

PatrickHOLFORD

100% health for life

**Is controlling insulin the key to
weight control?**

Most people gain 3.35lbs a year

D. Mozafarrian, New England Journal of Medicine, 2011; C. Ogden et al., JAMA 2014

- ▶ The more crisps, potatoes, sugar-sweetened drinks, unprocessed and processed meat you eat the more you gain.
- ▶ The more vegetables, fruits, wholegrains, nuts and yoghurt you eat the less you gain.
- ▶ The more you sleep and drink the more you gain.
- ▶ The more you exercise the less you gain.

**1 in 3 adults and 1 in 5 children
are obese in the US**

1 in 2 overweight by age 50

Our diet has changed

- ▶ Our diet is continuously drifting further away from what our genes once handled well

	The Stone Age	Today
▶ Proteins	34%	13%
▶ Fat	21%	35%
▶ Sugar	0%	14%
▶ Carbs	45%	52%
▶ Fibre	46g	21g/day
▶ Salt	1.7g	approx. 10g/day



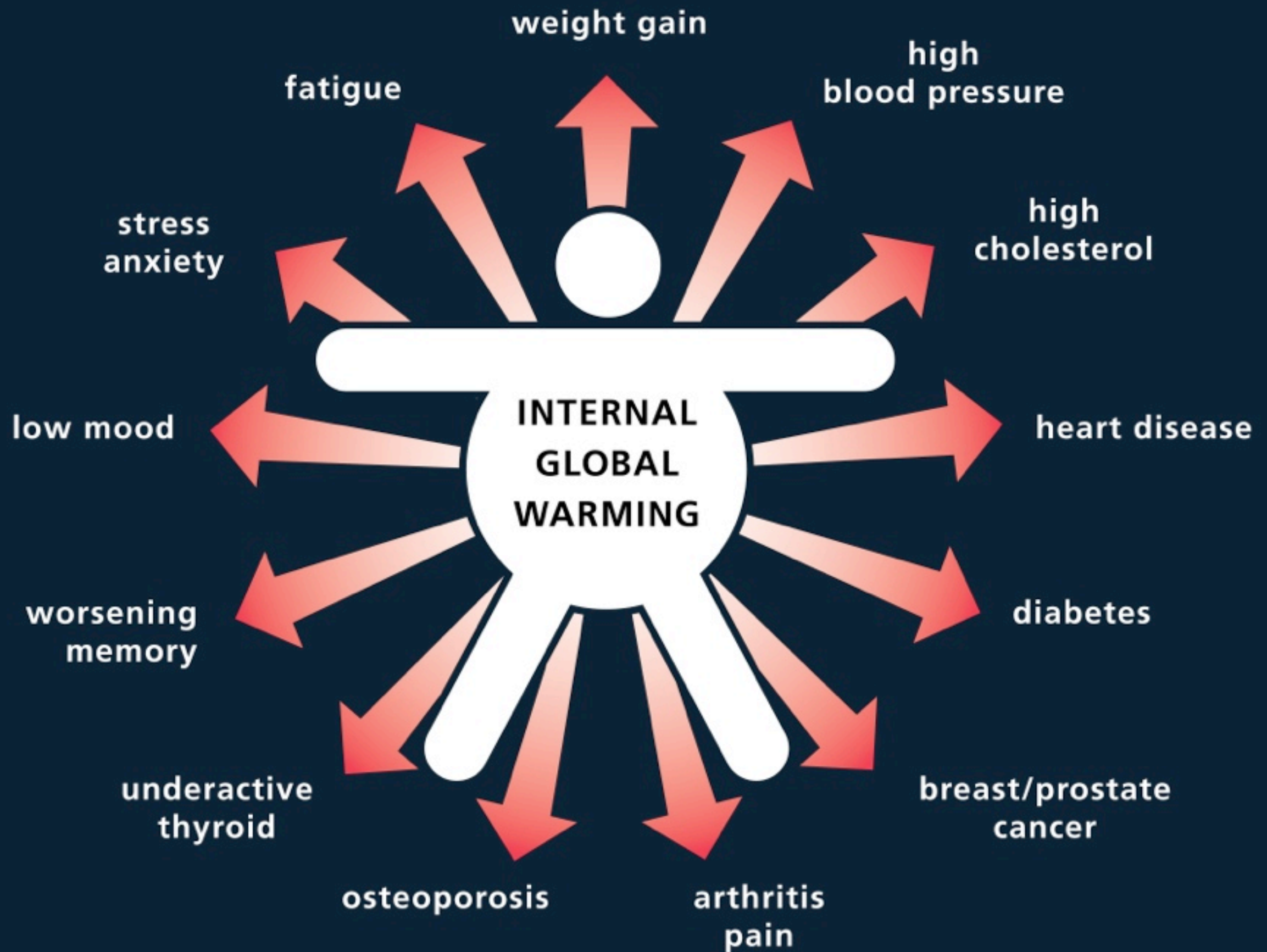
It is actually worse than this because high fructose corn syrup is in so many drinks and convenience foods as a cheap sugar. Fructose turns readily into fat.

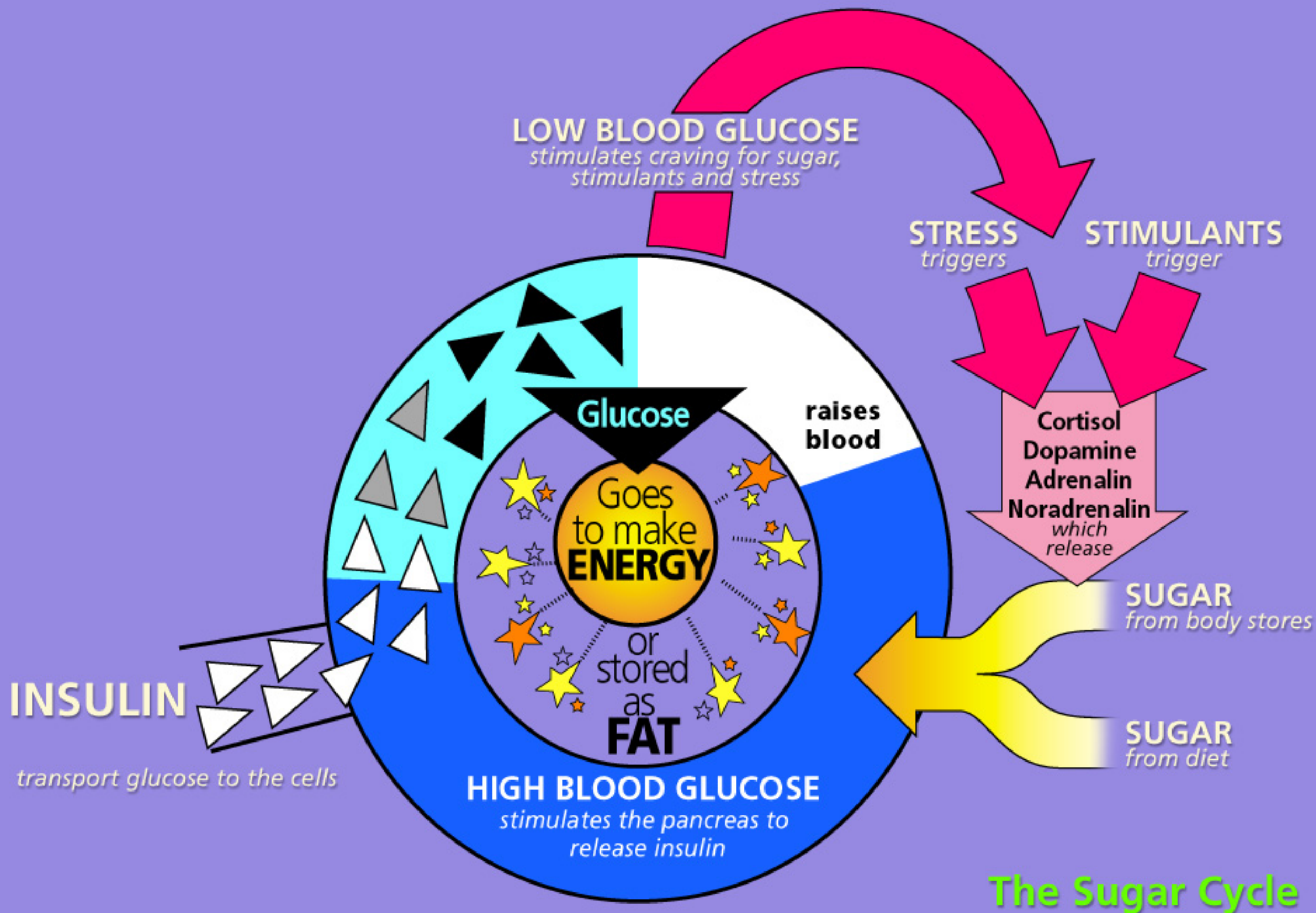
What is metabolic syndrome?

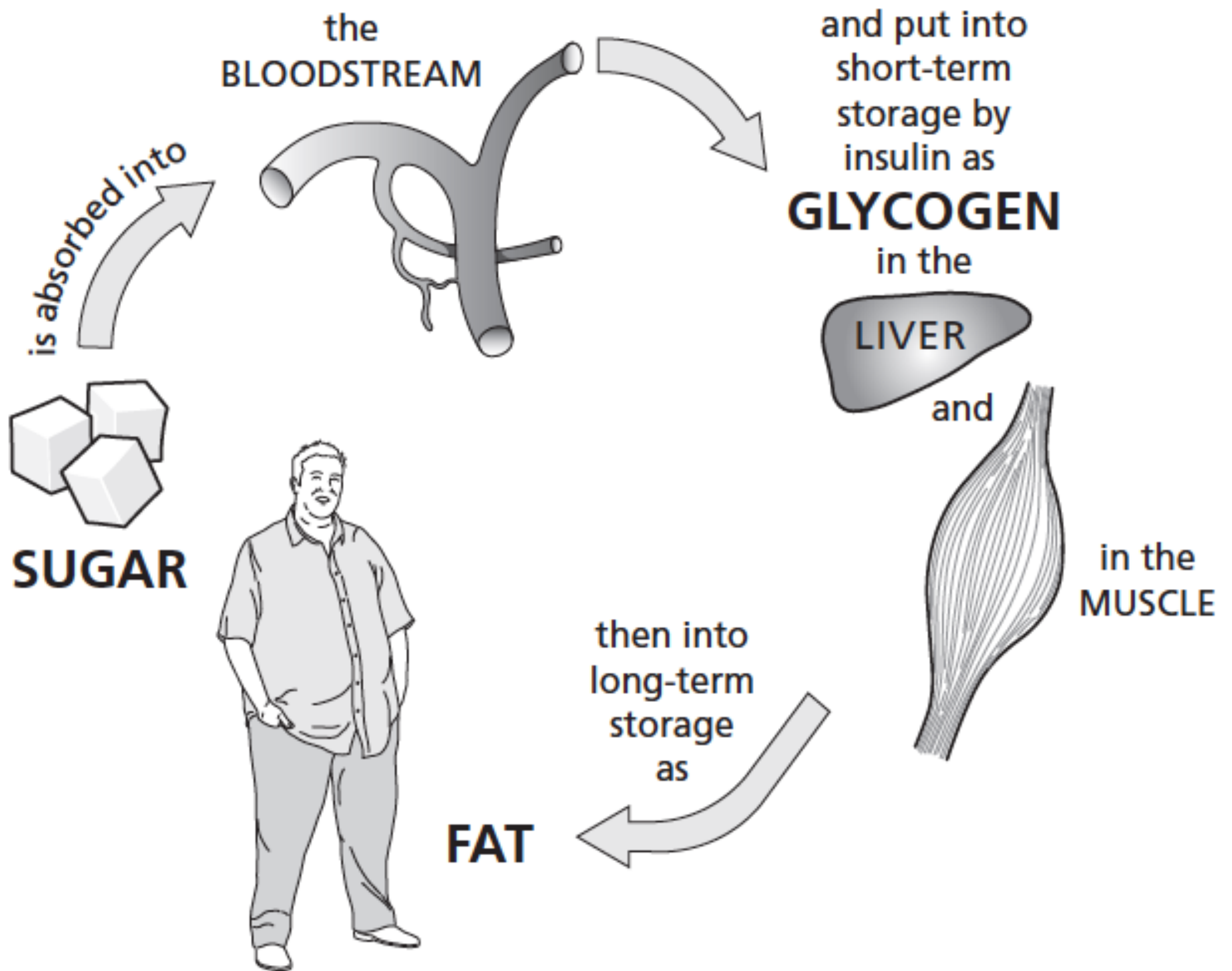
Metabolic syndrome is officially diagnosed when you have three or more of the following:

