Flab: Fact and Fantasy

THE AGE

Move to Queensland
DON'T SMOKE
Exercise every day

If you're a woman, don't have a partner
Don't be a labourer, machinery operator or driver
Get to know your neighbours
Live in a small town, not a major city

Don't be poor or sales worker
DON'T BE OVERWEIGHT
It is ok to drink... more than you think
BE A WORKAHOLIC

QASM
Queensland Audit of Surgical Mortality

Nicole Hasham
Almost 450 killers, rapist offenders and other sexual offenders are being held in Australian detention centres, trigger visas that vulnerable workers are being forced with fines and things.

Do change jobs if you want a pay rise
Don't retire
Do be a manager or sales worker

If you're a man, have a partner
Live somewhere nice and quiet

EVERTHING YOU NEED TO KNOW. NEWS Pages 6-7
Fact or Fantasy?
Fact or Fantasy about Flab?

● There is more obesity in society than ever before
● More patients are dying who are obese than 10-15 years ago
● Patients who are overweight and obese have a higher surgical morbidity and mortality
● Surgical mortality rises with the degree of obesity
● Patients requiring elective surgery should be encouraged to lose many kilograms of weight
Obesity rates are rising including children
If not evolution then a by-product of development?

27% of Australians are obese
Mean BMI has increased from 24 to 28 kg/m²
WE’RE THE FAT STATE

Binge black spots revealed
The Prevalence of Obesity (BMI >30%)

People aged 18 and over who are obese

<table>
<thead>
<tr>
<th>State</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>28</td>
</tr>
<tr>
<td>Vic</td>
<td>26</td>
</tr>
<tr>
<td>QLD</td>
<td>30.9</td>
</tr>
<tr>
<td>WA</td>
<td>29.4</td>
</tr>
<tr>
<td>SA</td>
<td>29.4</td>
</tr>
<tr>
<td>Tas</td>
<td>28.5</td>
</tr>
</tbody>
</table>
How does Flab compare with Fat?
Does Obesity Influence Survival?
Does BMI affect Survival

- Lancet review of 900,000 individuals – 57 studies
- Best survival at normal weight BMI 22.5-25
- Mortality Hazard ratio 1.29 per 5kg/m²
- 40% vascular
- 60-120% diabetes, renal, hepatic
- Inverse survival with BMI <22.5 due mainly to respiratory diseases and smoking/lung cancer
- BMI 30-35 - 2-4 years less survival
- BMI > 40 assoc with 8-10 years less survival
- Morbid obesity - Comparable to smoking effect

Lancet 2009; 373: 1083–96
All Cause Mortality adjusted for age at risk, smoking
Survival with heart disease

Graph showing the accumulated survival rates over years of follow-up for different weight categories: Obesity, Overweight, Normal weight, and Low weight. The graph indicates a logarithmic range with a significance level of P=.0002.
The obesity paradox – heart failure

- Cardiac surgery outcomes better in the obese
- Heart failure: BMI is associated with survival
- 46.7% 2 year survival for low weight
- 26.7% 2 year survival for normal weight
- 16% 2 year survival for obese
What predicts risk for the obese?
BMI increases blood pressure and non-HDL Cholesterol
Metabolic syndrome

- Heart Disease
- Lipid Problems
- Hypertension
- Type 2 Diabetes
- Dementia
- Cancer
- Polysystic Ovarian Syndrome
- Non-Alcoholic Fatty Liver Disease
Metabolic Syndrome

Metabolic syndrome ( Syndrom X)

- Central obesity
- High blood pressure
- High triglycerides
- Low HDL-cholesterol
- Insulin resistance
Diagnosis of Metabolic Syndrome

**Definition of the Metabolic Syndrome**

- Dysfunctional adipose tissue
- Visceral obesity
- Insulin resistance
- Ectopic fat
- Inflammation
- Blood pressure
- Glucose

**Tools for Clinical Diagnosis of the Metabolic Syndrome**

- Waist Circumference
  - ≥102 cm in men
  - ≥88 cm in women
- Triglycerides
  - ≥1.7 mmol/L
- HDL-Cholesterol
  - <1.03 mmol/L in men
  - <1.29 mmol/L in women
- Blood Pressure
  - ≥130 mmHg
  - or
  - ≥85 mmHg
- Glucose
  - >5.6 mmol/L
Does Obesity Cause Surgical Mortality?
A Fall in the Number of Surgical Deaths over time

