<td>% of population</td>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Incidence of poverty, Rural or Urban</td>
<td></td>
<td>% of population</td>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Life expectancy at birth (male/female)</td>
<td>2009</td>
<td>years</td>
<td>2009</td>
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<td>72/77</td>
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<tr>
<td>6. Under-five mortality rate</td>
<td>2009</td>
<td>per 1,000 live births</td>
<td>2009</td>
<td></td>
<td>20</td>
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<td><strong>E. Food Trade</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Food Imports (US $)</td>
<td>2005-07</td>
<td>% of total imports</td>
<td>2005-07</td>
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<tr>
<td>2. Food Exports (US $)</td>
<td>2005-07</td>
<td>% of total exports</td>
<td>2005-07</td>
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<td>6.6</td>
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<tr>
<td>3. Cereal Food Aid (100 MT)</td>
<td>2005-10</td>
<td>% of cereals imports</td>
<td>2005-10</td>
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<td>0.0</td>
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<td><strong>F. Indices of Food Production</strong></td>
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<td></td>
<td></td>
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<tr>
<td>1. Food Production Index</td>
<td>2009</td>
<td>1999-2001 = 100</td>
<td>2009</td>
<td></td>
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<td>2. Food Production Index Per Capita</td>
<td>2009</td>
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### G. Average Food Supply

<table>
<thead>
<tr>
<th>Indicator (a)</th>
<th>Year</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>1. Dietary Energy Supply (DES)</td>
<td>1996-98</td>
<td>Kcal/cap/day</td>
</tr>
</tbody>
</table>

### H. Food Inadequacy

1. Total population "undernourished" millions not available
2. % population "undernourished" 2007 % of total pop. < 5.0

---

Updated by Sedef Akgün by use of data provided by; http://faostat.fao.org/
http://data.worldbank.org/
http://www.un.org

Note: Value not indicated if below 1%
## FOOD BALANCE SHEET

<table>
<thead>
<tr>
<th>Year &amp; Population</th>
<th>Element</th>
<th>Food Supply (kcal/capita/day)</th>
<th>Protein Supply Quantity (g/capita/day)</th>
<th>Fat Supply Quantity (g/capita/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>Grand Total</td>
<td>3481</td>
<td>100,10</td>
<td>95,10</td>
</tr>
<tr>
<td>Population: 66.460.000</td>
<td>Vegetal Products</td>
<td>3101</td>
<td>74,70</td>
<td>70,60</td>
</tr>
<tr>
<td></td>
<td>Animal Products</td>
<td>379</td>
<td>25,40</td>
<td>24,50</td>
</tr>
<tr>
<td>2001</td>
<td>Grand Total</td>
<td>3440</td>
<td>98,10</td>
<td>90,50</td>
</tr>
<tr>
<td>Population: 67.444.000</td>
<td>Vegetal Products</td>
<td>3089</td>
<td>74,70</td>
<td>68,00</td>
</tr>
<tr>
<td></td>
<td>Animal Products</td>
<td>351</td>
<td>23,40</td>
<td>22,50</td>
</tr>
<tr>
<td>2002</td>
<td>Grand Total</td>
<td>3430</td>
<td>98,30</td>
<td>92,50</td>
</tr>
<tr>
<td>Population: 68.398.000</td>
<td>Vegetal Products</td>
<td>3099</td>
<td>76,10</td>
<td>70,90</td>
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<td></td>
<td>Animal Products</td>
<td>332</td>
<td>22,30</td>
<td>21,60</td>
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<tr>
<td>2003</td>
<td>Grand Total</td>
<td>3413</td>
<td>97,70</td>
<td>94,10</td>
</tr>
<tr>
<td>Population: 69.329.000</td>
<td>Vegetal Products</td>
<td>3019</td>
<td>72,60</td>
<td>68,10</td>
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<tr>
<td></td>
<td>Animal Products</td>
<td>394</td>
<td>25,00</td>
<td>26,00</td>
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<td>2004</td>
<td>Grand Total</td>
<td>3434</td>
<td>98,00</td>
<td>99,70</td>
</tr>
<tr>
<td>Population: 70.250.000</td>
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<td>3051</td>
<td>72,70</td>
<td>74,90</td>
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<tr>
<td></td>
<td>Animal Products</td>
<td>384</td>
<td>25,30</td>
<td>24,80</td>
</tr>
<tr>
<td>2005</td>
<td>Grand Total</td>
<td>3434</td>
<td>98,30</td>
<td>99,90</td>
</tr>
<tr>
<td>Population: 71.169.000</td>
<td>Vegetal Products</td>
<td>3050</td>
<td>72,90</td>
<td>75,20</td>
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<td></td>
<td>Animal Products</td>
<td>384</td>
<td>24,40</td>
<td>24,70</td>
</tr>
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<td>2006</td>
<td>Grand Total</td>
<td>3495</td>
<td>98,80</td>
<td>102,50</td>
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<tr>
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<td>Vegetal Products</td>
<td>3093</td>
<td>72,70</td>
<td>76,60</td>
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<td></td>
<td>Animal Products</td>
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<td>25,90</td>
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<tr>
<td>2007</td>
<td>Grand Total</td>
<td>3517</td>
<td>100,00</td>
<td>106,90</td>
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<tr>
<td>Population: 73.004.000</td>
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<td>3100</td>
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<td>80,10</td>
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<tr>
<td></td>
<td>Animal Products</td>
<td>417</td>
<td>27,30</td>
<td>26,80</td>
</tr>
</tbody>
</table>
National Surveys and National Action Reports on Nutrition

