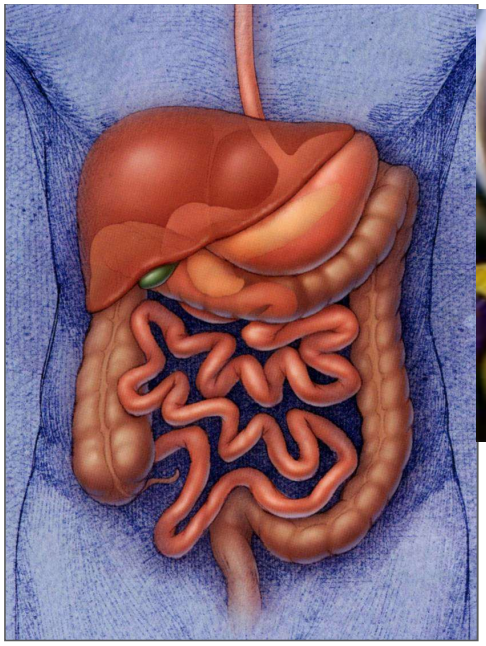


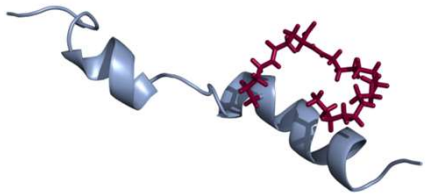
Guy's and St Thomas'
NHS Foundation Trust

"Current diabetologists are not adequately equipped to manage obesity with diabetes"

Barbara McGowan MBBS FRCP PhD

Consultant Endocrinologist and diabetologist
Honorary Reader

Guy's and St Thomas Hospital, London



Disclosures

- Advisory: Novonordisk, Orexigen, BI
- Speaker forums: Novonordisk, Janssen, Sanofi
- Grants: Investigator Sponsored Studies: Novonordisk (GLIDE, STRIVE)
- Clinical trials: PI on SCALE prediabetes, Semaglutide in obesity (Novonordisk). SELECT, AMYLIN

GLP-1 receptor agonists in T2DM

trulicity®
(dulaglutide) injection

SGLT2 inhibitors in T2DM

Obesity

- Huge and complicated - 66,159 articles in last 10 years

- Most health professionals get very little education on the topic

I asked my clinical colleagues

- **Clinical fellow:** most SPRs from ‘X’ rotation who have not rotated through a bariatric clinic would not have a clue
- **Consultant:** we don’t’ have anything to offer patients except GLP-1agonists
- **SPR:** I don’t pay attention to the obesity, just the diabetes
- **SPR:** Prior to training in the Tier 4 obesity clinic I was not able to identify patients suitable for surgery or deal with the complications post-bariatric surgery
- **SPR:** I Know who to refer to for management of obesity
- **Consultant:** What’s so complicated about obesity?
- **SPR**: I have read about it because there are bariatric questions in the specialty exam, but I have no practical knowledge