Figure 2 Reported deaths and surgical mortality rate per 100,000 population
Figure 9 Comorbidity status in completed cases

- Obesity
- Hepatic
- Advanced malignancy
- Diabetes
- Neurological
- Other
- Renal
- Respiratory
- Age
- Cardiovascular
- >1 Coexisting Factor

Cases with comorbidity (%)
Figure 10: Obesity as a comorbidity in cases of surgical mortality

The trend line (in red) is a visual representation of a trend over a period of time. The trend line indicates that there has been a significant increase ($P=0.00331$) in obesity as a comorbidity over the audit period.
WASSM: An increase in diabetes in surgical deaths

Figure 11 Diabetes as a comorbidity in cases of surgical mortality

The trend line (in red) is a visual representation of a trend over a period of time. The trend line indicates that there has been a significant increase ($P=1.2E^{-07}$) in diabetes as a comorbidity over the audit period.
Surge in Obesity-linked Surgery Deaths

2935 surgical deaths 2010-2014

OBESITY is contributing to an increasing proportion of deaths on the operating table

FEWER people overall are dying in hospital during operations, according to the West Australian surgical mortality audit.

Number of patients dying has risen from 2.5% of surgical deaths to 10%

This strongly suggests that lifestyle issues contribute to riskier surgery, and this observation needs to be seen against the increasing public health issue of obesity.
More Procedures, Less Perioperative Mortality

<table>
<thead>
<tr>
<th></th>
<th>2009/10</th>
<th>2010/11</th>
<th>2011/12</th>
<th>2012/13</th>
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</thead>
<tbody>
<tr>
<td>Australian Population*</td>
<td>20,931,359</td>
<td>21,229,264</td>
<td>21,605,084</td>
<td>21,992,763</td>
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<tr>
<td>Separations following surgical procedure</td>
<td>902,582</td>
<td>921,072</td>
<td>944,308</td>
<td>952,993</td>
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<tr>
<td>Procedures per 100,000</td>
<td>4312.1</td>
<td>4338.7</td>
<td>4370.8</td>
<td>4333.2</td>
</tr>
<tr>
<td>Surgical mortalities</td>
<td>3,802</td>
<td>3,618</td>
<td>3,475</td>
<td>3,395</td>
</tr>
<tr>
<td>POMR (%)</td>
<td>0.421</td>
<td>0.393</td>
<td>0.368</td>
<td>0.356</td>
</tr>
<tr>
<td>Surgical Mortality per 100,000 population</td>
<td>18.2</td>
<td>17.0</td>
<td>16.1</td>
<td>15.4</td>
</tr>
</tbody>
</table>

POMR measured as death before discharge from hospital
Source: AIHW/RACS
Perioperative Mortality – Adjusting for age and urgency
Does BMI affect surgical outcomes?
### USA: Does BMI affect Surgical Outcomes?

141,802 patients aged >16 undergoing one of 16 major procedures

<table>
<thead>
<tr>
<th>Outcome</th>
<th>&lt;18.5</th>
<th>18.5-24.9</th>
<th>25-29.9</th>
<th>30-39.9</th>
<th>&gt;=40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of pts</td>
<td>3971</td>
<td>37422</td>
<td>50,023</td>
<td>42319</td>
<td>8067</td>
</tr>
<tr>
<td>POMR</td>
<td>3.5%</td>
<td>2.00%</td>
<td>1.30%</td>
<td>1.00</td>
<td>1.10</td>
</tr>
<tr>
<td>Complications</td>
<td>18.9%</td>
<td>14.4%</td>
<td>12.4%</td>
<td>13.1%</td>
<td>16.0%</td>
</tr>
<tr>
<td>Wound comp</td>
<td>5.5%</td>
<td>5.20%</td>
<td>5.00%</td>
<td>5.90%</td>
<td>8.30%</td>
</tr>
<tr>
<td>Reintervention</td>
<td>8.30%</td>
<td>6.10%</td>
<td>5.30%</td>
<td>4.70%</td>
<td>4.90%</td>
</tr>
<tr>
<td>Readmission</td>
<td>11.8%</td>
<td>9.60%</td>
<td>8.40%</td>
<td>8.30%</td>
<td>9.00%</td>
</tr>
</tbody>
</table>

Not able to control for metabolic syndrome
Morbid pts had 3-5x thromboembolism risk after CABG, THR, pancreatectomy (2x) Prostatectomy, colectomy (1.44x)
Does Visceral Obesity affect Colorectal Outcomes?