- **National Surveys:**
  - 1974 Nutrition, Health and Food Consumption Survey
  - 1984 Nutrition, Health and Food Consumption Survey
  - 2010 Nutrition, Health and Food Consumption Survey (data not yet available)

- **Major reports on nutrition policies**
Food Consumption

- Wheat is a staple food for the Turkish people.
- The major percentage of energy comes from bread (44%) and bread with other cereals (58%).
- Wheat is mainly consumed as bread, macaroni and bulgur (parboiled pounded wheat).
- Maize is widely used in the Black Sea region.
- Although rice is widely consumed in Turkey, the production does not meet domestic demand, and the supply deficiency is covered by importation.
- Lentils, chickpeas and dry beans are the most widely consumed pulses.
- Meat, as lamb and beef is the main ingredient of the Turkish cuisine, but recently it has been changed, because of the high prices of meat.
- Yoghurt is the most frequently used milk product.
- Fresh vegetables and fruits are abundantly available throughout the year, and widely consumed.
- The main oil seeds are sunflower, cotton and soybean.
- Sunflower oil has the major share on production of vegetable oil.
- Oil and fat consumption show regional variations as olive oil is mostly used in western and southern parts (Aegean and Mediterranean Region) of Turkey.
- However margarine has become a substitute of butter.
- Usually three meals are eaten in the country.
### Mean Daily Consumption (Overall)

<table>
<thead>
<tr>
<th>Food and Beverages</th>
<th>g/CU/day</th>
<th>g/person/day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>Milk and yogurt</td>
<td>168.1</td>
<td>114.8</td>
</tr>
<tr>
<td>Cheese</td>
<td>57.7</td>
<td>47.4</td>
</tr>
<tr>
<td>Red meat</td>
<td>61.7</td>
<td>8.6</td>
</tr>
<tr>
<td>Poultry</td>
<td>45.4</td>
<td>0.0</td>
</tr>
<tr>
<td>Fish</td>
<td>7.2</td>
<td>0.0</td>
</tr>
<tr>
<td>Eggs</td>
<td>39.9</td>
<td>26.5</td>
</tr>
<tr>
<td>Legumes/seeds</td>
<td>46.7</td>
<td>17.4</td>
</tr>
<tr>
<td>Vegetables</td>
<td>567.2</td>
<td>492.5</td>
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<tr>
<td>Potato</td>
<td>50.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Fruits</td>
<td>465.8</td>
<td>365.7</td>
</tr>
<tr>
<td>Cereals</td>
<td>124.2</td>
<td>92.8</td>
</tr>
<tr>
<td>Cakes</td>
<td>17.2</td>
<td>0.0</td>
</tr>
<tr>
<td>Bread</td>
<td>249.2</td>
<td>222.2</td>
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<tr>
<td>Sugar</td>
<td>31.5</td>
<td>10.9</td>
</tr>
<tr>
<td>Fats</td>
<td>9.2</td>
<td>0.0</td>
</tr>
<tr>
<td>Oils</td>
<td>25.4</td>
<td>19.4</td>
</tr>
<tr>
<td>Soft drinks</td>
<td>142.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Alcohol</td>
<td>4.1</td>
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</table>

Source: Pekcan, G., et.al., 2006.

