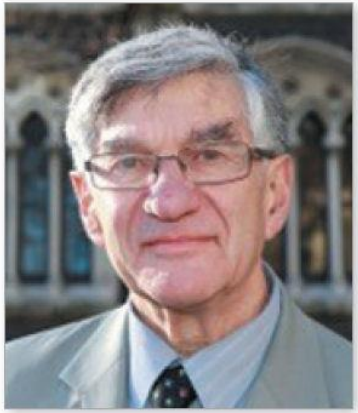


Professor Jim Mann

Professor in Human Nutrition and Medicine
University of Otago
Dunedin

Saturday, August 10, 2019

(Room 8)

11:00 - 11:55 WS #91: Fads and Facts in the Treatment and Prevention of Obesity
12:05 - 13:00 WS #101: Fads and Facts in the Treatment and Prevention of Obesity (Repeated)

Fads & Facts
in the treatment & prevention of obesity

Jim Mann

WHO Collaborating Centre for Human Nutrition

EDGAR DIABETES & OBESITY RESEARCH
A UNIVERSITY OF OTAGO RESEARCH CENTRE

Riddet Institute
FOOD | INNOVATION | HEALTH

The New Zealand - China Non-Communicable Diseases Research Collaboration Centre
新西兰-中国非传染性疾病研究合作中心

National Science Challenges
HEALTHIER LIVES
He Oranga Hauora

MINISTRY OF HEALTH
MANATŪ HAUORA

New Zealand Government

Eating and Activity Guidelines

for New Zealand Adults

Released 2015

health.govt.nz

Eating Statements

1 Enjoy a variety of nutritious foods every day including:

plenty of vegetables and fruit

grain foods, mostly whole grain and those naturally high in fibre

some milk and milk products, mostly low and reduced fat

some legumes*, nuts, seeds, fish and other seafood, eggs, poultry (eg, chicken) and/or red meat with the fat removed.

* Legumes include lentils, split peas, chickpeas and cooked dried beans (eg, kidney beans, baked beans).

Eating and Activity Guidelines. Ministry of Health, 2015

Body Weight Statement

Making good choices about what you eat and drink and being physically active are also important to achieve and maintain a healthy body weight.

Being a healthy weight:

- helps you to stay active and well
- reduces your risk of developing type 2 diabetes, heart disease and some cancers.

If you are struggling to maintain a healthy weight, see your doctor and/or your community health care provider.

Eating and Activity Guidelines. Ministry of Health, 2015

CHO:	45 – 60% TE	
FAT:	25 – 40% TE	(<10% SFA)
PROTEIN:	10 – 20%	
FIBRE:	>30g/d	

MINISTRY OF HEALTH
MANATŪ HAUORA

New Zealand Government

Clinical Guidelines for Weight Management in New Zealand Adults

Released 2017

health.govt.nz

Current dietary approaches

Low carb	<40% TE CHO
Very low carb	<20% TE CHO, <30g
High protein	>35% TE protein
Low fat	<10% TE fat
High carb	>65% TE CHO
Ketogenic	
Mediterranean	
DASH	
Vegetarian	
Low GI/load	
Intermittent fasting (5 -2) Commercial weight programmes	

Research

Original Investigation

Comparison of Weight Loss Among Named Diet Programs in Overweight and Obese Adults

A Meta-analysis

Johnston et al, *Jama* 2014; 312 (9): 923-933

Difference in mean weight loss across diets with 95% credible intervals (Johnston et al)

6-mo Weight loss, kg	12- mo Weight Loss, kg						
No diet	4.10	4.51	7.19	6.35	5.95	5.90	6.55
6.02	LEARN	0.41	3.08	2.27	1.85	1.79	2.45
7.67	1.65	Moderate macronutrient	2.69	1.86	1.45	1.40	2.04
8.26	2.25	0.59	Low fat	−0.83	−1.23	−1.28	−0.64
10.14	4.13	2.48	1.88	Atkins	−0.42	−0.45	0.19
8.44	2.42	0.77	0.17	−1.71	Zone	−0.05	0.60
7.26	1.24	−0.41	−0.99	−2.88	−1.17	Weight Watchers	0.65
9.03	3.02	1.36	0.77	−1.12	0.59	1.77	Ornish

Long-Term Effects of a Novel Continuous Remote Care Intervention Including Nutritional Ketosis for the Management of Type 2 Diabetes: A 2-Year Non-randomized Clinical Trial