Case study: Mrs MW :2000

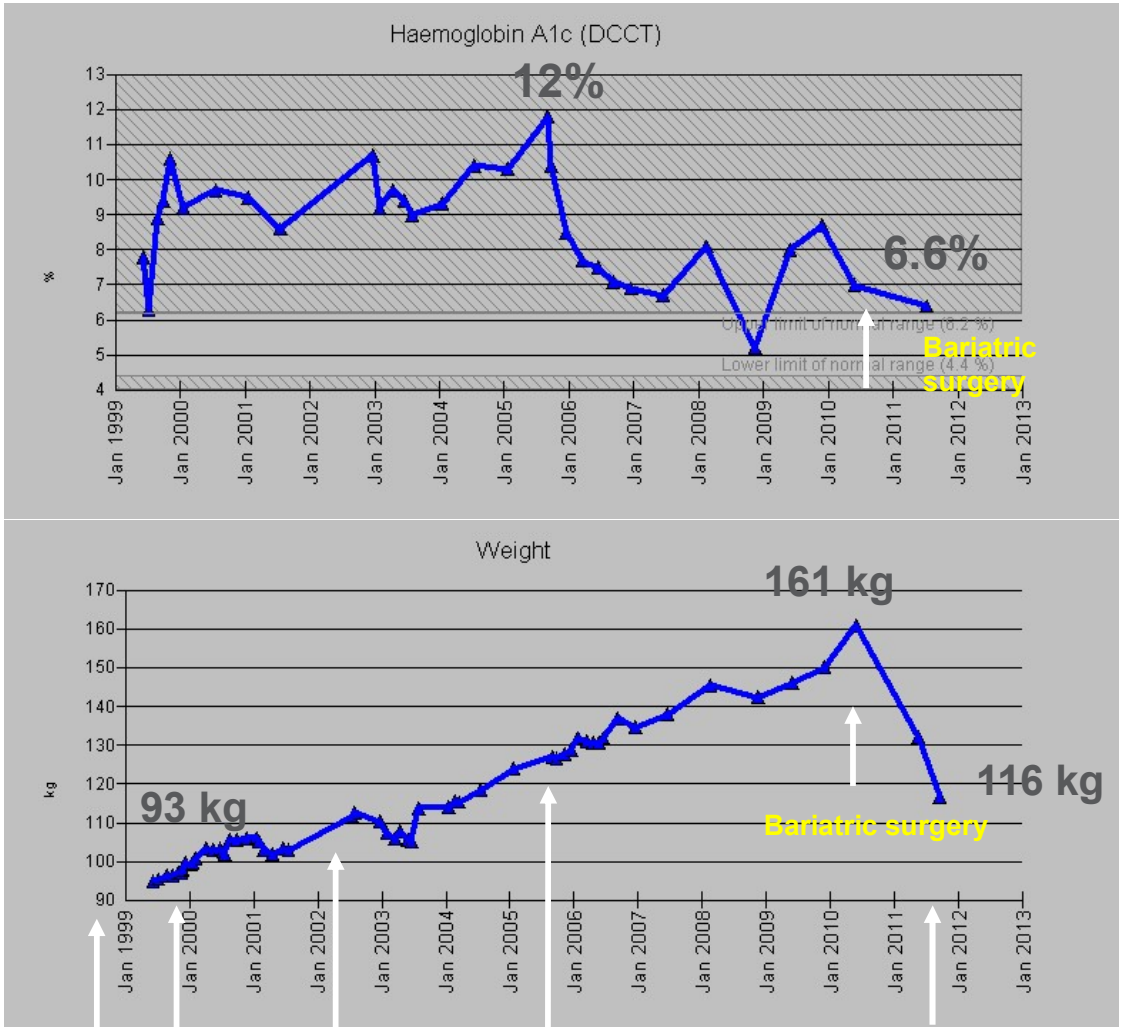
- 66 yrs
- Weight 90 Kg, height 151 cm, BMI 39 (May 2010)
- Type 2 DM (1996)
- Maculopathy and retinopathy, nephropathy (2005)
- Hypertension (1999)
- Acute MI (1999)
- Hyperlipidemia (1999)
- COAD (2002)
- Obstructive sleep apnoea (2009)- started on CPAP
- Osteoarthritis, Decreased mobility, walks with 2 sticks

Case study: Mrs MW 2002

- Metformin 1g bd
- Gliclazide 160 mg bd
- Aspirin 75 mg
- Enalapril 15 mg
- Frusemide 80 mg bd
- Diltiazem 180 mg
- Doxazosin 4 mg od
- Thiamine 50 mg bd
- GTS spray
- Atorvastatin 20mg od

MW: medication 2010
Weight 161kg, BMI 70

- Novorapid 30 units tds
- Insulatard 40 units am, 60 units pm
- Metformin 500 bd
- Aspirin 75 mg
- Enalapril 15 mg
- Frusemide 80 mg bd
- Diltiazem 180 mg
- Doxazosin 4 mg od
- Thiamine 50 mg bd
- GTS spray
- Atorvastatin 20mg od