- ▶ High blood sugar or **glycosylated haemoglobin** (HbA1c)
- ▶ **High blood pressure** (above 130/85)
- ▶ Increased **waist circumference** (above 102cm/40in men or 80cm/35in women; or increased waist to hip ratio)
- ▶ High blood fats, called **triglycerides** (above 3.9)
- ▶ **Low HDL cholesterol** (the 'good' cholesterol - below 1.03 in men and 1.3 in women)
- ▶ **Insulin resistance**

But you could have none of these and still be diabetic.







How the body stores energy as fat The body runs on sugar (glucose) and insulin converts any extra into glycogen, which is stored in the muscles and the liver. If glycogen stores are full the body converts glucose into fat, our long-term energy storage.

Too much insulin...

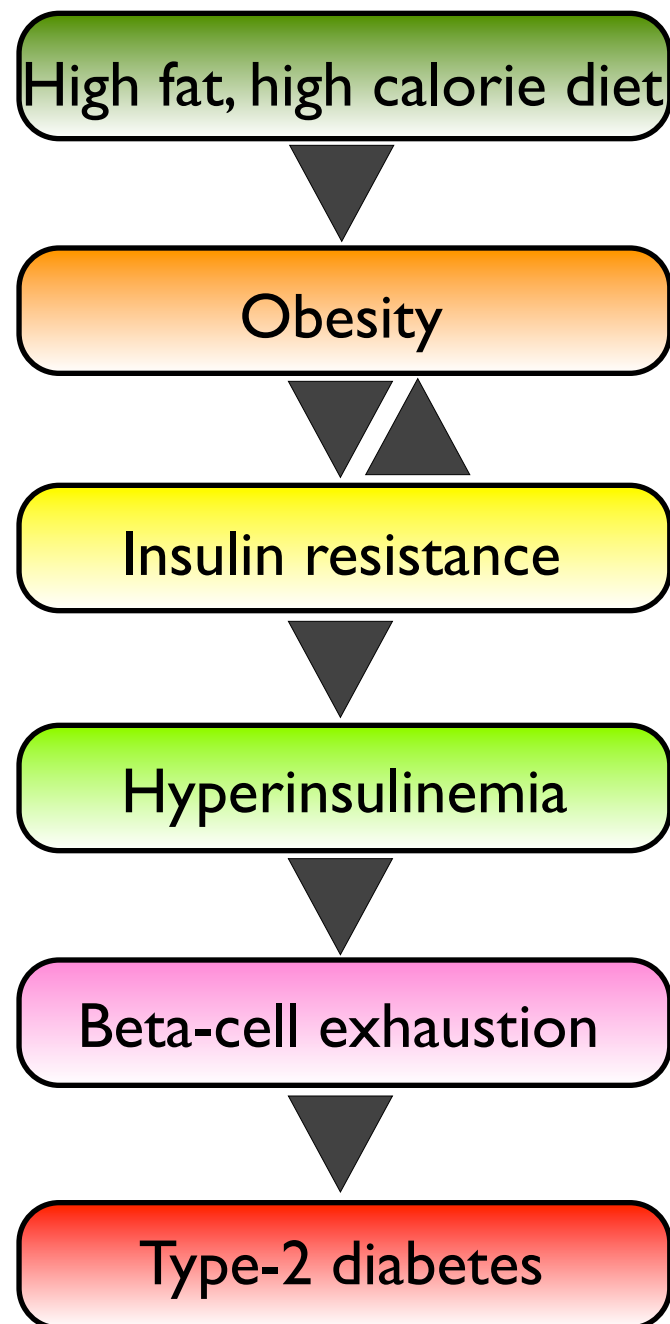
- ▶ **Promotes fat storage** and stops you breaking down fat, so you gain more and more weight. Increases non-alcoholic fatty liver.
- ▶ **Increases cholesterol and triglycerides** (blood fats)
- ▶ It causes the kidneys to retain both water and salt, which leads to **high blood pressure**. In time this leads to **kidney failure**
- ▶ Causes **rapid deterioration of eyesight**
- ▶ The combination of **too much insulin and too much glucose damages the arteries** and raises your blood pressure, both of which make thrombosis, heart attacks and strokes more likely
- ▶ **Makes cancer cells grow fast** mainly due to increased insulin-like growth factor (IGF-1)
- ▶ **Switches off anti-ageing genes** (DAF on, FOXO off)

High Insulin Could Result in Obesity

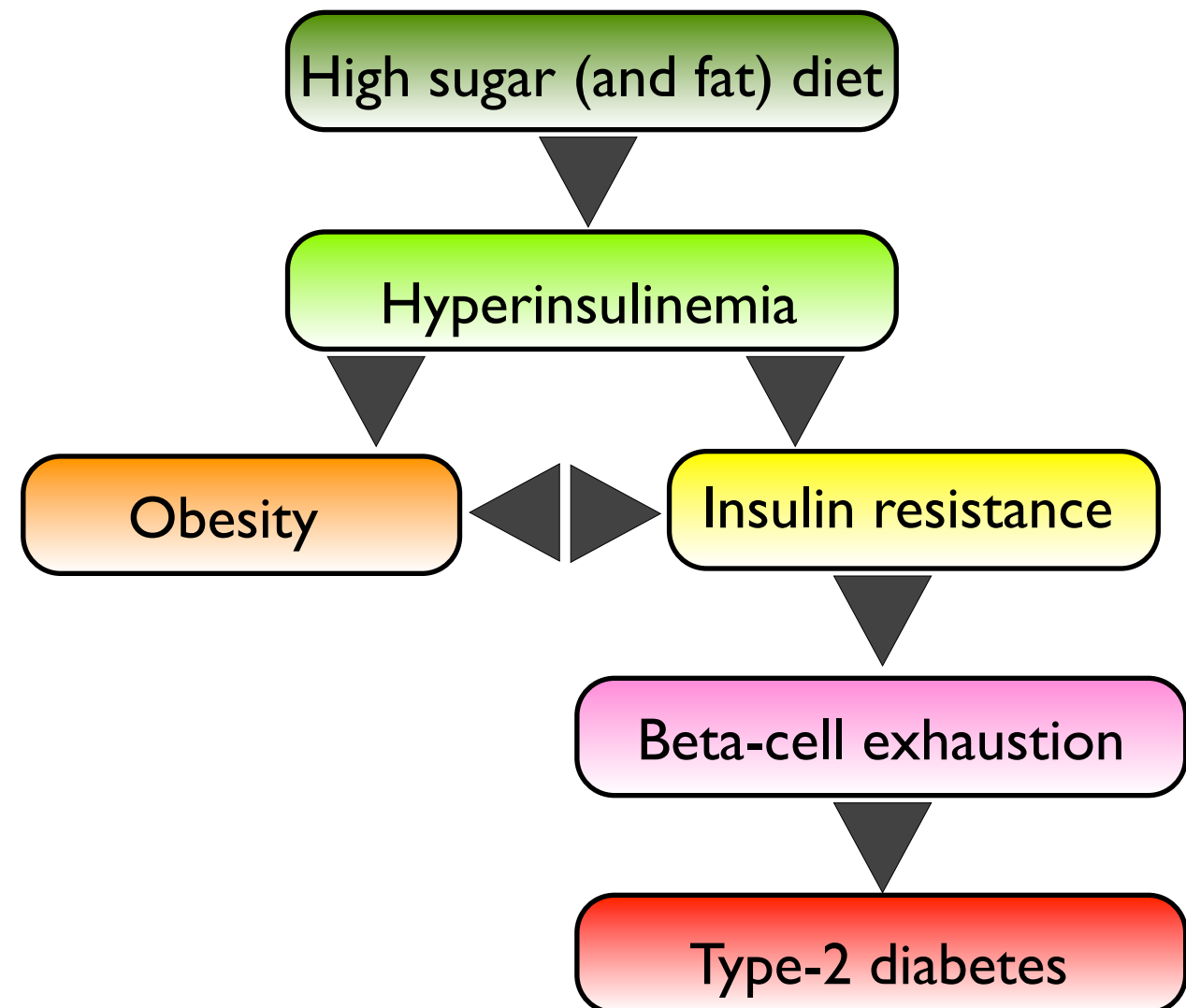
I.Cusin, Biochem J 1990; J. Johnson, Obesity 2012; B.Lemmerz, AmJClinNutr 2013; A.Mehran, Cell Metab 2012

- ▶ High insulin is thought to be a consequence of diabetes and obesity but animal studies suggest it might be the other way around with **high insulin driving obesity**.
- ▶ Animals with the same diet but high or low insulin levels don't end up the same weight. **High insulin animals gain more weight** when given a high fat, calorie diet.
- ▶ **High GI(sugar) meals** cause **more insulin** release, then blood sugar lows, which **trigger hunger** and **sugar cravings**.