- Meta-analysis of four studies: CT measure
- Increased risk of conversion to open
- Longer operative time
- Less lymph node harvest
- Higher morbidity (OR 2.33)
- Higher anastomotic leak rate (OR 2.40)

BMI & Abdominal Cancer Perioperative Outcomes

- 2258 patients – 753 colorectal, 554 hepatectomy, pancreatectomy 699, gastrectomy 223, oesophx 29
- Overall Morbidity increases with BMI (21% to 32.9%)
  - Specific: Wound infection significant increase (7.3 – 19%)
- Mortality Rates - reverse J shaped curve
  - 9.1% underweight (BMI < 18.5)
  - 2.0% normal weight (BMI 18.5-24.9)
  - 2.1% overweight (BMI 25-29.9)
  - 0.84% obese I (BMI 30-34.9)
  - 0.73% obese II (BMI 35-39.9)
  - 3.8% obese III (BMI >=40)

## University Hospital Geelong – Colorectal outcomes

**July 2013 to December 2014**

<table>
<thead>
<tr>
<th></th>
<th>&lt;18.5</th>
<th>18.5-24.9</th>
<th>25-29.9</th>
<th>30-39.9</th>
<th>&gt;=40</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number</strong></td>
<td>14 (3.6%)</td>
<td>131 (33%)</td>
<td>129 (33%)</td>
<td>99 (25%)</td>
<td>18 (4.6%)</td>
<td>391</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>63.9</td>
<td>66.7</td>
<td>66.3</td>
<td>66.9</td>
<td>65.3</td>
<td>66.3</td>
</tr>
<tr>
<td><strong>POMR</strong></td>
<td>1 (0.3%)</td>
<td>4 (1%)</td>
<td>5 (1.3%)</td>
<td>0</td>
<td>0</td>
<td>10 (2.6%)</td>
</tr>
<tr>
<td><strong>Leak</strong></td>
<td>0</td>
<td>6 (2.6%)</td>
<td>1 (0.4%)</td>
<td>3 (1.3%)</td>
<td>1 (0.4%)</td>
<td>11 (4.8%)</td>
</tr>
<tr>
<td><strong>Readm</strong></td>
<td>1 (0.3%)</td>
<td>9 (2.3%)</td>
<td>6 (1.53%)</td>
<td>8 (2.04%)</td>
<td>0</td>
<td>24 (6.1%)</td>
</tr>
<tr>
<td><strong>LOS</strong></td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>13.5</td>
<td>8</td>
</tr>
<tr>
<td><strong>Acute Admit</strong></td>
<td>6 (3)</td>
<td>48 (16)</td>
<td>44 (10)</td>
<td>27 (9)</td>
<td>0</td>
<td>132 (33.8%)</td>
</tr>
<tr>
<td><strong>Elective</strong></td>
<td>8 (1)</td>
<td>83 (17)</td>
<td>85 (23)</td>
<td>72 (9)</td>
<td>11 (4)</td>
<td>259 (66.24%)</td>
</tr>
</tbody>
</table>

Leak defined as requiring return to theatre for leak – 288 patients with anastomosis
Age and LOS – Median values
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- Patients who are overweight and obese have a higher surgical morbidity and mortality
- Surgical mortality rises with the degree of obesity
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Prehab – The role of Exercise before Surgery

Improving Cardiovascular fitness
Losing even a small amount of weight is beneficial
RACS Advocacy - Obesity

- Position Papers:
  - Reducing the burden of obesity – Health Advocacy
  - Implications of obesity on non-bariatric surgery

- Key Committees:
  - Governance & Advocacy Committee
  - Upper GI, HPB & Obesity Surg Section
  - Professional Standards
  - Regional Committees & NZNB

- Advocacy
  - Equity of Access to Bariatric Surgery
  - Fees for surgery should be fair and reasonable