Mrs MW: HbA1c and weight chart

MW Post-RYGB

- Metformin re-started within 48hrs
- Total insulin requirements reduced from 190 units to 60 units (basal only) within 48 hrs
- Total insulin requirements reduced to 30 units (basal only) within 6 months
- HbA1c 6.5% at 6 months
- Neuropathic pain worse post-op, improved since
- BP meds stopped
- CPAP stopped

Post-op complications-do you know how to manage:

- Reactive hypoglycaemia/ dumping syndrome
- Nutritional complications – recognition of emergencies
- Recognition of surgical complications eg gastric band slippage or leakage
- Management of weight re-gain
- Management of medication post-surgery-eg changes in drug bioavailability post RYGB

Case study: Susan

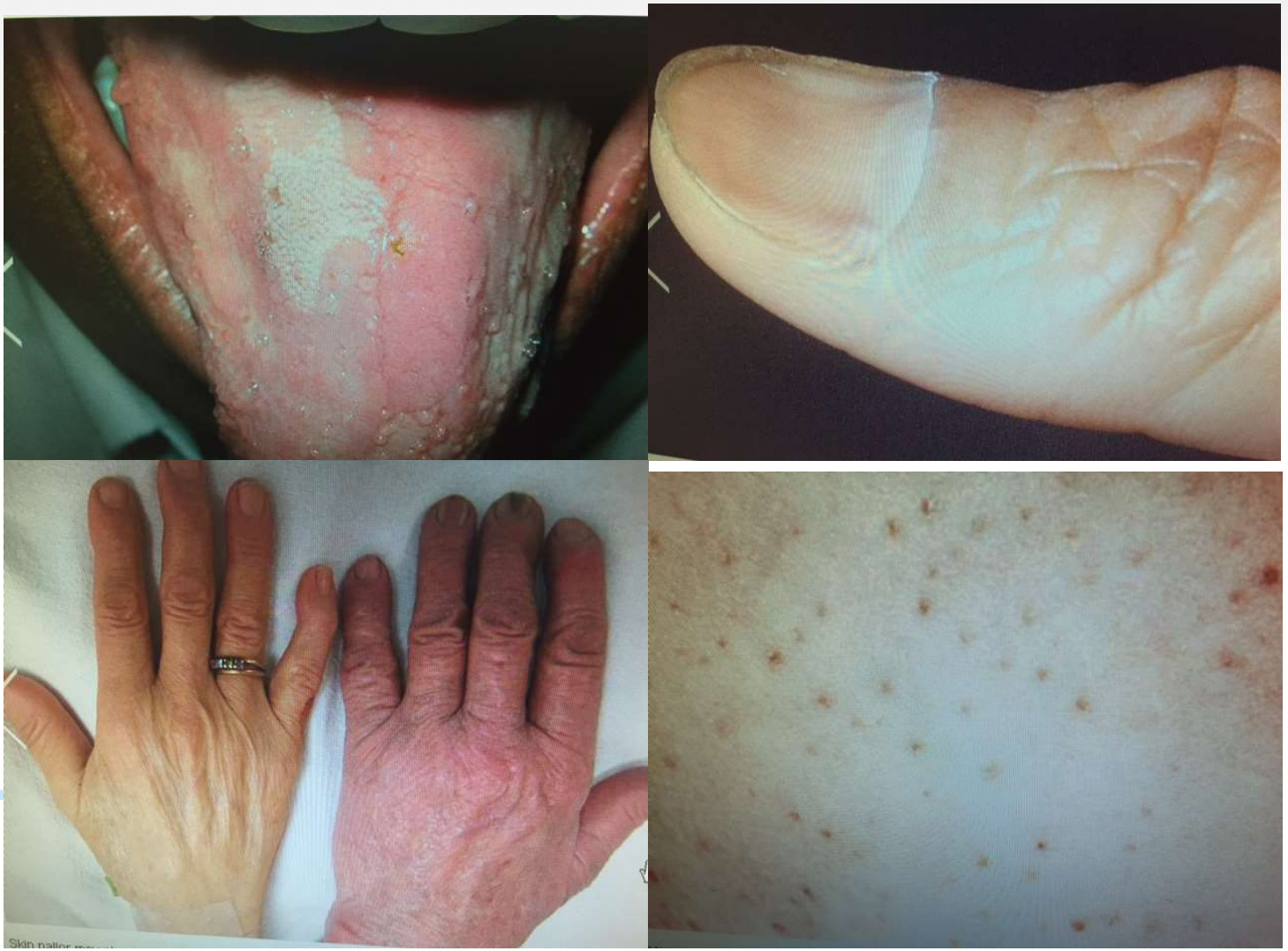
- 47 yr old lady
- RYGB 25 yrs ago
- 25 stones (158 kg) prior to surgery
- Weight down to 87 kg but stable for years
- Grave's disease 3 yrs ago, thyroidectomy on 250 mcg T4