Old model



New model



How to lower insulin

- ▶ High protein/fat, low carb diet (low GL diet)
- ▶ Less carbs and the right carbs, more protein (low GL diet)
- ▶ Having low GI carbs with protein and/or with viscous fibres (achieves low GL)
- ▶ Eating less - low calorie diets, modified 'alternate day' fasts
- ▶ Chromium (improves insulin reception)
- ▶ Less meat and dairy (raises Insulin-like Growth Factor - IGF-1)

How to lower insulin

- ▶ High protein/fat, low carb diet (low GL diet)
- ▶ Less carbs and the right carbs, more protein (low GL diet)
- ▶ Having low GI carbs with protein and/or with superfibres (low GL)

GL of a diet determines insulin response

Bao J, Am J Clin Nutr. 2011; Krog-Mikkelsen I, J Nutr. 2011; Grover G, Front Pharm. 2011

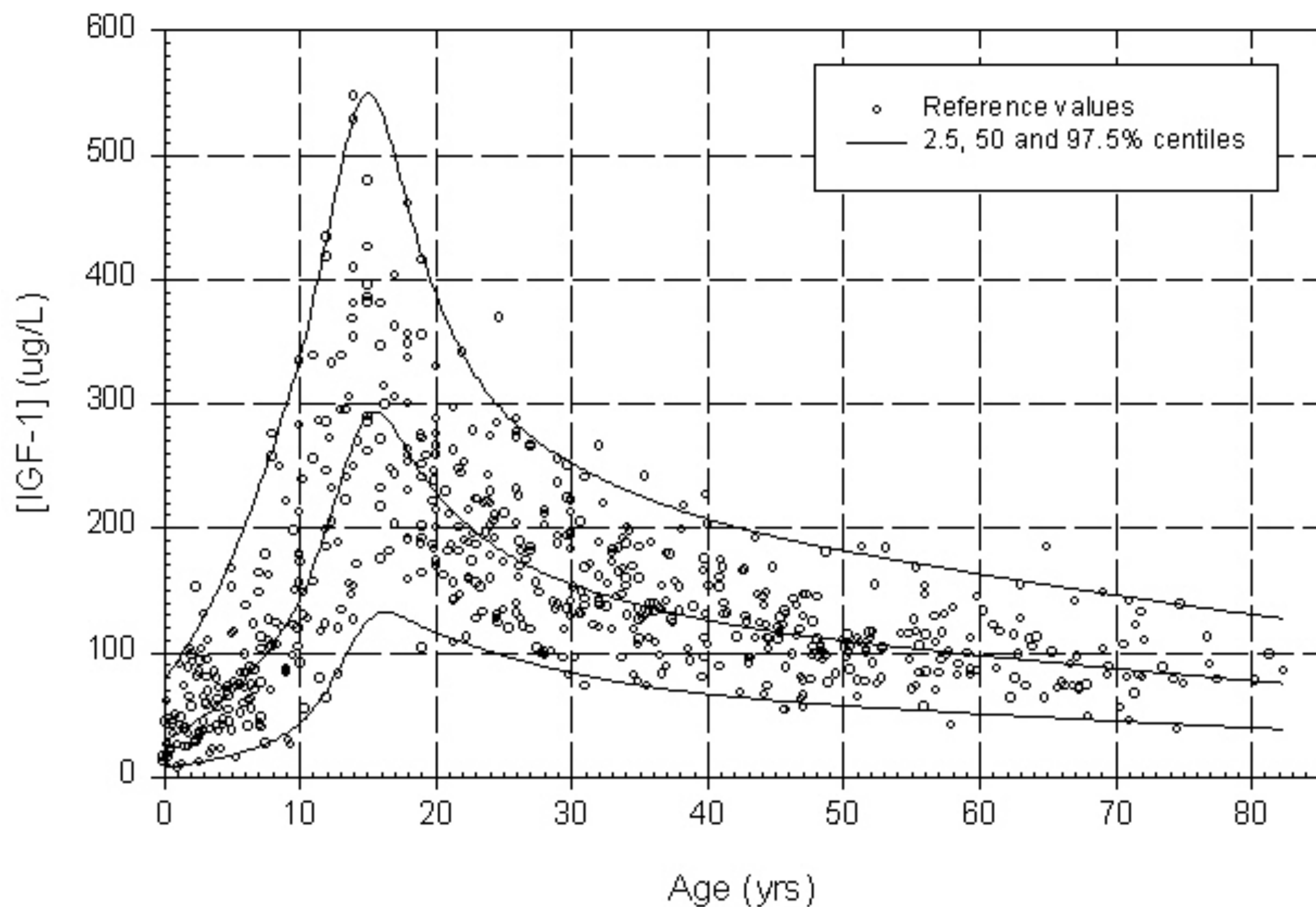
- ▶ GL is a more important determinants of glycemic and insulinemic response than that of carbohydrate alone.
- ▶ Low GI-based diets have been shown to promote satiety and reduce postprandial insulinemia.
- ▶ Only the diet supplemented with the highly viscous fiber, compared to other fibres, substantially decreased postprandial blood glucose and insulin secretion.

Pluses and minuses of low carb diets

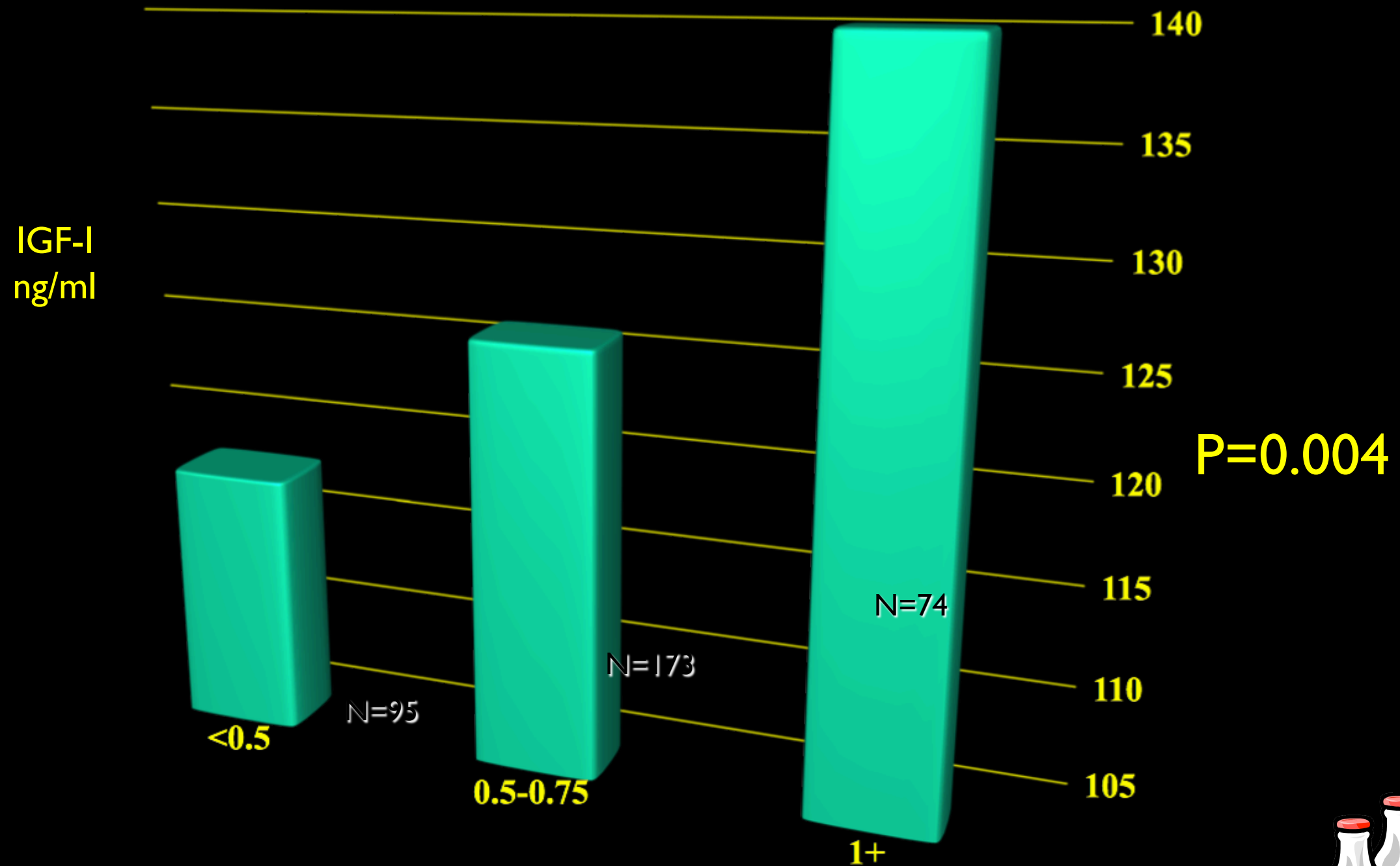
- ▶ Variations on the Atkins diet, with high protein and fat, and low carbs, have consistently been shown to be effective for short-term weight loss, but not as good for maintenance/long-term weight loss as low GL diets
- ▶ Measures of cardiovascular risk improve, as do diabetes
- ▶ Depending on quantity of protein consumption increased kidney and bone mass risks remain
- ▶ High meat and especially dairy diets_(1,2) are also associated with raised insulin-like growth factor (IGF-1) and increased risk of both breast, prostate cancer and colorectal cancer

1. Qin, [Int J Food Sci Nutr](#). 2009; 2. Melnick [Med Hypotheses](#). 2009

Endolab IGF-1 reference intervals 27-9-2000



Serum IGF-I levels in men aged 50-70 according to milk consumption.

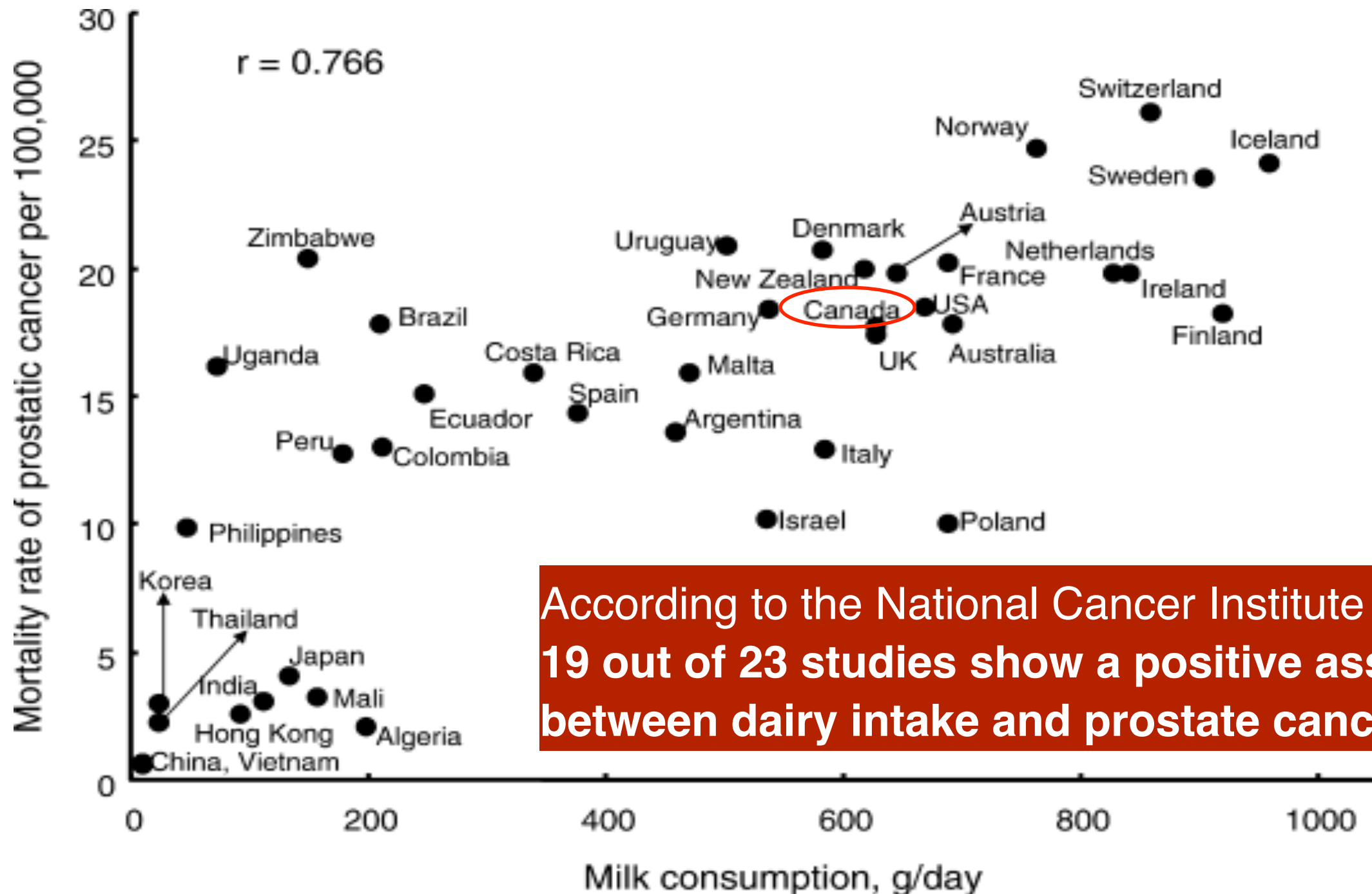


Milk consumption
Pints per day.