Athinarayanan et al, 2019; *Front.Endocrinol.* 10:348

	Baseline		1 Year		2 Years	
	CCI	UC	CCI	UC	CCI	UC
Weight (kg)	114	111	-14	-0.6	-11	-1
HbA_{1c} (%)	7.7	7.5	-1.3	+0.2	-1.0	+0.4
Remission of diabetes at 2 years					17.6%	0

Source: Athinarayanan et al, 2019; *Front.Endocrinol.* 10:348

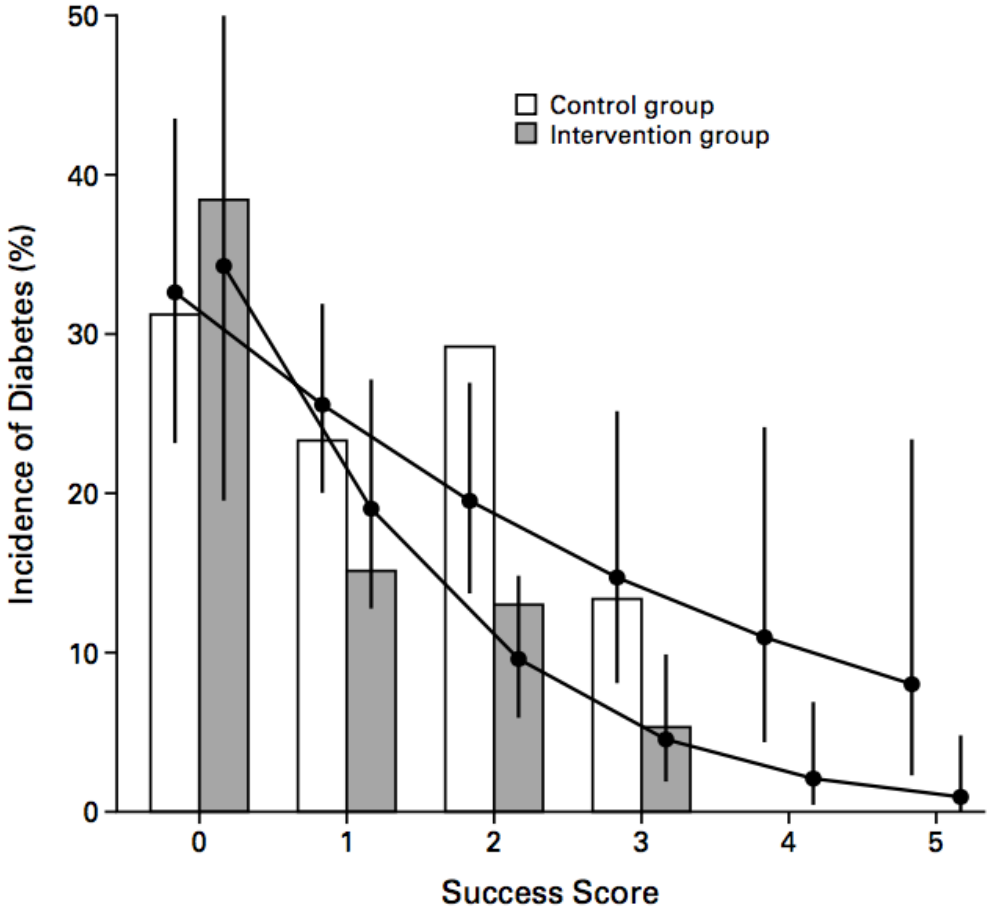
PREVENTION OF TYPE 2 DIABETES MELLITUS BY CHANGES IN LIFESTYLE AMONG SUBJECTS WITH IMPAIRED GLUCOSE TOLERANCE

JAAKKO TUOMILEHTO, M.D., PH.D., JAANA LINDSTRÖM, M.S., JOHAN G. ERIKSSON, M.D., PH.D., TIMO T. VALLE, M.D., HELENA HÄMÄLÄINEN, M.D., PH.D., PIRJO ILANNE-PARIKKA, M.D., SIRKKA KEINÄNEN-KIUKAANNIEMI, M.D., PH.D., MAURI LAAKSO, M.D., ANNE LOUHERANTA, M.S., MERJA RASTAS, M.S., VIRPI SALMINEN, M.S., AND MATTI UUSITUPA, M.D., PH.D., FOR THE FINNISH DIABETES PREVENTION STUDY GROUP