## Mean Daily Consumption (High SES Group)

<table>
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<th></th>
<th></th>
<th></th>
<th>g/person/day</th>
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<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
<td>SD</td>
<td>SEM</td>
<td>Mean</td>
<td>Median</td>
<td>SD</td>
<td>SEM</td>
</tr>
<tr>
<td>Milk and yogurt</td>
<td>214.4</td>
<td>149.7</td>
<td>308.45</td>
<td>27.48</td>
<td>175.8</td>
<td>122.8</td>
<td>252.93</td>
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<tr>
<td>Cheese</td>
<td>63.8</td>
<td>50.0</td>
<td>57.45</td>
<td>5.12</td>
<td>52.4</td>
<td>41.0</td>
<td>47.11</td>
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<tr>
<td>Red meat</td>
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<td>37.5</td>
<td>138.43</td>
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<td>73.8</td>
<td>30.7</td>
<td>113.52</td>
<td>10.11</td>
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<tr>
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<td>151.77</td>
<td>13.52</td>
<td>53.5</td>
<td>0.0</td>
<td>124.45</td>
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<td>0.0</td>
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<td>16.0</td>
<td>46.79</td>
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<td>32.0</td>
<td>13.1</td>
<td>38.37</td>
<td>3.42</td>
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<td>44.4</td>
<td>20.5</td>
<td>62.91</td>
<td>5.60</td>
<td>36.4</td>
<td>16.8</td>
<td>51.59</td>
<td>4.60</td>
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<tr>
<td>Vegetables</td>
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<td>522.7</td>
<td>1032.49</td>
<td>91.98</td>
<td>514.6</td>
<td>428.6</td>
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<td>75.42</td>
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<td>50.2</td>
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<tr>
<td>Fruits</td>
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<td>111.3</td>
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<td>105.35</td>
<td>9.38</td>
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<td>181.8</td>
<td>164.46</td>
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<td>179.7</td>
<td>149.1</td>
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<tr>
<td>Sugar</td>
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<td>10.0</td>
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<td>0.0</td>
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<td>1.23</td>
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<td>21.6</td>
<td>36.67</td>
<td>3.27</td>
<td>24.1</td>
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<td>30.07</td>
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<td>Soft drinks</td>
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<td>333.38</td>
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<td>0.0</td>
<td>273.37</td>
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<td>6.7</td>
<td>0.0</td>
<td>40.44</td>
<td>3.60</td>
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</table>

Source: Pekcan, G., et.al., 2006.
Mean Daily Consumption (Middle SES Group)

<table>
<thead>
<tr>
<th>Food and Beverages</th>
<th>g/CU/day Mean</th>
<th>g/CU/day Median</th>
<th>g/CU/day SD</th>
<th>g/CU/day SEM</th>
<th>g/person/day Mean</th>
<th>g/person/day Median</th>
<th>g/person/day SD</th>
<th>g/person/day SEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk and yogurt</td>
<td>169.7</td>
<td>125.0</td>
<td>205.36</td>
<td>14.41</td>
<td>139.1</td>
<td>102.5</td>
<td>168.39</td>
<td>11.81</td>
</tr>
<tr>
<td>Cheese</td>
<td>58.9</td>
<td>50.0</td>
<td>56.69</td>
<td>3.98</td>
<td>48.3</td>
<td>41.0</td>
<td>46.49</td>
<td>3.26</td>
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<tr>
<td>Red meat</td>
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<td>18.3</td>
<td>101.56</td>
<td>7.13</td>
<td>51.0</td>
<td>15.0</td>
<td>83.27</td>
<td>5.84</td>
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<tr>
<td>Poultry</td>
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<td>0.0</td>
<td>95.45</td>
<td>6.70</td>
<td>29.9</td>
<td>0.0</td>
<td>78.27</td>
<td>5.50</td>
</tr>
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<td>4.91</td>
<td>32.9</td>
<td>12.5</td>
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<td>353.20</td>
<td>24.79</td>
<td>425.7</td>
<td>373.1</td>
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<td>20.33</td>
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<td>43.6</td>
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<td>620.10</td>
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<td>328.0</td>
<td>508.48</td>
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<td>118.72</td>
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<td>76.3</td>
<td>97.35</td>
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<td>Bread</td>
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<td>220.0</td>
<td>162.76</td>
<td>11.42</td>
<td>198.0</td>
<td>180.4</td>
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<td>9.37</td>
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<td>Sugar</td>
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<td>10.8</td>
<td>63.74</td>
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<td>8.9</td>
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<td>3.67</td>
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<tr>
<td>Oils</td>
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<td>18.3</td>
<td>24.29</td>
<td>1.70</td>
<td>18.0</td>
<td>15.0</td>
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<tr>
<td>Soft drinks</td>
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<td>273.65</td>
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<td>0.0</td>
<td>224.40</td>
<td>15.75</td>
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<td>70.19</td>
<td>4.93</td>
<td>4.0</td>
<td>0.0</td>
<td>57.55</td>
<td>4.04</td>
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Source: Pekcan, G., et.al., 2006.
### Mean Daily Consumption (Low SES Group)