Milk associated with increased prostate cancer

D Ganmaa et al, International Journal of Cancer, 2002, Volume 98, Issue 2, p. 262-267



According to the National Cancer Institute
**19 out of 23 studies show a positive association
between dairy intake and prostate cancer.**

High protein linked to 4x cancer risk

M.Levine, Cell Metabolism,19, 407–417, March 4, 2014

- ▶ A study from the University of Southern California has found that a high protein diet, as advocated by Atkins and others, is associated with a 75% increase in overall mortality and a four-fold increase in cancer death risk **in people aged 50 to 65**. The study, which both examined the effects of high protein intake in humans and mice, identified the likely culprit being the increase in insulin-like growth factor 1 (IGF-1). IGF-1 is a known promoter of cancer cell growth and the consumption of meat and especially dairy products, stimulates its release in humans and animals. Protein from vegetable sources (beans, nuts, seeds etc) does not, however, cause the release of IGF-1. **The California study found increased cancer risk with protein intake above 20% of calories, but only in the age group of 50 to 65. In people over age 65 higher protein intake was associated with less cancer risk.**

▶ The Glycemic Load
of a food is derived from knowing both the
QUALITY
of the carbohydrate (its GI - fast or slow.)
and the
QUANTITY
of the food that is carbohydrate

Glycemic Load

- ▶ **The GL of a food is worked out as follows:**
- ▶ GI score (divided by 100) multiplied by the available carbohydrate (carbohydrates minus fibre) in grams.
- ▶ *Take watermelon as an example:*
Its glycemic index (GI) is pretty high, about 72.
A serving of 120 grams has 6 grams of available carbohydrate per serving, so its Glycemic Load is...
- ▶ $0.72 \times 6 = 4.32$, rounded to 4, per serving.

Low GL Foods (10GLs)	High GL Foods (10GLs)
2 large punnets of strawberries	2 dates
6 oat cakes	1 slice of white bread
4 bowls of oat flakes or porridge	1 bowl of cornflakes
A large bowl of peanuts	A packet of crisps
1 pint of tomato juice	Half glass of Lucozade
10 handfuls of green beans	10 french fries
6 tablespoons of xylitol	2 teaspoons of honey

Effect of eating a portion of
white bread

Effect of eating a portion of
white spaghetti

Different fruits have different sugars

- ▶ Berries, cherries and plums contain mainly xylose (low GI/GL)
- ▶ Apples and pears mainly fructose (medium GI/GL)
- ▶ Bananas, grapes, raisins dates mainly glucose (high GI/GL)
High in plums (hence their low GL)
- ▶ 9 teaspoons xylitol = 1 teaspoon of sugar



Benefits of a low GL diet

- ▶ Weight loss/control
- ▶ Prevents and reverses diabetes
- ▶ Prevents and reverses heart disease, hypertension, cholesterol
- ▶ Reduces cancer risk, especially breast cancer
- ▶ Reduces Alzheimer's risk
- ▶ Reduces depression
- ▶ Switches on anti-ageing genes
- ▶ Switches off genes that promote disease

Three simple rules to lower GL

- ▶ Eat no more than 40/60 GLs a day.
- ▶ Eat protein with carbohydrate.
- ▶ Graze rather than gorge.



Change your life in just 10 weeks

- We show you how to put Patrick's advice into practice
- We work with you to overcome the barriers
- There are supportive weekly group sessions and personalised one to one programmes available

Katherine Parent is the exclusive zest4life practitioner in Canada
Contact information can be found on www.makegoodchoices.ca



Patrick Holford's
zest4life
nutrition & weightloss

21 people on my GL diet for 12 weeks weeks...

Health Marker	Before	After	% change	Greatest % change
Weight	92kg	85kg	7.4% -7kg	11.6%-14kg
HbA1c	6.9%	5.9	15%	32%
Cholesterol	5.3 mmol/l	4.6	11%	23%
Triglycerides	1.7mmol/l	1.2	27%	77%
Blood pressure	137/81	131/73	4/10%	22%/25%
Chol/HDL	4.1	3.7	9%	39%
Trig/HDL	1.5	1.1	27%	78%

6 people on the GL diet for 8 weeks

Irish 'RTE' television challenged us to transform the weight and diabetes risk of 6 people from the 'travellers' community, who have the worst life expectancy and health statistics in Ireland



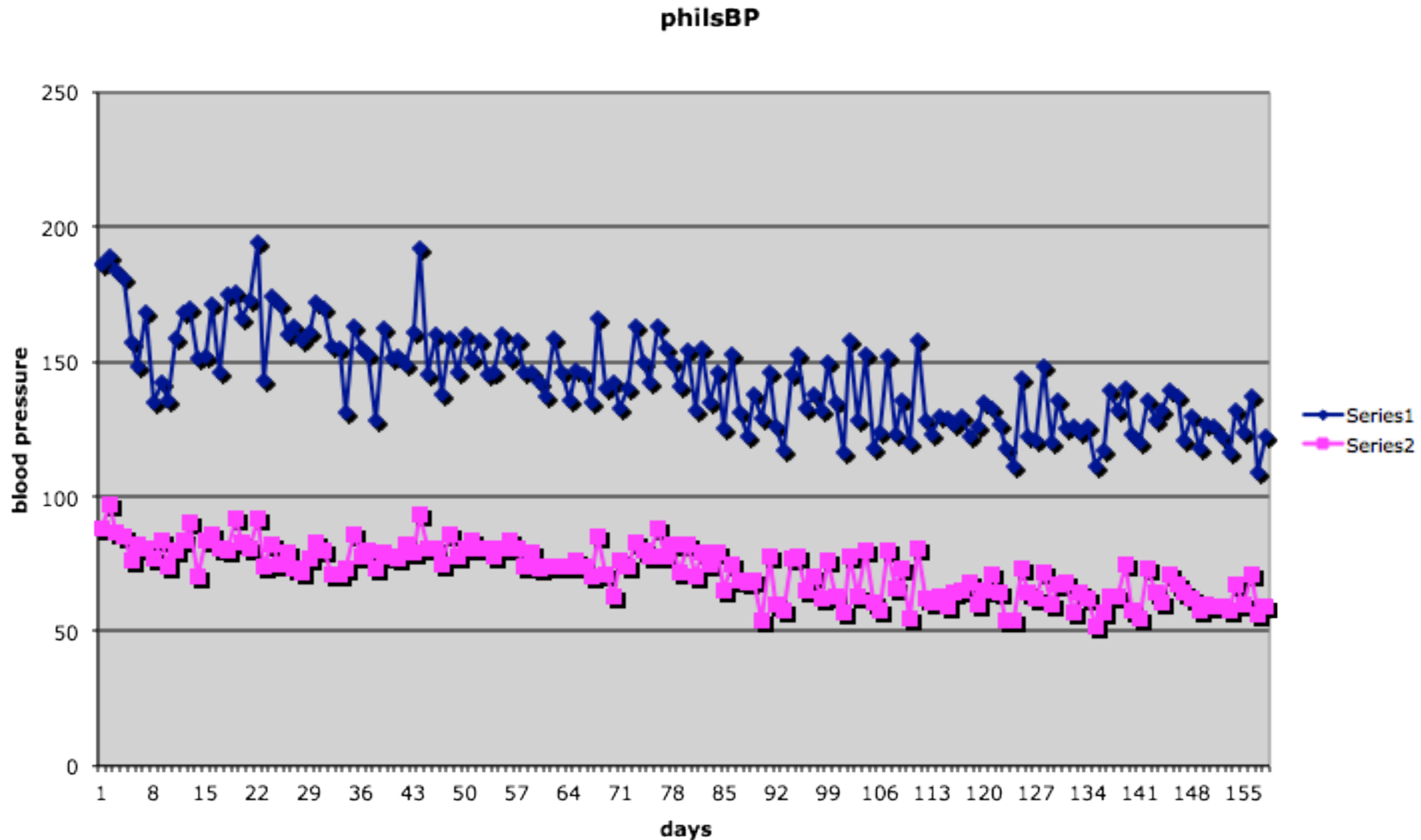
6 people on the GL diet for 8 weeks

RTE DIET TRIAL STATISTICS						
NAME	WT (lbs) BEFORE	WT (lbs) AFTER	WEIGHTLOSS	BODYFAT % BEFORE	BODYFAT % AFTER	BODYFAT % REDUCTION
Angela	214	206.5	7.5	46	45.2	0.8
Biddy	181	166	15	44.8	41.5	3.3
<u>Doreen</u>	278	253	25	54.3	50.9	3.4
Marie Elena	138	129	9	37.3	33.6	3.7
Nuala	206	189	17	44.1	41.9	2.2
Silvia	272	250	22	51.9	43.0	8.9
TOTAL	1289	1193.5	95.5lbs	278.4	256.1	22.3%
AVERAGE	215	199	16lbs	46.4	42.6	3.72%

6 'travellers' on the low GL diet for 8 weeks

- ▶ Biddy's blood pressure reduced from 170/101 to 140/85
- ▶ Doreen's blood glucose reduced from 7-9mmol/l to 4-6mmol/l. She reduced her Glucophage from 3 tablets to 1.
- ▶ Angela's blood glucose reduced from 15-18mmol/l to 7mmol/l.