Case study: Susan

- Poor night vision and visual disturbances
- Poor memory
- Pins and needles in hands and feet
- Acid reflux
- Steatorrhea
- Regular periods, not heavy

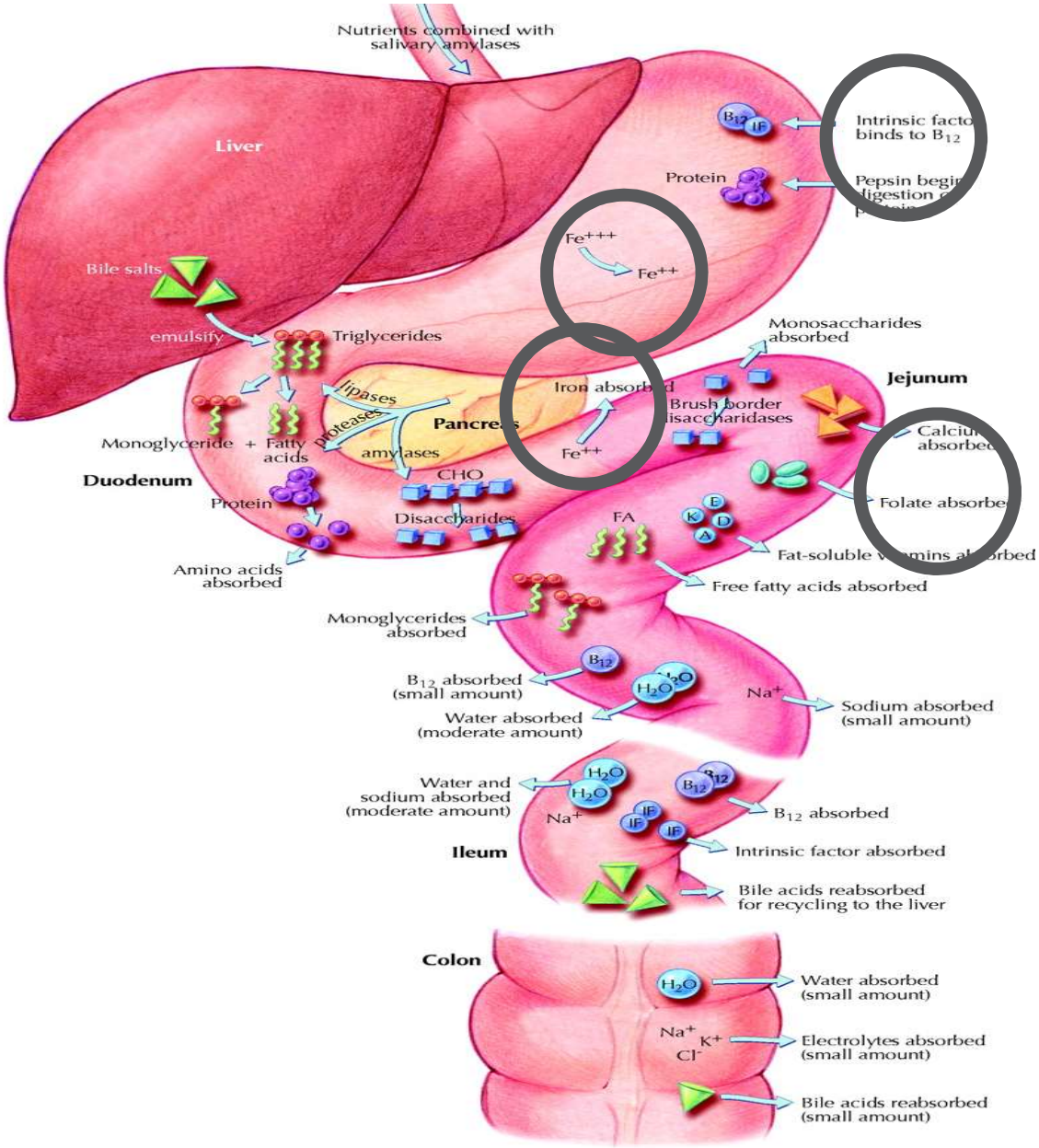
- Never had nutritional replacements- HCPs thought ‘she was mad’

