Any approach to weight loss?

Lose weight fast!
Fed up of dieting and exercise?
Incredible results guaranteed!
Try amoebic dysentery!
Vials available: £20. Simply add to seafood.
Call 020 7306 8044 (shouldn’t, but may cause fatality)
Extensively clinically evaluated

Efficacy

- Fat loss
- Heart health benefits
- Reduces glucose and insulin levels
- Improves vitamin/mineral status

Safety

- Bone
- Renal
- Liver
- Nutritionally balanced
## Research origins – Role of Proteins

<table>
<thead>
<tr>
<th>Year</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2005-11</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>•CSIRO</td>
<td>•Co-funded</td>
<td>•Co-funded</td>
<td>•Sponsored</td>
<td>•Sponsored</td>
<td>•Sponsored</td>
</tr>
<tr>
<td></td>
<td>•Co-funded</td>
<td>•Sponsored</td>
<td>•Co-funded</td>
<td>•Sponsored</td>
<td>•Co-funded</td>
<td>•CSIRO X4</td>
</tr>
</tbody>
</table>

- Dairy Australia
- Meat & Livestock Australia
- Goodman Fielder
- National Heart Foundation
- National Centre of Excellence in Functional Foods
- National Health and Medical Research Council
- Diabetes Australia Research Trust
- Australian Egg Corporation LTD
- University of Adelaide
- Pork CRC
Protein Enhances Satiety

Increased Satiety

Protein

Fat Carbohydrate
High Protein Diets in Energy Restriction

- **enhances weight loss**
  (Skov et al. 1999; Baba et al. 1999, layman 2003)

- **promotes favourable changes in body composition**
  (Skov et al. 1999; Laymen et al. 2003; Parker et al. 2002, Noakes 2005)

- **beneficial effects on heart disease risk factors**
  - insulin sensitivity  (Baba et al. 1999; Layman  2003; Piatti et al. 1994)
  - glucose/insulin profiles  (Farnsworth et al. 2003, Gannon et al 2003)
High protein moderate carb patterns for weight loss improve fat loss and triglyceride reduction in people with high triglycerides.
Abdominal Fat Mass

Change in Abdominal Fat Mass

1 Significant diet X time interaction \( P = 0.02 \)

HP \(-0.76 \pm 0.38 \) kg vs HC, \(-0.56 \pm 0.36 \) kg
Glucose Response to Test Meals

Time (min)

Glucose (mMol/l)

Diet effect p = 0.020

High Protein

High carb

Farnsworth et al AJCN 2003
Insulin Response to Test Meals

Diet effect $p < 0.05$

Farnsworth et al. AJCN 2003
High Protein Diet using Partial Meal Replacements in Type 2 Diabetes

Results at 12 weeks

9% weight loss
- waist circumference (9%)
- blood pressure (7.8/3.9 mmHg)
- fasting glucose (21%)
- HbA1c (16%)
- insulin resistance (48%)
- triglyceride (34%)
- total cholesterol (10%)
- LDL-cholesterol (8%)
- oxidative stress - MDA (26%)

NO change in endothelial function (FMD)

Traditional cardiovascular risk factors

<table>
<thead>
<tr>
<th>5.5MJ</th>
<th>Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>104g</td>
<td>Fat</td>
</tr>
<tr>
<td>25g</td>
<td>Carbohydrate</td>
</tr>
<tr>
<td>114g</td>
<td>Fibre</td>
</tr>
</tbody>
</table>

5.5MJ 104g 25g 114g 28g
Key features

- higher protein
- daily self monitoring
- structured eating plan
- extensive suggestions
- for menus and recipes
- encourages exercise

TWD is NOT the only approach to weight management but represents a scientifically supported option
The CSIRO Total Wellbeing Diet Book 1: sociodemographic differences and impact on weight loss and well-being in Australia

Belinda Wyld*, Adam Harrison and Manny Noakes
Commonwealth Scientific Industrial Research Organization, Food and Nutritional Sciences, PO Box 10041, Adelaide BC, South Australia, Australia

Submitted 29 October 2009: Accepted 23 February 2010

Abstract

Objective: The CSIRO Total Wellbeing Diet (TWD) publication is an evidence-based weight management strategy utilising a structured higher protein diet as part of a nutritionally balanced lifestyle programme. Despite its popularity, the impact of TWD on weight status, weight loss and food choices of Australians was unknown.