Blood pressure normalised on GL diet





Alison lost 70lbs with the Low GL and alternate day diet, plus zest4Life support



Diabetes reversed with a low GL diet

Hexeberg S et al. Tidsskr Nor Legeforen 2008; 128:443-5

A low GL diet can actually eliminate the need for diabetic drugs such as insulin and metformin. A case report in Norway of a 61yr old woman who was able to stop injecting with insulin after following a low GL diet, plus supplements and taking regular exercise. She also lost 176lbs

	Start	After 5 months	14 months later
Medication	150 iu of Insulin	150 iu of Insulin	None
Glucose		4.7	5.4
HbA1c (%)	8.9	5.6	5.4
Cholesterol	5.4	4.1	3.8
Weight (lbs)	264	231	176

600kcal diet reverse diabetes in 8 weeks

Taylor, Diabetologia, 2011

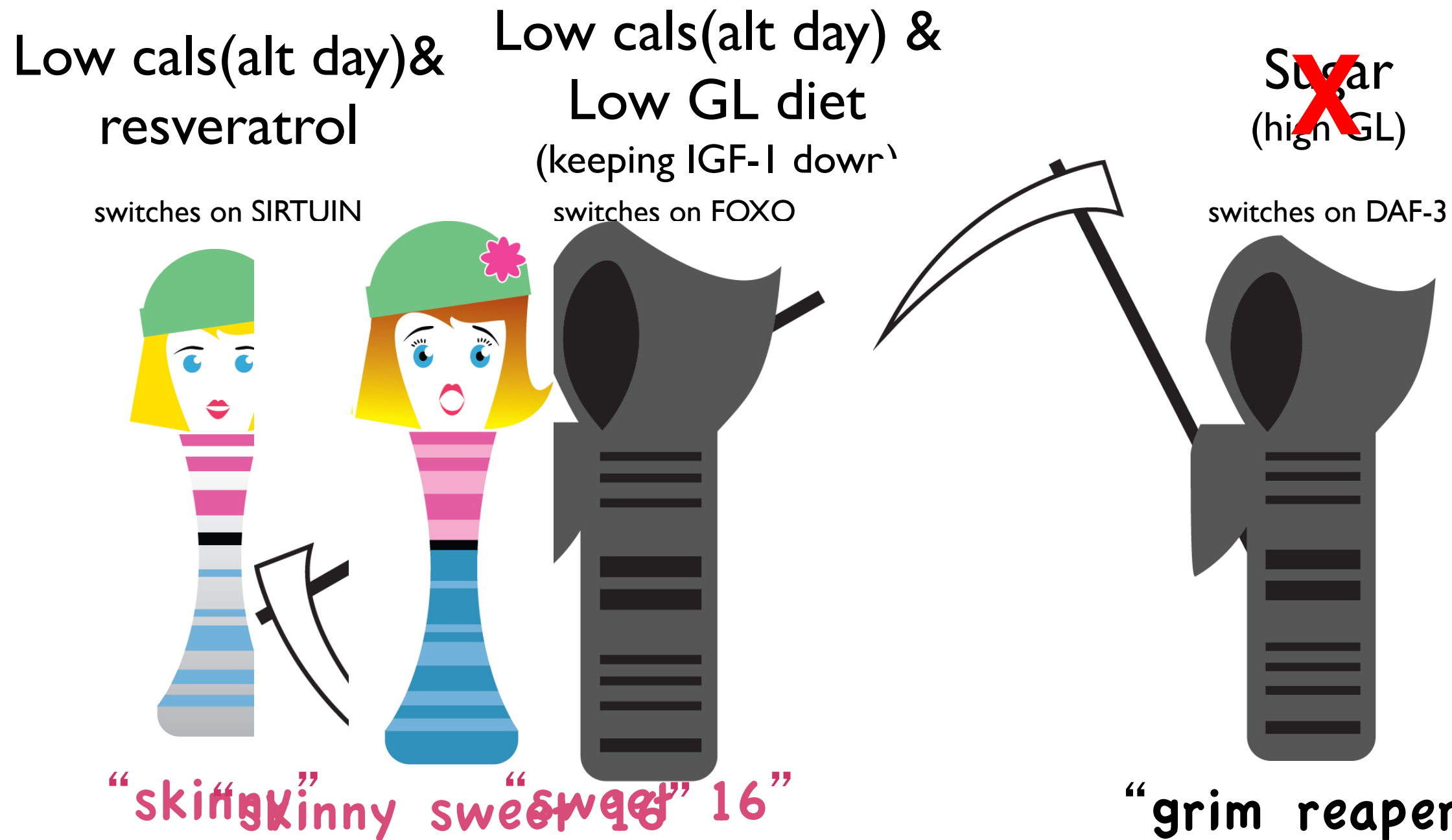
- ▶ **7 out of 11 diabetics showed reversal of type-2 diabetes by giving people a very low 600 calorie diet for eight weeks.**
- ▶ It came out of the observation that many people with diabetes, who have their stomachs stapled, report reversal of diabetes. Professor Roy Taylor from Newcastle University wondered if the big drop in calories might be the reason and set out to find out. While the general belief is that type-2 diabetes leads to irreversible damage to beta-cells in the pancreas that produce insulin, and that you can therefore only control diabetes, not reverse it, this study proves that this belief is wrong. ***“This study demonstrates for the first time the time course of a return of normal beta cell function in individuals with type 2 diabetes.”*** says Taylor

The genetics of calorie restriction

- ▶ It extends lifespan in animals by 25-50% by **switching off a gene that makes insulin** and **switching on a gene that improves the antioxidant/oxidant equation.**
- ▶ **DAF3 (the grim reaper)** is the insulin gene you want to switch off (by a low GL diet plus chromium, lowering insulin release)
- ▶ **FOXO is the gene you want to switch on** (more antioxidants) “Your supply of natural antioxidants goes up, damping down damaging oxidants.” Prof Kenyon, who know advocates a low GL diet.
- ▶ In animals you only need **low calories every other day.**
- ▶ **Dairy products raise insulin (IGF-1)**

Switching on skinny genes

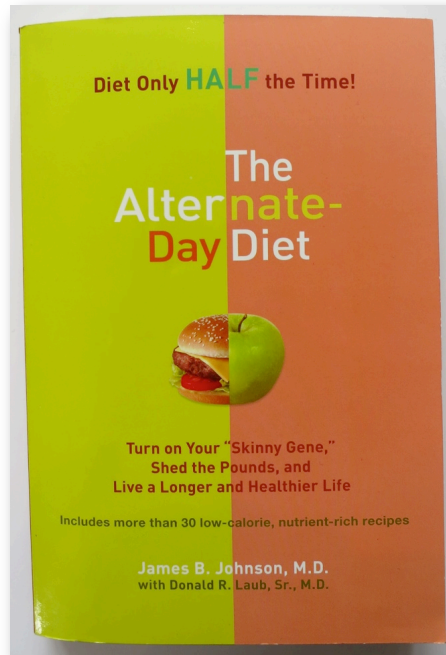
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Burns fat Slows ageing Less pain
ups metabolism better DNA repair & inflammation

Exercise also switches
on fat-burning genes

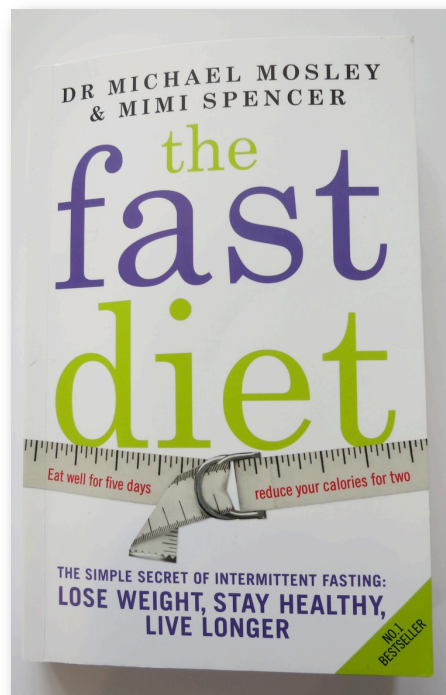
The Alternate Day Books



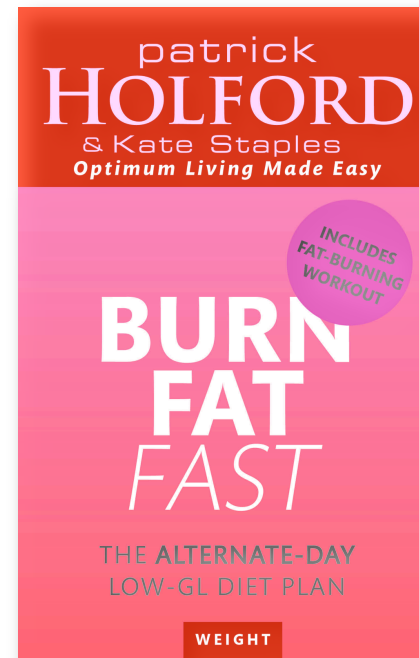
- ▶ 20% less calories than you need every other day
- ▶ Based on general healthy eating principles
- ▶ Eat what you like in between
- ▶ Studies do confirm ADF diets work, but most use greater calorie restriction



- ▶ 2 day on Atkins-type diet (high protein and fat - meat and dairy - not calorie counted)
- ▶ Other days general advice to eat Mediterranean diet
- ▶ Tested in a trial - achieved 6lb weight loss in 8 weeks, versus 3.5lbs on a low calorie diet.



- ▶ 2 days eating 600kcal
- ▶ No study on the diet yet
- ▶ Based on studies with 3 days on lower calories