Weight reduction	≥ 5%
Moderate intensity physical activity	≥ 30 m/day
Dietary fat	< 30% TE
Dietary saturated fat	< 10% TE
Dietary fibre	≥ 15g/1000kcal

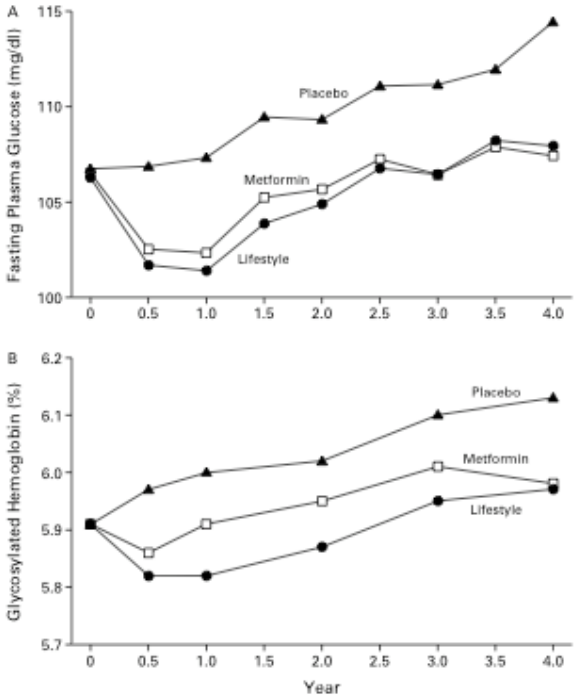
Source: Tuomilehto et al, *N ENGL J Med,* 2001

Finnish Diabetes Prevention Study: Incidence of diabetes during follow-up



Lifestyle interventions more effective than drugs

Diabetes Prevention Program



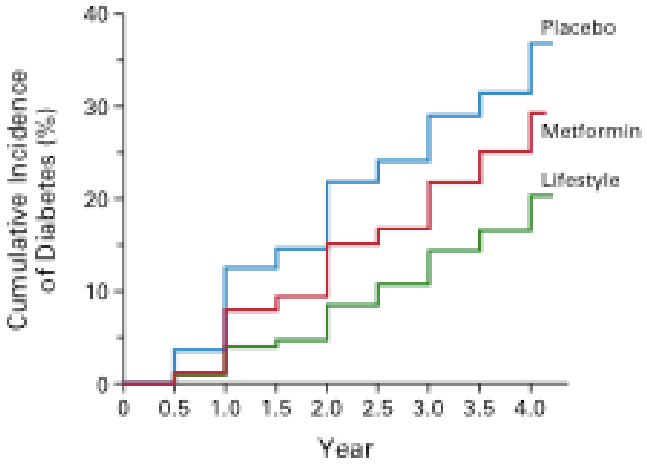


Figure 2. Cumulative Incidence of Diabetes According to Study Group.

The diagnosis of diabetes was based on the criteria of the American Diabetes Association.[13] The incidence of diabetes differed significantly among the three groups ($P<0.001$ for each comparison).

Knowler et al, 2002;*N Engl J Med*

Intermittent Fasting: 5:2 method

- Usually limit energy intake to ~25% of usual on 2 days/week
- Usually 500 kcal for women/600 kcal for men
- Can self-select days, consecutive or non-consecutive, eat ‘normally’ on other days (but should recommend healthy diet)

- Fasting days:
  - may choose the number and composition of the meals within their fasting periods
  - meals rich in protein and low carbohydrate vegetables recommended for satiety eg soups, salads
  - some choose meal replacement options for convenience

Evidence

- Leads to similar weight and metabolic outcomes as continuous energy restriction in RCTs
  - most trials have dietetic support and may supply food
  - may not be representative of real-world experience

- Advocates suggest adherence easier for some people as more flexibility in diet possible on non-fasting days
- Long term studies have quite modest outcomes
  - not superior to other diets for weight-loss

- Trials generally have quite high attrition rates
  - adverse effects reported (bad breath, constipation)

The DiRECT diabetes remission interv as presented at IDF 201

COUNTERweight®
The Leaders in Evidence Based Weight Management

COUNTERweight®-PLUS

A non surgical weight management solution for:

- People who want to achieve remission of Type 2 Diabetes (T2D)