Design: An independent representative survey was conducted in 2006. Socio-demographic differences in awareness, use of TWD and the impact on weight status and well-being were investigated via computer-aided telephone interviews and web-based surveys.

Setting: Australia.

Subjects: A total of 5026 men and women aged 18-60 years.

Results: Consumers were highly aware of TWD (66%) with personal use reported by 7.5% of the total sample (n 5026). An additional 2.5% (126 people) were members of a household that used TWD. In all, 80% of TWD purchasers actively used the eating plan with approximately 3.8% losing an average self-reported weight loss of 5.7 kg (SD = 6.6 kg; range = 3-13 kg). Results showed that awareness was greatest among women (73±70% v. 58±27%), those over 50 years of age (69±39% v. 62±88%) with no children in the household (69±00% v. 64±88%), tertiary educated people (72±58% v. 63±22%) and those with more previous weight loss attempts (79±66% v. 70±21%). Logistic regression was unable to predict an identifiable sociodemographic profile of TWD users.

Conclusions: The present study shows widespread uptake of TWD in Australia with few sociodemographic differences. Self-reported increased awareness of nutrition and well-being as well as weight loss indicates that TWD has been a successful delivery mechanism for lifestyle advice.
Key Foods on CSIRO Diet

PROTEIN FOODS
DAIRY FOODS,
- 3 serves per day
MEAT/CHICKEN/FISH
- 200g dinner
CHICKEN/FISH/EGGS
- up to 100g/day at lunch

WHOLEGRAIN BREAD
- 2 slices per day
HIGH-FIBRE CEREAL
- 1 serve per day
FRESH FRUIT
- 2 serves per day
VEGETABLES
- at least 2.5 cups per day
OIL/MARG
- 3 teaspoons per day

INDULGENCE FOODS eg alcohol
- 2-4 times per week
Maximum Nutrition during Weight Loss

Nutrient density of a typical higher protein weight reducing diet (based on CSIRO study 12)
Volume of Books Sold Weekly

No 1  19/52 weeks
Top 10  50/52 weeks

Total sold in Australia
>1,000,000
Objectives of the study:

To see how TWD has contributed to CSIRO’s aim to aid in a positive change to Australian eating culture and consumer nutrition. Specifically to answer questions such as:

- Are people aware of the TWD? How did they find out about it?
- Do they use the book? In what ways?
- Has the book changed their behaviour in any way and how?
Methodology

- Representative population survey outsourced to external agency (Inside Story) conducted September 2006 (pre book 2 launch)
- telephone
- online

Data weighted to population in line with ABS statistics.

Data from the online sample is similar to that of the telephone survey.

<table>
<thead>
<tr>
<th></th>
<th>Telephone 10 minutes</th>
<th>Online 15 minutes</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro</td>
<td>702</td>
<td>2824</td>
<td>3526</td>
</tr>
<tr>
<td>Regional</td>
<td>298</td>
<td>1202</td>
<td>1500</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1000</td>
<td>4026</td>
<td>5026</td>
</tr>
</tbody>
</table>
Awareness is high – messages about TWD have reached two thirds of the population ... including those not concerned with their weight.

Overall those aware are likely to be female, 60+ or interested in losing weight. However, even those that are not concerned with losing weight have high awareness. All demographics have awareness over 50%.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Age</th>
<th>Current attitude towards weight loss</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Male</td>
</tr>
<tr>
<td>Aware</td>
<td>65%</td>
<td>57%</td>
</tr>
<tr>
<td>Aware think so, 23%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not aware, 35%</td>
<td>N=5026</td>
<td></td>
</tr>
</tbody>
</table>

Aware: definitely, 41%
Q18. Since using TWD, what have been the effects or changes you've noticed on the following factors in your life?