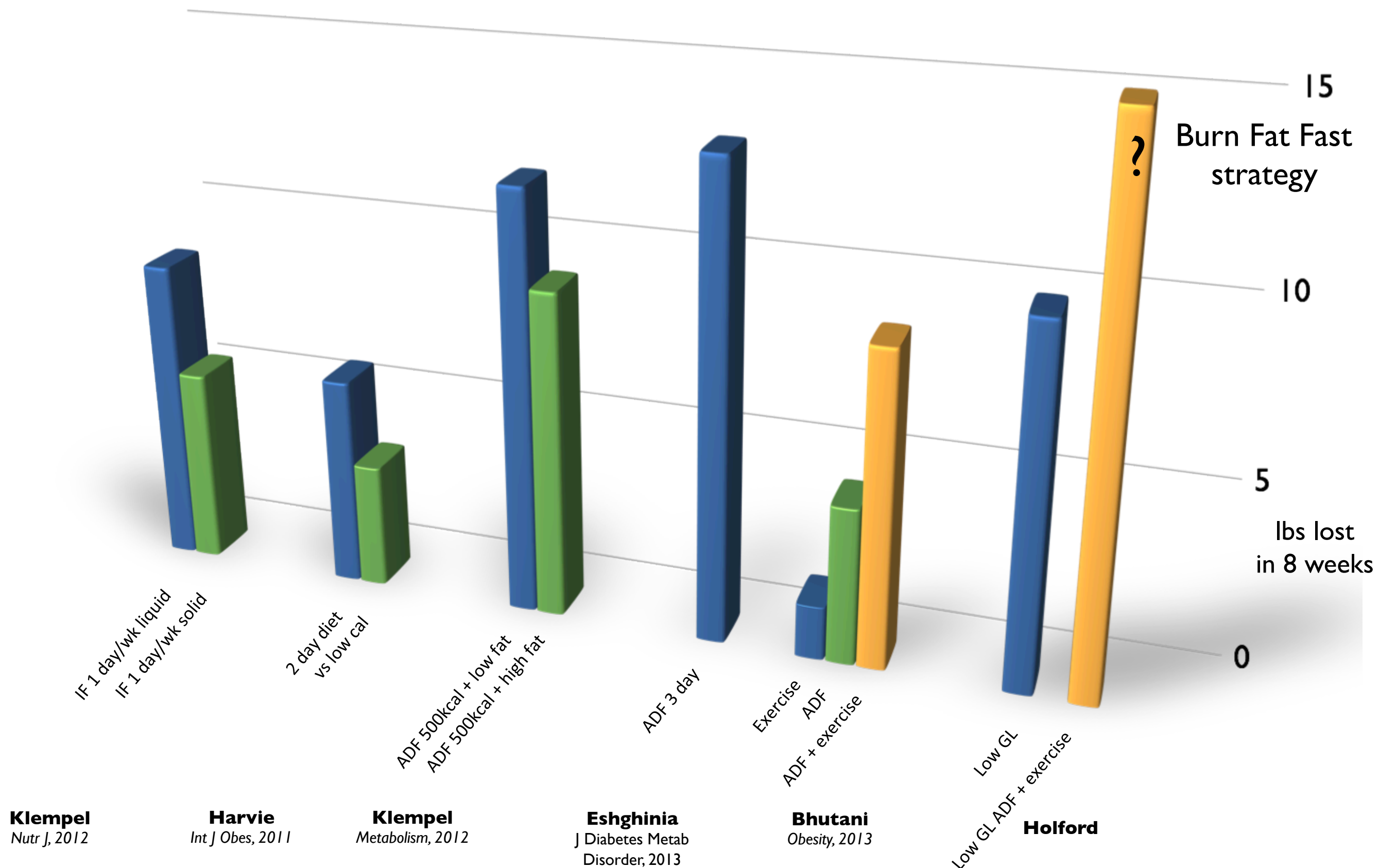


- ▶ 3 days on 35 GLs, max 800kcal, based on three meals, one snack
- ▶ Other days on low GL - 50 GLs - three meals, 2 snacks, 1 drink/ dessert
- ▶ Alternate strength (8 mins) and cardio training (30 mins)

■ lbs loss in 8 weeks

ADF = alternate day fast

■ Diet + Exercise



Case - Dr Ellie - lost 2 stone (13kg)

- ▶ “I have lost weight before, but hadn’t noticed health benefits for chronic fatigue syndrome or migraine. One of the joys of this is I’ve been able, and motivated, to exercise again, even on the fasting days. Even exercising on a fasting days doesn’t make me feel exhausted. The alternate day fast also really helps me understand why I eat. Now I know I would often eat for fatigue. I can differentiate between eating for physical hunger while I was previously eating when mentally fatigued.”
- ▶ Now, three months on her migraines are at the lowest frequency since she was a teenager; her libido has come back; she has much more physical and mental energy and can exercise without feeling exhausted afterwards; she has much less ‘need’ for sugar or caffeine; her joint pain has completely cleared; her ‘awful’ cellulite on her arms has completely gone; so too have her menopausal symptoms with no more hot flushes; and her immune system seems stronger, with no more constant colds and sore throats.
- ▶ “I have more energy now that I have had in 20 years. Recently one of my patients said how wonderful it was to see me looking so well. I feel like a new woman. I’d definitely recommend this low GL diet, alternate day fast approach. It’s easier than you think and the health benefits for me are certainly worth it.”

ALTERNATE DAY LOW GL PRACTICAL

Three simple rules

- ▶ Eat no more than 40/60 GLs a day.
- ▶ Eat protein with carbohydrate.
- ▶ Graze rather than gorge.

Fast days...

☒ **Have three 10 GL meals a day**

▶ (7 GL starchy carb portion)

☒ **Have one 5 GL snack**

▶ **TOTAL = 35 GLs /approx 800 calories**

Graze don't Gorge - 'fast' day

- ▶ 10 GLs for breakfast
- ▶ +5 GLs snack
- ▶ +10 GLs for lunch
- ▶ +5 GLs snack +5 GLs snack
- ▶ +10 GLs for dinner
- ▶ (+5 GLs

35 GLs total

Graze don't Gorge - 'feast' day

- ▶ **10 GLs for breakfast**
- ▶ **+5 GLs snack**
- ▶ **+13 GLs for lunch**
- ▶ **+5 GLs snack**
- ▶ **+13 GLs for dinner**
- ▶ **(+5 GLs for drink/dessert)**

50 GLs total

An example 'fast' day



Breakfast: 2 x Blueberry Oat Pancake



Lunch: 2 egg omelette and asparagus



Dinner: Garlic Chilli Prawns



Snack: Oat cake with salmon & chives

An example 'fast' day



Breakfast: Get Up & Go with berries



Lunch: Quinoa Salad



Dinner: Chickpea and spinach curry



Snack: Oat cake with mackerel pate

Breakfast

Carbohydrates		Protein
Cereal/Fruit	+	Seeds/Yoghurt/Milk
Fruit	+	Yoghurt/Seeds
Bread/Toast	+	Egg
Bread/Toast	+	Fish (eg Kippers)

Breakfast

CEREAL	5 GLs
Oat flakes	2 servings
All Bran	1 serving
Muesli (no sugar)	1 small serving
Alpen	Half a serving
Raisin Bran	Half a serving
Weetabix	1 biscuit
Cornflakes	Half a serving

FRUIT	5GLs
Berries	1 large punnet
Pear	1
Grapefruit	1
Apple	1 small
Peach	1 small
Banana	third
Raisins	10

Q. What does a 5 GL portion of fruit look like?



**Blueberry pancakes, made with
oat flour and egg, plus berries,
yoghurt and a sprinkling of ground
seeds, is low GL**



ONLY 2 PANCAKES!

Breakfast

BREADS	10 GLs
Nairns rough oatcakes	5/6 biscuits
Rye 'Pumpernickel' style	2 thin slices
Sourdough rye bread	2 thin slices
Rye wholemeal bread (yeasted)	1 slice
Wheat wholemeal bread (yeasted)	1 slice
White, high fibre bread (yeasted)	<1 slice

n

nairn's

oatcakes

rough oatmeal



- ✓ Low GI
- ✓ Wheat Free
- ✓ No Added Sugar
- ✓ Wholegrain Oats

300g e
10.6oz



**Only 8 GLs per
serving with
strawberries and
soya, cows milk - 10
GLs with oat milk**

TIPS: Add cinnamon

**Have a 3 x
Carboslow/PGX &
glass of water
chaser**

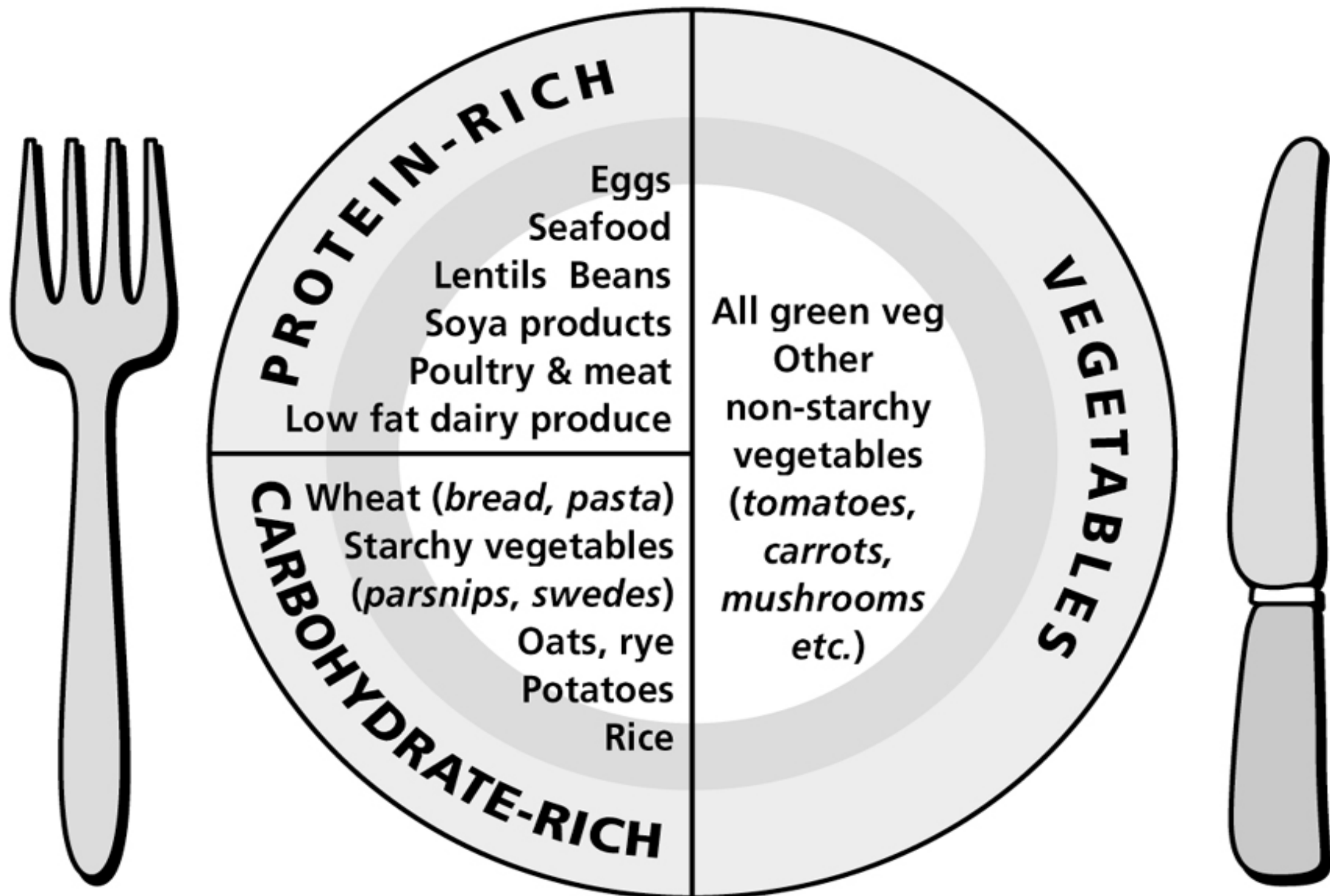
Snacks

- ▶ A piece of fruit, plus five almonds and a dessertspoon of pumpkin seeds
- ▶ A thin slice of bread or two oat cakes and half a small tub of cottage cheese (150g)
- ▶ A thin slice of bread/two oat cakes and half a small tub of hummus (150g)
- ▶ A thin slice of bread/two oat cakes and peanut butter
- ▶ Crudites (carrot, pepper, cucumber or celery) and hummus
- ▶ Crudites and cottage cheese
- ▶ A small yoghurt (150g), no sugar, plus berries
- ▶ Cottage cheese plus berries

Snacks - fast days - 50-100cals/5GLs

- ▶ An oatcake and mexican bean dip (47 calories)
- ▶ Half an apple/pear/peach and five almonds (65 calories)
- ▶ An oatcake and cottage cheese (67 calories)
- ▶ An oatcake and baba ganoush (75 calories)
- ▶ An oatcake and smoked salmon pate (97 calories)
- ▶ An oatcake and homemade hummus (112 calories)
- ▶ A bowl of spicy pumpkin & tofu soup (116 calories)