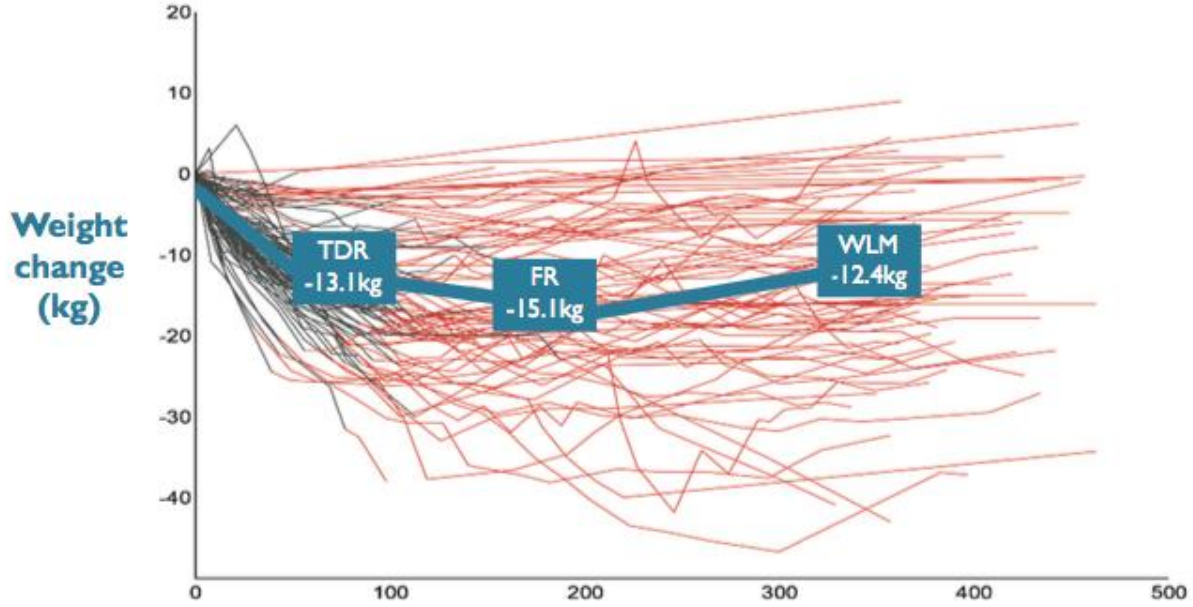
AND

- Individuals with greater weight loss needs but cannot or will not access bariatric surgery

Aim >15kg / 10% loss

Information for Professionals

Trajectories of weight changes of all patients who started Counterweight-Plus (feasibility study)



Black lines = TDR phase

Red lines = FR and WLM

Blue boxes = mean loss by programme phase

SCREENING

One appointment, to check entry criteria

TOTAL DIET REPLACEMENT

(12 Weeks)

Total Diet Replacement (shakes and soups)

810+ calories per day (**Counterweight PRO800**)

Seven appointments (weekly or two weekly)

*if weight target not reached practitioners can offer shakes/soups for up to 20 weeks

FOOD REINTRODUCTION

(12 Weeks)

Gradual introduction of portion-controlled balanced meals

Total Diet Replacement reduced as meals are introduced

Option to take weight loss medication

Six appointments (two weekly)

