Obesity as a National Health Priority Area

Katie Lacy, PhD

Mulgrave Country Club – Wheelers Hill
Friday 4th March 2011

Acknowledgements: Steven Allender, Chad Foulkes, Melanie Nichols, Lynne Millar, Leann Birch, Barbara Rolls, Boyd Swinburn
Overview

• Obesity – A National Health Priority Area
  – Prevalence
  – Direct, indirect and intangible costs to individuals and communities
  – Influences
  – Promotional campaigns

• Nutrition and Obesity
  – Recommendations
  – Energy density
  – Portion size
Obesity
A National Health Priority Area
National Health Priority Areas

- National Health Priority Areas – Australia’s response to the World Health Organization’s global strategy *Health for All by the Year 2000*

- 1996
  - Cardiovascular health
  - Cancer control
  - Injury prevention and control
  - Mental health

- 1997
  - Diabetes mellitus

- 1999
  - Asthma

- 2002
  - Arthritis and musculoskeletal conditions

- 2008
  - Obesity

Overview

• Obesity – A National Health Priority Area
  – Prevalence
  – Direct, indirect and intangible costs to individuals and communities
  – Influences
  – Promotional campaigns

• Nutrition and Obesity
  – Recommendations
  – Energy density
  – Portion size
Body Mass Index (BMI)

Adults

- Underweight: BMI < 18.5
- Healthy weight: BMI ≥ 18.5 and BMI < 25
- Overweight but not obese: BMI ≥ 25 and BMI < 30
- Obese: BMI ≥ 30

\[
\text{BMI} = \frac{\text{weight (kg)}}{\text{height}^2 \text{ (m}^2\text{)}}
\]

World Health Organization 2000
Waist Circumference

Adults

• Increased risk ("abdominal overweight")
  – Male: 94 cm or more
  – Female: 80 cm or more

• Substantially increased risk
  – Male: 102 cm or more
  – Female: 88 cm or more

Body Mass Index (BMI)

Children and adolescents (aged 2-18 years)

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Males</th>
<th>Females</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>18.41</td>
<td>18.02</td>
<td>20.09</td>
<td>19.81</td>
</tr>
<tr>
<td>2.5</td>
<td>18.13</td>
<td>17.76</td>
<td>19.80</td>
<td>19.55</td>
</tr>
<tr>
<td>3</td>
<td>17.89</td>
<td>17.56</td>
<td>19.57</td>
<td>19.36</td>
</tr>
<tr>
<td>3.5</td>
<td>17.69</td>
<td>17.40</td>
<td>19.39</td>
<td>19.23</td>
</tr>
<tr>
<td>4</td>
<td>17.55</td>
<td>17.28</td>
<td>19.29</td>
<td>19.15</td>
</tr>
<tr>
<td>4.5</td>
<td>17.47</td>
<td>17.19</td>
<td>19.26</td>
<td>19.12</td>
</tr>
<tr>
<td>5</td>
<td>17.42</td>
<td>17.15</td>
<td>19.30</td>
<td>19.17</td>
</tr>
</tbody>
</table>

Why obesity?

ABS National Health Survey 2007-2008 and previous
Adults - BMI

National Health Survey 2007-08

- Underweight: 1.2% (Male), 2.8% (Female)
- Normal weight: 42.5% (Male), 31.1% (Female)
- Overweight: 42.2% (Male), 31.1% (Female)
- Obese: 25.4% (Male), 23.7% (Female)
Adults – waist circumference

National Health Survey 2007-08
Children – overweight and obesity

- 10.7% Male, 11.8% Female (1985 Australian Health and Fitness Survey)
- 20.5% Male, 21.1% Female (1995 National Nutrition Survey)
- 21.0% Male, 24.0% Female (2007 Australian National Children's Nutrition and Physical Activity Survey)
- 25.8% Male, 23.0% Female (2007-08 National Health Survey)

References:
National Health Survey 2007-08
2007 Australian National Children’s Nutrition and Physical Activity Survey
Secondary School Students

National Secondary Students' Diet and Activity (NaSSDA) survey 2009-10
Must and Strauss. *Int J Obes Relat Metab Disord*. 1999;23 Suppl 2: S2-11
Overweight and Obesity by SES