Main Meals



Starchy veg/grains - 7GLs & 10GLs

	7GLs looks like	10GLs looks like		7GLs looks like	10GLs looks like
Pumpkin / squash	1 large serving (186g)	Double a regular serving (266g)	White pasta	1/3 serving (66g)	1 small serving (78g)
Carrot	1 large (158g)	2 regular (266g)	Brown rice	1 small serving (70g)	1 regular serving (84g)
Swede	1 regular serving (150g)	1 large serving (214g)	White rice	1/3 serving (46g)	1/2 serving (66g)
Quinoa	1 regular serving (120g)	1 large serving (188g)	Couscous	1/3 serving (46g)	1/2 serving (66g)
Baked beans	1 large serving (150g)	Double a regular serving (214g)	Sweetcorn	1/2 cob	1 small cob (88g)
Lentils	1 large serving (175g)	Double a regular serving (300g)	Boiled potato	2 small (74g)	3 small (106g)
Kidney beans	1 large serving (150g)	Double a regular serving (214g)	Baked potato	1 medium (59g)	1 large (84g)
Pearl barley	1 small serving (95g)	1 regular serving (136g)	French fries	6-7 chips (47g)	8-10 chips (68g)
Wholemeal pasta	1/2 serving (85g)	1 large serving (112g)	Sweet potato	1/2 a potato (61g)	1 small potato (88g)



Q. What does a 7GL portion of carbs look like?







patrick
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Optimum Living Made Easy

THE **LOW-GL** **DIET** BIBLE

THE PERFECT WAY TO
LOSE FAT FAST, GAIN ENERGY AND
IMPROVE YOUR HEALTH

patrick
HOLFORD
with Fiona McDonald Joyce

THE **LOW-GL DIET** COOKBOOK

EASY RECIPES FOR WEIGHT LOSS,
HEALTH AND ENERGY



patrick
HOLFORD

Bestselling author of THE OPTIMUM NUTRITION BIBLE

Optimum Living Made Easy

THE **HOLFORD** **DIET** GL COUNTER

INCLUDES
PERSONAL DAILY
GL COUNTER

WEIGHT

Eating Out tips

- ✓ Choose Thai, Chinese, Japanese or Malaysian
- ✓ Take away the bread
- ✓ Order olives
- ✓ One portion of rice/noodles between three
- ✓ Order a salad or side of vegetables
- ✓ Change the menu
- ✓ Stay away from desserts



Simple ways to lower the GL of a meal

- ▶ **Add lemon juice**
- ▶ **Soup it and soak it**
- ▶ **Chew it and sip water**
- ▶ **Put your fork down between mouthfuls**
- ▶ **Add a spoonful of oatbran**
- ▶ **Don't add sweet sauces**
- ▶ **Wait 30 minutes before eating something sweet**
- ▶ **Have dessert as a snack**



SUPER FIBRE


glucomannan

Best sources of soluble fibres


Chia**bia**

100% Natural Milled Chia Seed


Ancient super food of the Aztecs for your



heart



mind



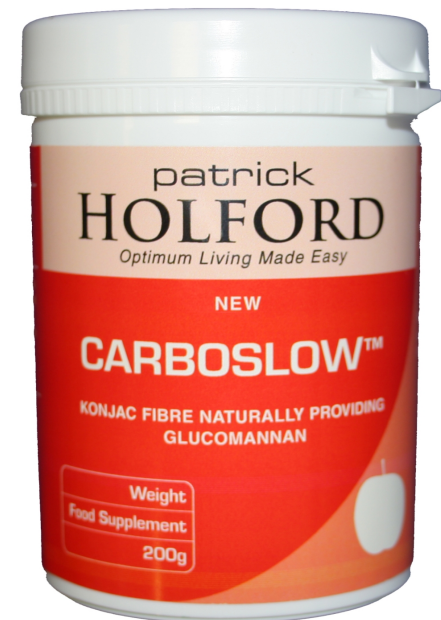
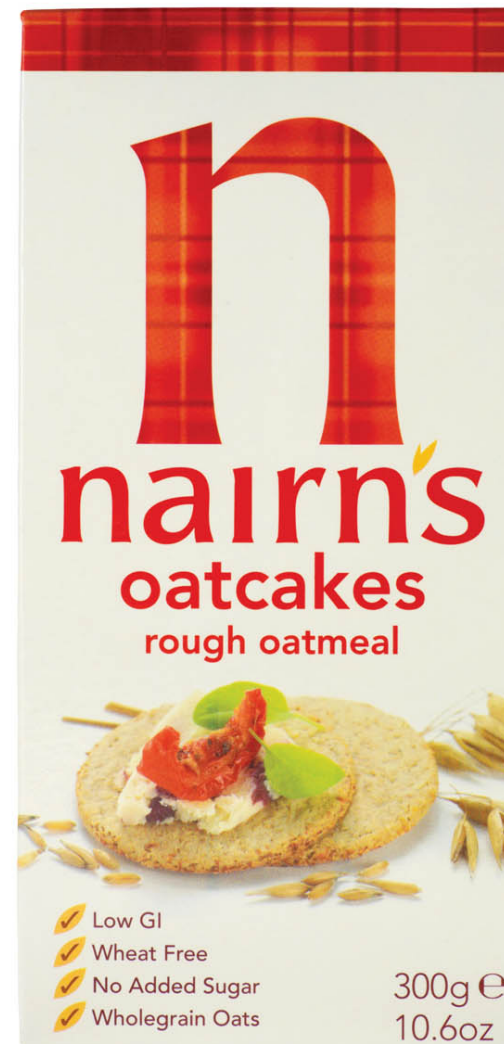
body

Rich in: Omega 3
Protein
Fibre
Antioxidants

All our chia seeds are sourced and approved by
Dr. Wayne Coates

Each portion contains				
Calories	Sugars	Fat	Saturates	Salt
79	0g	4.6g	0g	0g
4%	0%	6%	0%	0%

Of an adults guideline daily amount



Effect of superfibre on the GL of a meal



PGX fibre reduces appetite

- ▶ “In this study we were able to show that the viscous fibre (PGX) supplement significantly reduced hunger feelings and promoted satiety during a period of significant caloric reduction.”

▶ *Kacinik et al, Nutr.Diabetes 2011*

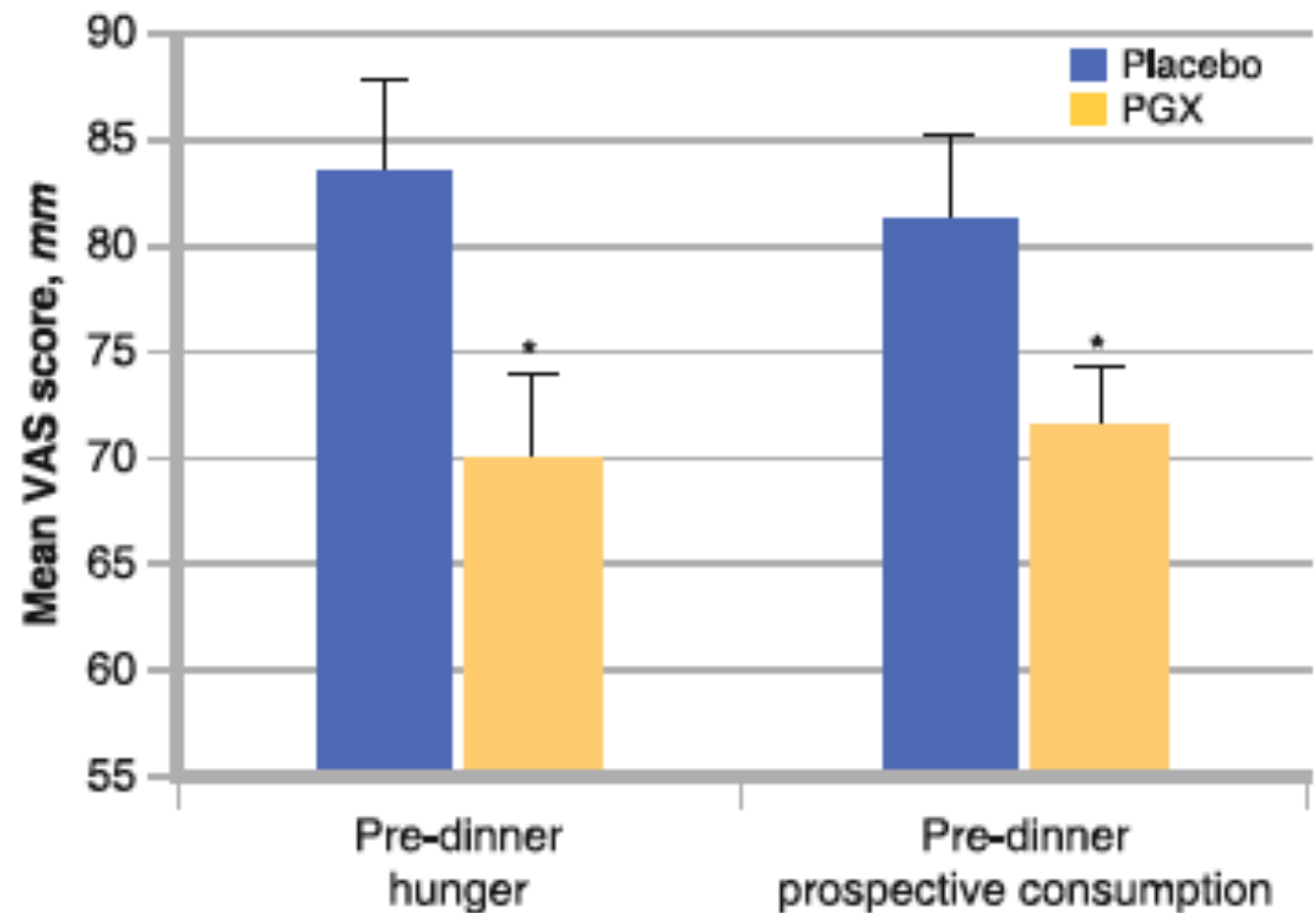
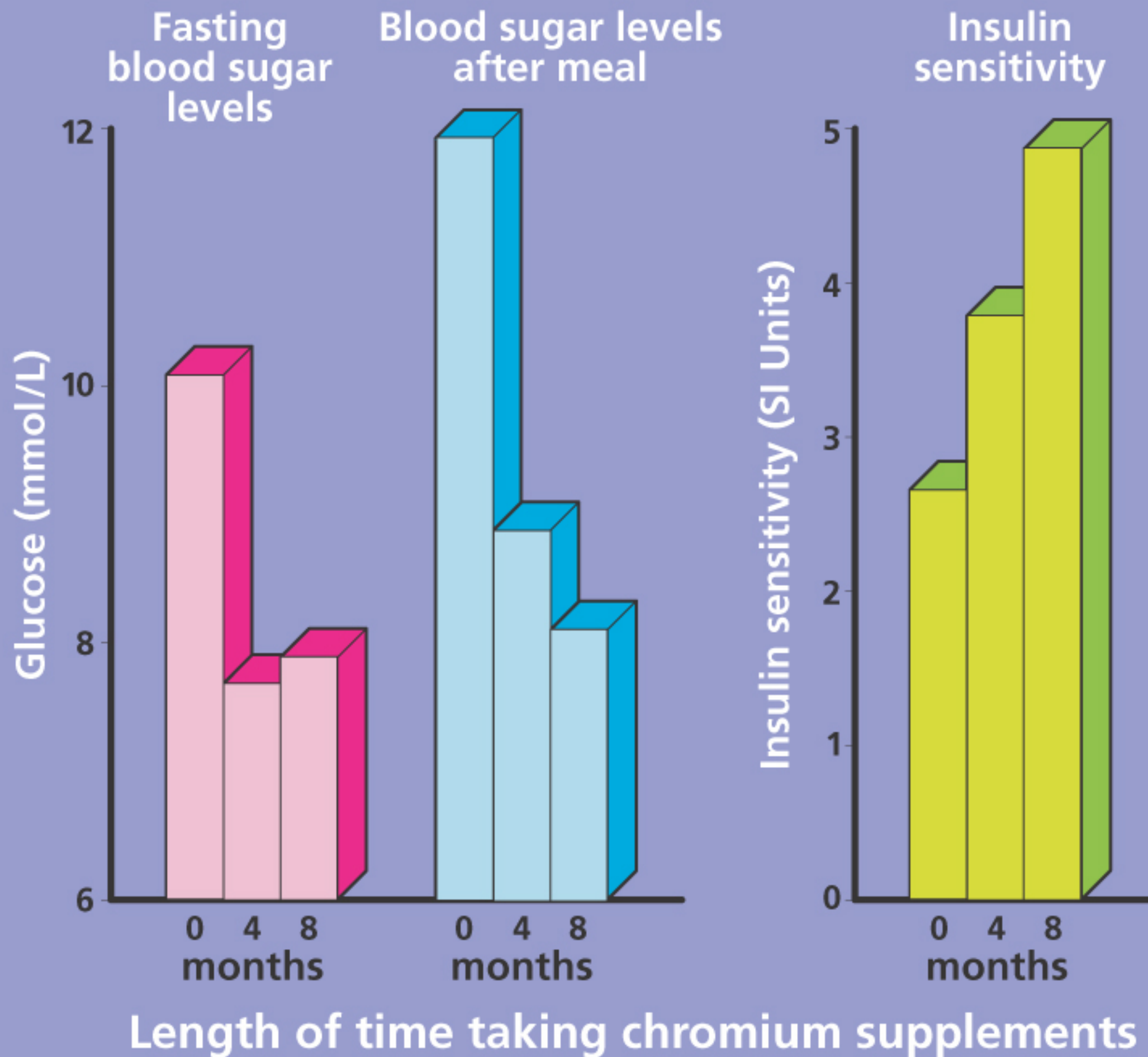