Signs nutritional deficiencies



Case study: Susan

- Hb **96 g/L**
- MCV **64**
- Iron **4.0 umol/L** (NR 11-24)
- Ferritin **11 ug/L** (NR 22-275)
- Active Vit B12 **20 pmol/L** (25-108)
- Vitamin A **0.6 umol/L** (1.4-3.84)
- Zinc **7.9 umol/L** (11-19)
- Copper **10 umol/L** (12-25)
- Ft4 , TSH **25.1, TSH <0.01**


Nutrients combined with salivary amylases
Liver
Bile salts
emulsify
Triglycerides
lipases
proteases
amylases
Pancreas
Monoglyceride + Fatty acids
Duodenum
Protein
CHO
Disaccharides
Amino acids absorbed
Intrinsic factor binds to B12
Protein
Fe+++
Fe++
Iron absorbed
Fe++
Monosaccharides absorbed
Brush border disaccharidases
Jejunum
Calcium absorbed
Folate absorbed
FA
Fat-soluble vitamins absorbed
Free fatty acids absorbed
Monoglycerides absorbed
B12 absorbed (small amount)
Water absorbed (moderate amount)
Na+
Sodium absorbed (small amount)
Water and sodium absorbed (moderate amount)
B12 absorbed
Intrinsic factor absorbed
Ileum
Bile acids reabsorbed for recycling to the liver
Colon
Water absorbed (small amount)
Electrolytes absorbed (small amount)
Bile acids reabsorbed (small amount)

What nutritional deficiencies would you be concerned about with neurological symptoms?

A. Vitamin B12
B. Copper
C. Vitamin E
D. Thiamine
E. All of the above

What nutritional deficiencies would you be most concerned about with unexplained anaemia?

A. Iron

B. Vitamin B12 and folate

C. Copper (Zinc and selenium)

D. Vitamin E

Post-RYGB blood tests

• **HbA1c**	As appropriate
• **Lipid profile**	In those with dyslipidaemia
• **FBC, U&E, LFTs, Ca, Vit D, PTH, ferritin, folate**	3, 6, 12 m, yearly
• **Thiamine**	Not routine unless vomiting
• **Vitamin B12**	6m and 12m. No need if on 3m inject.
• **Zinc**	Annually. If unexplained anaemia, hair loss or changes in taste
• **Copper**	Annually. If unexplained anaemia, neuropathy or impaired wound healing
• **Vitamin A**	If steatorrhoea, night blindness
• **Vitamin E and K**	If unexplained anaemia, neuropathy
• **Selenium**	If unexplained anaemia, metabolic bone disease, chronic diarrhoea, HF