National Secondary Students’ Diet and Activity (NaSSDA) survey 2009-10
Overweight and Obesity by Home Location

National Secondary Students’ Diet and Activity (NaSSDA) survey 2009-10

Percent

Male

Metropolitan: 23.9%
Rural: 25.6%

Female

Metropolitan: 23.0%
Rural: 22.0%
Overview

• Obesity – A National Health Priority Area
  – Prevalence
  – Direct, indirect and intangible costs to individuals and communities
  – Influences
  – Promotional campaigns

• Nutrition and Obesity
  – Recommendations
  – Energy density
  – Portion size
The Burden of Obesity

• High body mass accounts for...
  – 3.9% of the total cancer burden
  – 7.9% of the total burden of disease and injury

• Overweight and obesity account for...
  – 14% of all deaths from cancer in men
  – 20% of all deaths from cancer in women

Excess body fat is a risk factor for cancers:

- Convincing evidence
  - Colorectum
  - Kidney
  - Pancreas
  - Oesophagus
  - Endometrium
  - Breast (post-menopausal women)

- Probable evidence
  - Gallbladder

- Limited evidence
  - Liver

Why overweight and obesity are linked to cancer

- Excess body weight can lead to elevated levels of...
  - Insulin-like growth factor 1 (IGF-1)
  - Insulin
  - Leptin
  - Sex steroid hormones (oestrogens, androgens, progesterone)
  - Inflammatory response

Note: body fatness may protect against pre-menopausal breast cancer


# Conditions and Determinants

<table>
<thead>
<tr>
<th></th>
<th>Obesity</th>
<th>Poor Nutrition</th>
<th>Physical Inactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osteoarthritis</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Coronary Heart Disease</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Depression</td>
<td>✓</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Type 2 Diabetes</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Stroke</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Note: waist circumference is an independent risk factor for Type 2 diabetes
Additionally...

- Overweight
- Infertility
- Stress
- Sleep apnoea
- Fatty liver disease
- High cholesterol
- Impotence
- Hypertension

Measure Up. Department of Health and Ageing. 2010

www.co-ops.net.au
Economic Impact of Obesity

- In 2008, the financial cost of obesity was estimated at $8.283 billion

Overview

• Obesity – A National Health Priority Area
  – Prevalence
  – Direct, indirect and intangible costs to individuals and communities
  – Influences
  – Promotional campaigns

• Nutrition and Obesity
  – Recommendations
  – Energy density
  – Portion size
Influences

- Media
- Social
- Psychological
- Economic
- Food
- Activity
- Infrastructure
- Development
- Biological
- Medical

Ecological Model of Predictors of Childhood Overweight

Birch and Davis. *Obesity Reviews*. 2001;2: 159-171

www.co-ops.net.au
Overview

• Obesity – A National Health Priority Area
  – Prevalence
  – Direct, indirect and intangible costs to individuals and communities
  – Influences
  – Promotional campaigns

• Nutrition and Obesity
  – Recommendations
  – Energy density
  – Portion size
Life. Be in it.

- Vision: “Make Life Worthwhile”

- Main aim: “to promote healthy active lifestyles, leisure and recreational activities that promote the prevention and control of chronic disease and thereby improve the physical and emotional well being of all Australians through ‘Fun Raising Activities’”
Measure Up

Australian Government

Home
Why measure up?
How to measure yourself
Healthy eating
Getting active
Tools & videos
Resources
Frequently asked questions
More information
Contact us

Time to take some healthy measures?

People often don’t realise the impact that excess weight around the waist can have on their overall health and wellbeing. A high waist measurement can mean an increased risk of lifestyle-related chronic diseases.

This website is part of the national Measure Up campaign which provides easy to follow tips and guidelines to help individuals decrease risk of chronic disease by reducing their waist measurement.

Tips of the week

“Cook extra vegetables for the evening meal and use the leftovers in salad for lunch the following day. Great for roast veggies, steamed green beans.

Judy Sanderson, Roxy Park TAB
Previous Next

More tips

What’s your tip?

Submit a tip to go into a draw to win “Tip of the Week” and a Healthy Food Fast cookbook.