- **Attitude to health and wellbeing**
  - Worsened: 21%
  - No change: 28%
  - Improved a little: 16%
  - Improved a lot: 43%

- **Weight**
  - Worsened: 26%
  - No change: 16%
  - Improved a little: 48%

- **Overall health**
  - Worsened: 27%
  - No change: 18%
  - Improved a little: 45%

- **Energy level**
  - Worsened: 30%
  - No change: 22%
  - Improved a lot: 39%

- **Concern about health**
  - Worsened: 33%
  - No change: 20%
  - Improved a lot: 37%

- **Overall fitness**
  - Worsened: 33%
  - No change: 16%
  - Improved a lot: 41%

**n = 504**
Can you please tell me your impressions of CSIRO TWD?

- **Eating plan for overall wellbeing**
  - Don't know: 4%
  - Not really: 25%
  - Definitely: 60%
  - 10%

- **Healthy way of eating**
  - Don't know: 4%
  - Not really: 26%
  - Definitely: 60%
  - 10%

- **Long term lifestyle pattern**
  - Sort of: 6%
  - Definitely: 26%
  - 54%
  - 14%

- **Weight loss diet**
  - Don't know: 13%
  - Not really: 40%
  - Definitely: 35%
  - 12%

- **Eating plan I trust**
  - Sort of: 11%
  - Definitely: 37%
  - 28%
  - 24%

- **Protein based diet**
  - Don't know: 15%
  - Not really: 21%
  - Definitely: 19%
  - 45%

- **Meat based diet**
  - Don't know: 29%
  - West: 22%
  - 14%
  - 35%

- **Low carb diet**
  - Don't know: 18%
  - Centrats: 21%
  - 13%
  - 47%

n = 3326 - all aware
Q16b. Approximately how much weight have you lost since using TWD?

Average amount of weight lost: 6.1kg (conservative estimate)
What effects has TWD had?

- **Attitude to health and wellbeing**
  - No change: 21%
  - Improved a little: 28%
  - Improved a lot: 43%

- **Weight**
  - No change: 26%
  - Improved a little: 16%
  - Improved a lot: 48%

- **Overall health**
  - No change: 27%
  - Improved a little: 18%
  - Improved a lot: 45%

- **Energy level**
  - No change: 30%
  - Improved a little: 22%
  - Improved a lot: 39%

- **Concern about health**
  - No change: 33%
  - Improved a little: 20%
  - Improved a lot: 37%

- **Overall fitness**
  - No change: 33%
  - Improved a little: 16%
  - Improved a lot: 41%

n = 504
Q18. Since using TWD, what have been the effects of changes you've noticed on the following factors in your life?

**General confidence**
- No change: 48%
- Improved a little: 13%
- Improved a lot: 30%

**Efficiency/effectiveness at work or home**
- No change: 49%
- Improved a little: 12%
- Improved a lot: 29%

**Attractiveness**
- No change: 55%
- Improved a little: 9%
- Improved a lot: 23%

**Attention from others**
- No change: 58%
- Improved a little: 10%
- Improved a lot: 21%

**Assertiveness**
- No change: 58%
- Improved a little: 8%
- Improved a lot: 22%

**Other peoples perception**
- No change: 55%
- Improved a little: 8%
- Improved a lot: 22%

**Social life**
- No change: 65%
- Improved a little: 8%
- Improved a lot: 17%

*Positive result*

n = 504
Q18. Since using TWD, what have been the effects of changes you've noticed on the following factors in your life?

<table>
<thead>
<tr>
<th>Factor</th>
<th>Worsened</th>
<th>No change</th>
<th>Improved a little</th>
<th>Improved a lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Mood</td>
<td>45%</td>
<td>15%</td>
<td>31%</td>
<td></td>
</tr>
<tr>
<td>Stress level</td>
<td>52%</td>
<td>9%</td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td>Comfort at family gatherings</td>
<td>60%</td>
<td>7%</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Anxiety levels</td>
<td>57%</td>
<td>8%</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>Comfort in social situations with strangers</td>
<td>63%</td>
<td>8%</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>57%</td>
<td>8%</td>
<td>15%</td>
<td></td>
</tr>
</tbody>
</table>

n = 504
Q18 Since using TWD, what have been the effects of changes you’ve noticed on the following factors in your life?