WEIGHT LOSS MAINTENANCE

(6 months)*

All nutrition from food and drink

Focus on maintaining lifestyle changes and preventing regain

Option to take weight loss medication

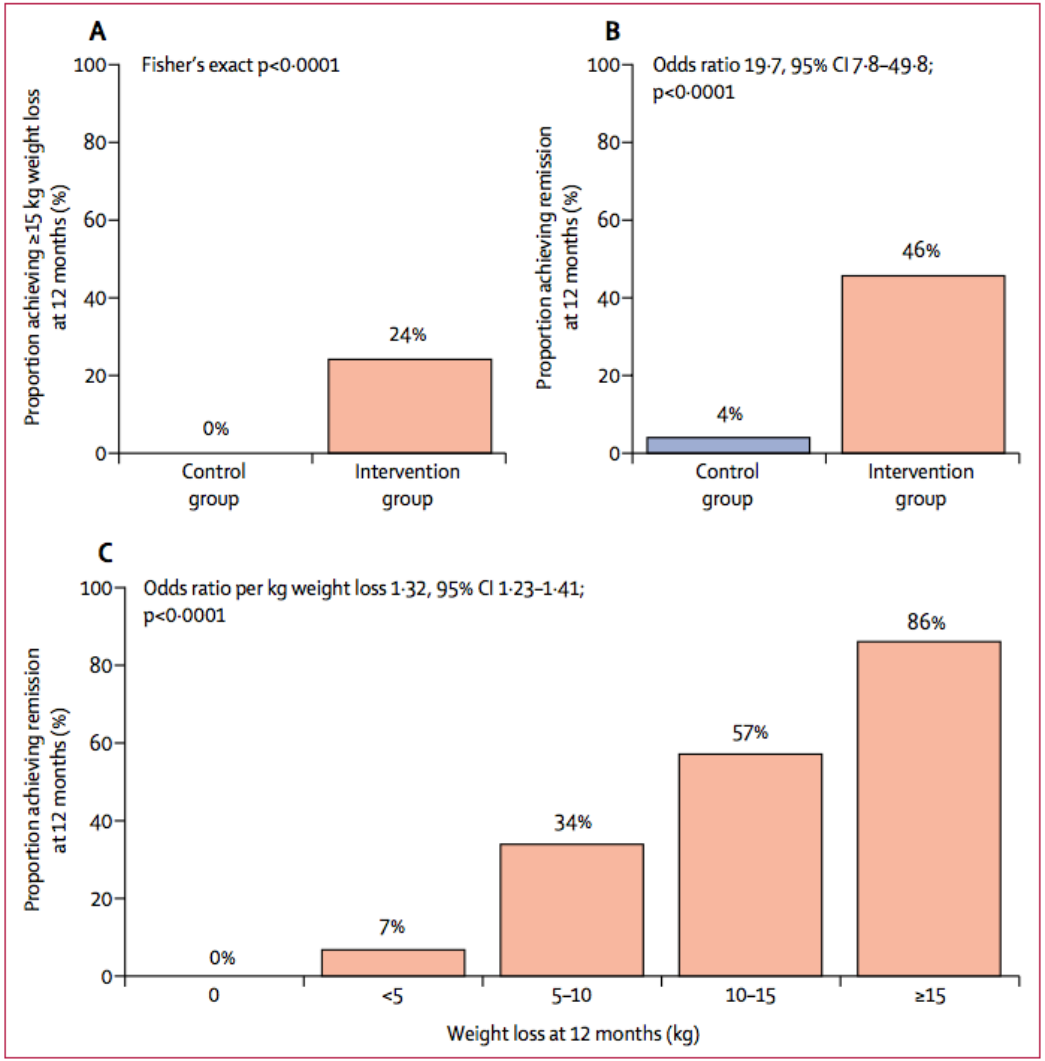
Six - eighteen appointments (monthly)*

* *Depending on local services, monthly appointments are recommended for ongoing support for Year 2 of the programme. However, this is optional.*

The programme can be delivered one to one or in groups and using a mixture of face to face and remote support.

Primary care-led weight management for remission of type 2 diabetes (DiRECT): an open-label, cluster-randomised trial