Fig. 1 Comparison of pre-dinner mean hunger and prospective consumption scores of day 3 of the 1000-calorie diet supplement with 5 g of PGX or placebo at each meal. Values are mean \pm SE ($n=35$). Asterisk (*) indicates significantly lower scores with PGX than the placebo supplement ($P<0.05$). VAS—visual analogue scale

CHROMIUM

insulin potentiator



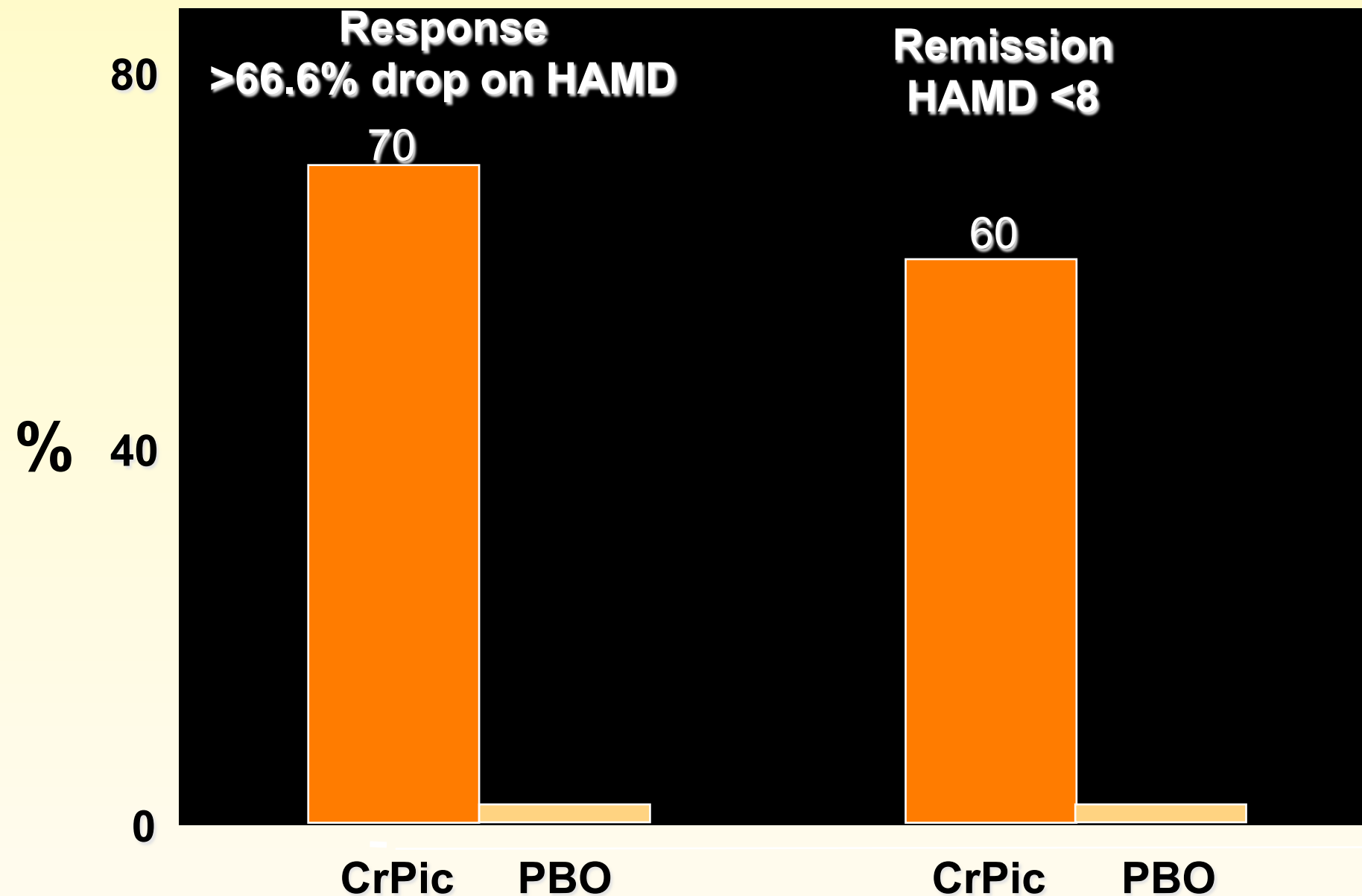
Cr improves glucose, insulin and weight

Balk, Diabetes Care 2007; Chen, Eur.J.Nutr 2014; Drake T, Endo.Pract, 2012; Anton, Diab.Tech.Thera.2008

- ▶ A systematic review concludes: “Among participants with type 2 diabetes, chromium supplementation improved glycosylated hemoglobin levels and fasting glucose. **Chromium supplementation significantly improved glycemia among patients with diabetes.**”
- ▶ Chromium **reverses insulin resistance**, improves insulin sensitivity in diabetics.
- ▶ Chromium halves insulin need on infusion within 12 hours.
- ▶ A study gave healthy, overweight women chromium or placebo for eight weeks. **Those on chromium ate less, felt less hungry, craved fat less and lost more weight.**

Response and Remission Rates: Cr Picolinate in Atypical Depression

Davidson et al., Biol.Psych. 2003; Brownley et al., J.Psychosom.Res. 2013



**Chromium
600mcg
stabilised
glucose,
reduced
bingeing and
depression in a
recent RCT.**

Cinnamon stabilises glucose & insulin

Ziegenfuss J.Int.Soc.Sports.Nutr, 2006; Khan, Diabetes Care, 2003; Hlebowicz, AJCN 2009; Askari, Nutr.Res.2014

- ▶ Pre-diabetics given a cinnamon extract (Cinnulin) for 12 weeks, had improvements in several features of metabolic syndrome (reduced blood sugar levels, blood pressure, body fat percentage, oxidation)
- ▶ 39 patients given cinnamon extract for four months and showed a substantial reduction in post-meal blood sugar levels and a 10% reduction in fasting blood sugar levels.
- ▶ Diabetics were given 1g, 3g or 6g of cinnamon per day. All responded within weeks, with blood sugar levels 20% lower on average than those of a control group. The biggest improvements were with 6g.
- ▶ Volunteers were given rice pudding, with or without cinnamon, found that those given 3g cinnamon produce less insulin after the meal.
- ▶ Volunteers with non-alcoholic fatty liver disease were given 1.5g cinnamon vs placebo. Insulin resistance and glucose reduced.

Exercise - aerobic + resistance is key

- ▶ Switches on anti-ageing genes and may lengthen telomeres
- ▶ Improves insulin sensitivity and promotes growth hormone
- ▶ Reduces stress, improves mood and memory
- ▶ Reduces risk for so many age-related diseases, including obesity
- ▶ Builds/preserves lean body mass (muscles)
- ▶ Boosts hormone levels (DHEA, testosterone)
- ▶ Resistance training for 4 months = 1kg/2lbs of lean muscle gain 25–30% increased strength. If you don't do any exercise after the age of 50 you lose half a pound a year of muscle.
- ▶ *“Exercise is the closest thing to an anti-ageing pill.”* Professor Wayne Derman, Cape Town University

Weekly diet and exercise routine

DIET	EXERCISE
MONDAY low-GL 35/ 800 calories	30-minute cardio workout
TUESDAY low-GL 55	8-minute strength workout
WEDNESDAY low-GL 35/ 800 calories	30-minute cardio workout
THURSDAY low-GL 55	8-minute strength workout
FRIDAY low-GL 35/ 800 calories	30-minute cardio workout
SATURDAY day off	day off
SUNDAY low-GL 55	8-minute strength workout

Beginners - Wall Sit and Box Press



Best way to lose weight?

- ▶ Less carbs and the right carbs, more protein (low GL diet)
- ▶ Also having low GL carbs with protein (non-dairy protein best)
- ▶ Eating less 2 or 3 days a week - low calorie diets, modified 'alternate day' fasts
- ▶ Superfibres - PGX, glucomannan
- ▶ Chromium with cinnamon
- ▶ Exercise - alternate resistance and aerobic

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& Kate Staples
Optimum Living Made Easy

INCLUDES
FAT-BURNING
WORKOUT

BURN FAT FAST

THE ALTERNATE-DAY
LOW-GL DIET PLAN

WEIGHT

- Low GL
- 3 alternate 'fast' days
- 8 minute exercise
- Supplements
- Superfibre

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THE **LOW-GL DIET** COOKBOOK

EASY RECIPES FOR WEIGHT LOSS,
HEALTH AND ENERGY