- **Physical body image**
  - Worsened: 40%
  - No change: 14%
  - Improved a little: 36%

- **Physical presence**
  - Worsened: 45%
  - No change: 12%
  - Improved a lot: 32%

- **Physical strength**
  - Worsened: 47%
  - No change: 12%
  - Improved a little: 29%

- **Cholesterol level**
  - Worsened: 42%
  - No change: 9%
  - Improved a lot: 20%

- **Blood pressure**
  - Worsened: 49%
  - No change: 8%
  - Improved a lot: 18%

- **Glucose level**
  - Worsened: 43%
  - No change: 6%
  - Improved a lot: 17%

- **Reduced regular medication**
  - Worsened: 62%
  - No change: 7%
  - Improved a lot: 10%
The biggest change to people’s lives

- More conscious of healthy eating: 18%
- Drink more water: 9%
- Eat less bread, rice and/or pasta: 8%
- Eat more fish: 8%
- Use recipes from the book: 8%
- Cook more at home: 7%
- Have lost weight: 6%
- Increased my level of physical activity: 6%
- Eat less junk food: 5%
- Eat less fatty foods: 4%
- Eat more vegetables: 4%
- Eat more regular meals: 3%
- Eat less sugar: 3%
- Snack less between meals: 2%
- Eat more fruit: 2%
- Eat more meat: 2%
- Drink less alcohol: 2%
- Eat more low fat dairy foods: 1%

n = 349
Q17. And what is the biggest change you have made as a result of TWD?
Other changes to people’s lives

<table>
<thead>
<tr>
<th>Change</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>More conscious of eating healthy foods</td>
<td>57%</td>
</tr>
<tr>
<td>Drink more water</td>
<td>55%</td>
</tr>
<tr>
<td>Eat more vegetables</td>
<td>52%</td>
</tr>
<tr>
<td>Eat less junk food</td>
<td>50%</td>
</tr>
<tr>
<td>Eat less fatty foods</td>
<td>49%</td>
</tr>
<tr>
<td>Use recipes from the book</td>
<td>48%</td>
</tr>
<tr>
<td>Eat more fish</td>
<td>43%</td>
</tr>
<tr>
<td>Eat more fruit</td>
<td>43%</td>
</tr>
<tr>
<td>Cook more at home</td>
<td>43%</td>
</tr>
<tr>
<td>Increased my level of physical activity</td>
<td>42%</td>
</tr>
<tr>
<td>Eat less sugar</td>
<td>41%</td>
</tr>
<tr>
<td>Have lost weight</td>
<td>39%</td>
</tr>
<tr>
<td>Eat less bread, rice and/or pasta</td>
<td>37%</td>
</tr>
<tr>
<td>Eat more low fat dairy foods</td>
<td>36%</td>
</tr>
<tr>
<td>Snack less between meals</td>
<td>36%</td>
</tr>
<tr>
<td>Eat more regular meals</td>
<td>35%</td>
</tr>
<tr>
<td>Eat more meat</td>
<td>27%</td>
</tr>
<tr>
<td>Drink less alcohol</td>
<td>25%</td>
</tr>
</tbody>
</table>

Over a third have lost weight. This represents 4% of the total sample i.e. all Australians. This group are more likely to be made up of those trying to lose weight and those in regional areas.
Projected impacts of TWD

CSIRO Total Wellbeing Diet- has sold over 1 million copies

Over 500,000 people projected to have lost 6 kg average

Estimated health cost savings $43m per annum assuming weight loss maintenance.

1 in 6 adult Australians have impaired glucose regulation

A 4kg weight loss can prevent the development of type 2 diabetes in 60% of susceptible people after 4 years

Estimated that TWD could have delayed or prevented type 2 diabetes conservatively in 25,000 people.
Next Steps....