Lean et al, *Lancet 2018*; 391: 541-51



Primary outcomes & remission of diabetes in relation to weight loss at 12 months

Lean et al, *Lancet 2018*; 391: 541-51

Other strategic issues

* Physical Activity

* Behavioural stratagies

 * Maintenance of weight loss

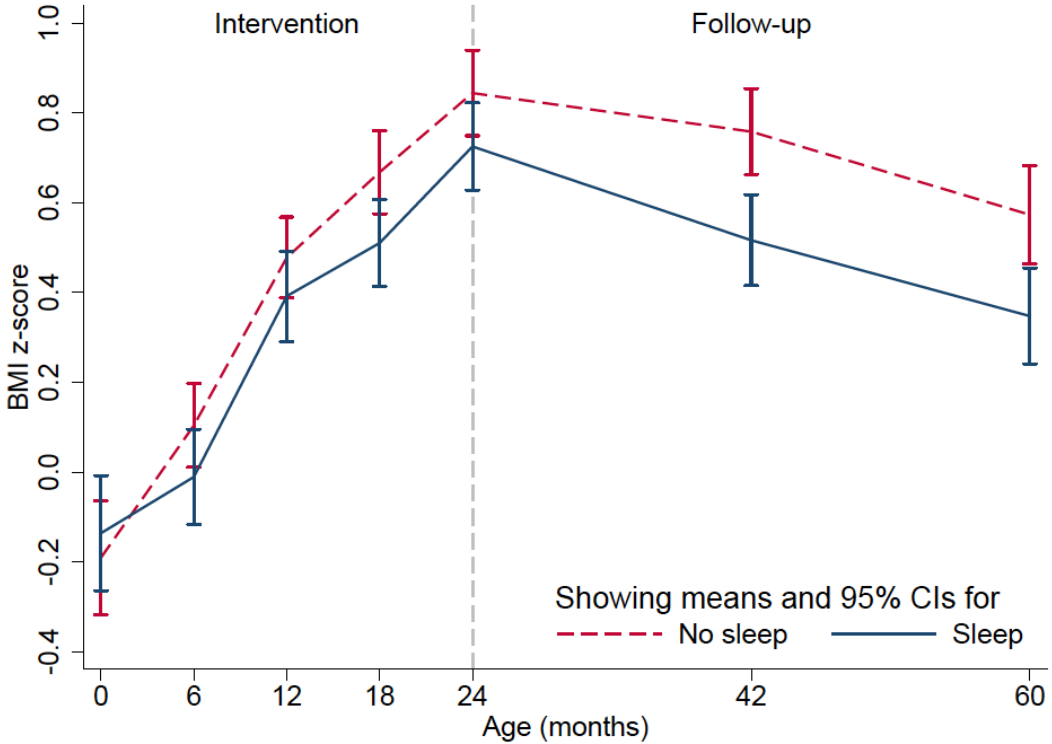
 * Realistic targets

 * Sleep

All meta-analyses have shown higher odds of obesity in those with short sleep

• Cappuccio, 2008	**1.89 (1.46, 2.35)**	
• Chen, 2008	**1.58 (1.26, 1.98)**	
• Ruan, 2015	**1.76 (1.9, 2.23)**	
• Fatima, 2016	**2.15 (1.64, 2.81)**	**OR (95%CI)**
• Wu, 2017	**1.71 (1.36, 2.14)**	
• Li, 2017	**1.45 (1.14, 1.85)**	
• Miller, 2018	**1.58 (1.35, 1.85)**	

A brief sleep intervention in infancy had long-term effects on BMI



AJCN 2018;108:228

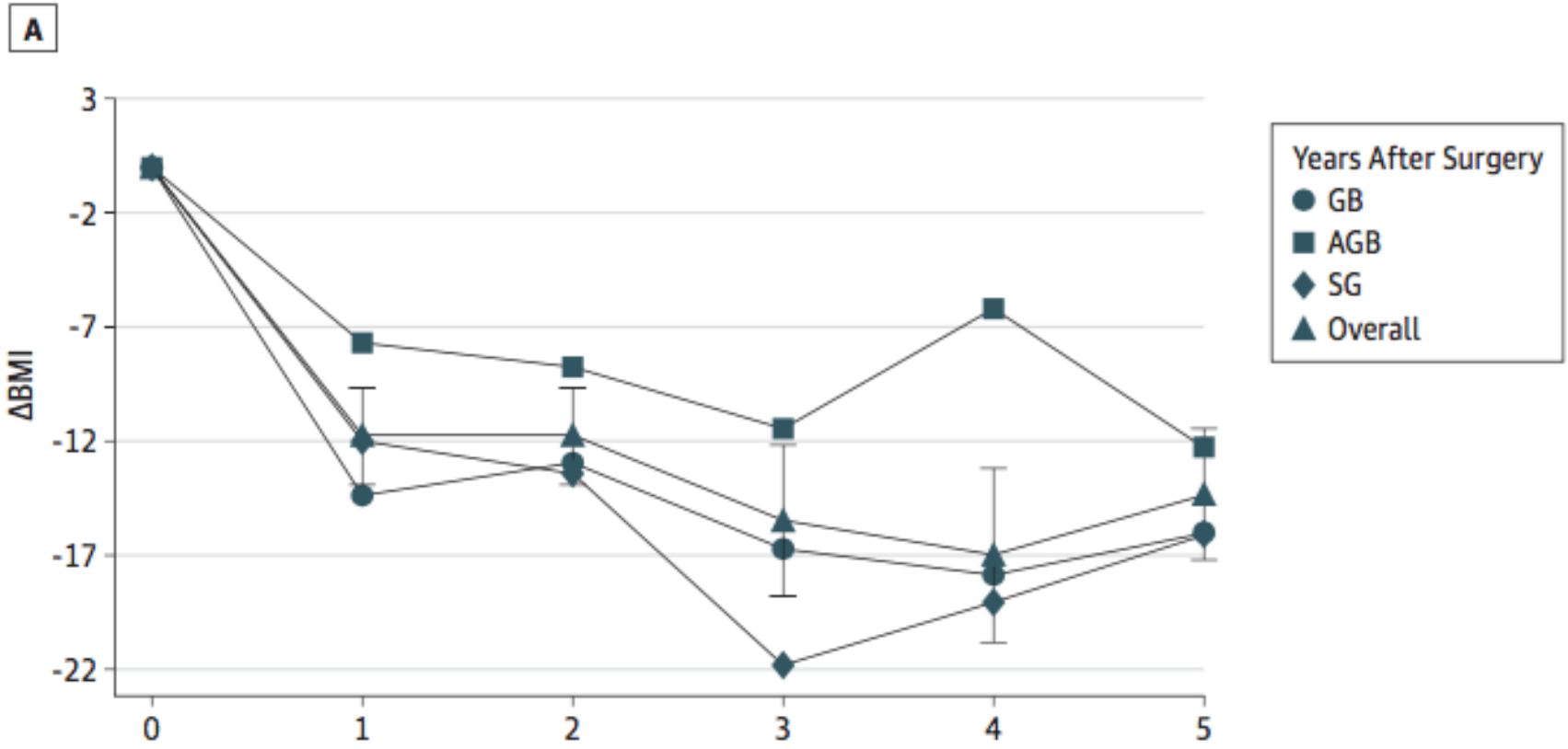
Risk of obesity at 5 years of age was halved in children who had received the sleep intervention