Watch the Measure Up Success Stories

Measure Up Television Commercial

See if your lifestyle has a major impact on your health

Obesity and Nutrition
Overview

• Obesity – A National Health Priority Area
  – Prevalence
  – Direct, indirect and intangible costs to individuals and communities
  – Influences
  – Promotional campaigns

• Nutrition and Obesity
  – Recommendations
  – Energy density
  – Portion size
Dietary Guidelines for Australian Adults (2003)

• “Serving sizes of more energy dense foods may need to be reduced to accommodate variety” (page 13)

• “Alcohol intake should be moderated as alcohol is energy dense and can contribute to weight gain” (page 166)

• “There is growing consistency in the recommendations made to prevent weight gain in populations...choose a less energy dense diet” (page 203)

• “…there is strong evidence to suggest that foods with a higher energy density encourage intake above requirements. Energy intake from drinks in particular may add to total energy intake without displacing energy consumed...” (page 203)

• “In the context of prevention of weight gain, eating a variety of low-energy density foods, together with appropriate amounts of the other key food groups, will help prevent weight gain” (page 204)
Cancer Council recommendations for achieving a healthy body weight

- Moderate portion sizes
- Diet based on fruit, vegetables, cereals and other low fat foods

Overview

• Obesity – A National Health Priority Area
  – Prevalence
  – Direct, indirect and intangible costs to individuals and communities
  – Influences
  – Promotional campaigns

• Nutrition and Obesity
  – Recommendations
  – Energy density
  – Portion size
Energy Density

- **Fat**: 9 kcal/g
- **Alcohol**: 7 kcal/g
- **Carbohydrate**: 4 kcal/g
- **Protein**: 4 kcal/g
- **Fiber**: 1.5 – 2.5 kcal/g
- **Water**: 0 kcal/g

Energy Density and Energy Intake

Higher-Energy-Density Meal:
823 kcal

Lower-Energy-Density Meal:
643 kcal

Higher-Energy-Density Macaroni and Cheese:
2.0 kcal/gram
300 grams
600 kcal

Lower-Energy-Density Macaroni and Cheese:
1.4 kcal/gram
300 grams
420 kcal

Macaroni and Cheese


Higher-ED  Lower-ED

Food intake

grams

<table>
<thead>
<tr>
<th></th>
<th>Higher-ED</th>
<th>Lower-ED</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>a</td>
<td>b</td>
</tr>
<tr>
<td>175</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Energy intake

kcal

<table>
<thead>
<tr>
<th></th>
<th>Higher-ED</th>
<th>Lower-ED</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>a</td>
<td>b</td>
</tr>
<tr>
<td>200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25% (72 kcal)
Energy density did not affect the weight of food consumed

Energy density affected energy intake at the meal

2-Day Energy Density Study

Energy intake over 2 days was affected by energy density

Overview

• Obesity – A National Health Priority Area
  – Prevalence
  – Direct, indirect and intangible costs to individuals and communities
  – Influences
  – Promotional campaigns

• Nutrition and Obesity
  – Recommendations
  – Energy density
  – Portion size
Portion Size

Photograph courtesy of Leann L. Birch, PhD
Portion size affected energy intake

Portion size affected energy intake

Photograph courtesy of Barbara Rolls, PhD
Breakfast

Lunch

Dinner

100% portions  150% portions

+ Afternoon snack

+ Evening snack

Rolls et al. *Obesity*. 2007;15: 1535-1543

Photographs courtesy of Barbara Rolls, PhD
Portion size affected energy intake for 11 days

Rolls et al. *Obesity*. 2007;15: 1535-1543
Summary

• Obesity is a National Health Priority Area
  – High prevalence among adults and children
  – Linked with a number of diseases and conditions
  – Large economic impact
  – Many things influence development
  – Health promotion campaigns address it

• Obesity and Nutrition
  – Recommendations include paying attention to energy density and portion size
  – Energy density influences energy intake
  – Portion size influences energy intake
The CO-OPS Collaboration

- Collaborative network: >900 members
- Advice and support service
- Resources for planning, implementation and evaluation of CBI
  - Best Practice Principles
  - Evidence Summaries
- Web site
  - Resource library
  - Discussion forums
  - Project database
- Professional development: all states, in person and online and National Workshops (2008, 2009, 2010)
Thank you!

Katie Lacy, PhD
katie.lacy@deakin.edu.au