<table>
<thead>
<tr>
<th>Low SES Food and Beverages</th>
<th>g/CU/day</th>
<th>g/person/day</th>
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</thead>
<tbody>
<tr>
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<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>Milk and yogurt</td>
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<tr>
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<tr>
<td>Red meat</td>
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<tr>
<td>Poultry</td>
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</tr>
<tr>
<td>Fish</td>
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<td>0.0</td>
</tr>
<tr>
<td>Eggs</td>
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<td>Legumes/seeds</td>
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<td>Vegetables</td>
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<td>Potato</td>
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<tr>
<td>Fruits</td>
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<td>314.8</td>
</tr>
<tr>
<td>Cereals</td>
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<td>73.3</td>
</tr>
<tr>
<td>Cakes</td>
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<td>0.0</td>
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<tr>
<td>Bread</td>
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<td>250.0</td>
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<tr>
<td>Sugar</td>
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<td>12.5</td>
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<tr>
<td>Fats</td>
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<td>0.0</td>
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<tr>
<td>Oils</td>
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<td>19.7</td>
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<td>Soft drinks</td>
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<td>0.0</td>
</tr>
<tr>
<td>Alcohol</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Pekcan, G., et.al., 2006.
## Mean Daily Energy and Nutrient Intake (Overall)

<table>
<thead>
<tr>
<th>Energy and Nutrients (unit)</th>
<th>unit/CU/day</th>
<th>unit/person/day</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>Energy (kcal)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Protein (g)</td>
<td>97.0</td>
<td>87.1</td>
</tr>
<tr>
<td>Fat (g)</td>
<td>95.8</td>
<td>82.6</td>
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<tr>
<td>Carbohydrate (g)</td>
<td>349.7</td>
<td>315.4</td>
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<tr>
<td>Fibre (g)</td>
<td>33.9</td>
<td>29.9</td>
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<tr>
<td>Vitamin A (mcg)</td>
<td>434.8</td>
<td>1172.4</td>
</tr>
<tr>
<td>Vitamin B1 (mg)</td>
<td>1.5</td>
<td>1.3</td>
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<tr>
<td>Vitamin B2 (mg)</td>
<td>1.9</td>
<td>1.8</td>
</tr>
<tr>
<td>Niacin (mg)</td>
<td>18.3</td>
<td>14.3</td>
</tr>
<tr>
<td>Folate (mcg)</td>
<td>521.4</td>
<td>476.5</td>
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<tr>
<td>Vitamin C (mg)</td>
<td>224.8</td>
<td>173.1</td>
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<tr>
<td>Calcium (mg)</td>
<td>851.2</td>
<td>768.6</td>
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<tr>
<td>Iron (mg)</td>
<td>17.7</td>
<td>15.6</td>
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</table>

Source: Pekcan, G., et.al., 2006.
# Mean Daily Energy and Nutrient Intake (High SES Group)