	Sleep	No sleep	OR (95% CI)
Prevalence (%)	5.4	10.1	0.49 (0.28, 0.84)
	FAB	No FAB	
Prevalence (%)	10.2	5.5	1.52 (0.91, 2.55)

poi nz

Taylor *et al*. AJCN 2018;228

Metaanalysis of body mass index change after surgery



Source: Chang et al, 2014; *Jama Surg* 149(3): 275-287

Ministry of Health targets for Bariatric surgery:

Consider publicly funded Bariatric surgery for people:

- with a weight of less than 160kg and a BMI of less than 55kg/m^2
- With a BMI of greater than 35kg/m^2 with medical co-morbidities (eg, diabetes, sleep apnoea,hypertension,hypercholesterolaemia, infertility or arthritis
- with a stable adult life pattern and strong social supports
- Without substance (including nicotine) addiction
- who are willing to accept life-long medical surveillance

Source: Clinical Guidelines for Weight Management in NZ Adults, Ministry of Health 2017

The Diabesity Crisis

Jim Mann, Rachael Taylor, Wayne Cutfield

***NZMJ* 2017, Vol 130 No 1459**

- A tax on sugar-sweetened beverages (SSBs)
- A government-led code for food advertising
- An enforceable healthy school food policy
- Review of eligibility criteria for bariatric surgery
- Clear recommendations regarding the role of sleep in obesity prevention

Eating Statements

2 Choose and/or prepare foods and drinks:

with unsaturated fats (canola, olive, rice bran or vegetable oil, or margarine) instead of saturated fats (butter, cream, lard, dripping, coconut oil)

that are low in salt (sodium); if using salt, choose iodised salt

with little or no added sugar

that are mostly 'whole' and less processed.

Eating and Activity Guidelines. Ministry of Health, 2015

Eating Statements

3 Make plain water your first choice over other drinks.

4 If you drink alcohol, keep your intake low. Stop drinking alcohol if you could be pregnant, are pregnant or are trying to get pregnant.

5 Buy or gather, prepare, cook and store food in ways that keep it safe to eat.

Eating and Activity Guidelines. Ministry of Health, 2015

Activity Statements

1 **Sit less, move more! Break up long periods of sitting.**

2 **Do at least 2½ hours of moderate or 1¼ hours of vigorous physical activity spread throughout the week.**

3 **For extra health benefits, aim for 5 hours of moderate or 2½ hours of vigorous physical activity spread throughout the week.**

4 **Do muscle strengthening activities on at least two days each week.**

5 **Doing some physical activity is better than doing none.**

Eating and Activity Guidelines. Ministry of Health, 2015