<table>
<thead>
<tr>
<th>Energy and Nutrients (unit)</th>
<th>unit/CU/day</th>
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<th></th>
<th>unit/person/day</th>
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<th></th>
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</thead>
<tbody>
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<td>Mean</td>
<td>Median</td>
<td>SD</td>
<td>SEM</td>
<td>Mean</td>
<td>Median</td>
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<tr>
<td>Energy (kcal)</td>
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<td>2</td>
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<td>119.95</td>
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<td>2</td>
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<tr>
<td></td>
<td>819.3</td>
<td>533.1</td>
<td>346.42</td>
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<td>311.9</td>
<td>077.1</td>
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<td>Protein (g)</td>
<td>109.2</td>
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<td>54.93</td>
<td>4.89</td>
<td>89.6</td>
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<td>Fat (g)</td>
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<td>Carbohydrate (g)</td>
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<td>159.18</td>
<td>14.18</td>
<td>279.3</td>
<td>258.7</td>
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<tr>
<td>Fibre (g)</td>
<td>33.9</td>
<td>30.2</td>
<td>21.79</td>
<td>1.94</td>
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<td>Vitamin B2 (mg)</td>
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<td>1.07</td>
<td>0.09</td>
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<td>1.5</td>
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<tr>
<td>Niacin (mg)</td>
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<td>15.8</td>
<td>16.04</td>
<td>1.43</td>
<td>17.9</td>
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<tr>
<td>Folate (mcg)</td>
<td>514.7</td>
<td>462.8</td>
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<td>22.44</td>
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<tr>
<td>Vitamin C (mg)</td>
<td>221.9</td>
<td>164.3</td>
<td>176.43</td>
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<td>Calcium (mg)</td>
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<td>0.79</td>
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<td>13.4</td>
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Source: Pekcan, G., et.al., 2006.
## Mean Daily Energy and Nutrient Intake (Middle SES Group)

<table>
<thead>
<tr>
<th>Energy and Nutrients (unit)</th>
<th>unit/CU/day</th>
<th>unit/person/day</th>
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<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
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<tr>
<td>Energy (kcal)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Protein (g)</td>
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<td>87.4</td>
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<tr>
<td>Fat (g)</td>
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<td>85.3</td>
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<tr>
<td>Carbohydrate (g)</td>
<td>341.3</td>
<td>309.1</td>
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<tr>
<td>Fibre (g)</td>
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<td>28.4</td>
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<tr>
<td>Vitamin A (mcg)</td>
<td>1184.2</td>
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<tr>
<td>Vitamin B1 (mg)</td>
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<td>Iron (mg)</td>
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</table>

Source: Pekcan, G., et.al., 2006.
## Mean Daily Energy and Nutrient Intake (Low SES Group)

<table>
<thead>
<tr>
<th>Energy and Nutrients (unit)</th>
<th>unit/CU/day</th>
<th>unit/person/day</th>
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<tr>
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<tr>
<td>Vitamin B2 (mg)</td>
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<td>Niacin (mg)</td>
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</tr>
<tr>
<td>Iron (mg)</td>
<td>17.7</td>
<td>15.4</td>
</tr>
</tbody>
</table>

Source: Pekcan, G., et.al., 2006.
Some Nutrition Problems To Consider

- 1. Anemia
  - in children
  - Child bearing age women
  - National programs to increase iron intake
- 2. Iodine deficiency
- 3. Vitamin D deficiency
- 4. Obesity
Obesity in Turkey

- Kayseri: Study with 1032 children ages 6-10 and 2671 children ages 11-17 (Krassas, G.L. Et.al, 2004).
  - 10,6% are overweight
  - 1,6% obese
- İstanbul, Ankara, İzmir: Study with 1044 adolescents (Sur, H., et.al., 2005).
  - 12% underweight
  - 12% overweight
  - 2% obese
- İstanbul: Study with 1669 children (Büyükgebiz, B., 2008).
  - 14.7% of the girls are obese
  - 18.7% of the boys are obese
  - 7.6 % of the girls are obese
  - 9.1 % of the boys are obese
- Age 11: 7% of girls, 14% of boys
- Age 13: 7% of girls, 13% of boys
- Age 15: 5% of girls, 14% of boys

Are overweight and obese

- Obesity prevalence in women over 20 years is 35.4%
- Obesity risk in women is 1.8 times higher in women than men.

Turkey Demographic and Health Survey (Hacettepe University, 1998, 2003 and 2008).
- 1998: (age 15-49)
  - Prevalence of being overweight: 33.4%
  - Obesity prevalence: 18.8%
- 2003: (age 15-49)
  - Prevalence of being overweight: 34.2%
  - Obesity prevalence: 22.7%
- 2008: (age 15-49)
  - Prevalence of being overweight: 34.4%
  - Obesity prevalence: 23.9%
National Programs for Prevention of Obesity


REFERENCES

- http://faostat.fao.org/