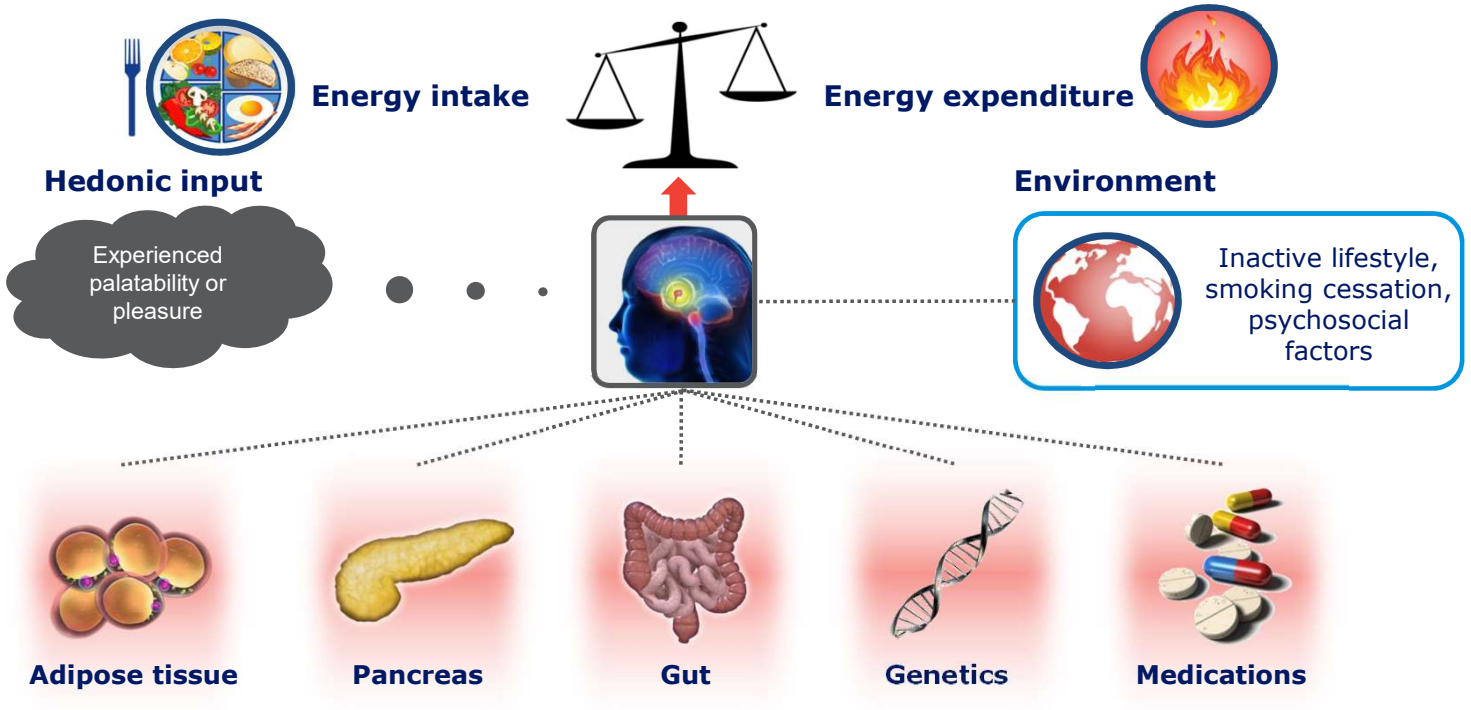
Nutritional deficiencies post RYGB

- Nutritional deficiencies pre-bariatric surgery are common
- Post-RYGB, patients need life-long supplements with multivitamins, calcium, vit D, iron and Vit B12
- Suspect thiamine deficiency in prolonged vomiting
- If neurological symptoms present, suspect Wernicke encephalopathy (thiamine) but also vitamin B12, Vitamin E or copper deficiency
- Think Copper/Zinc/Selenium Vit E deficiency for unexplained anaemia

Nutritional deficiencies post RYGB

- Annual blood tests required
- Delay pregnancy for 12-18 months
- Optimise T2DM pre/peri/post-op
- Reassess regularly for re -emergence of metabolic complications
- Medical optimisation pre-op will aid post-op optimisation
- Life-long nutritional follow-up required

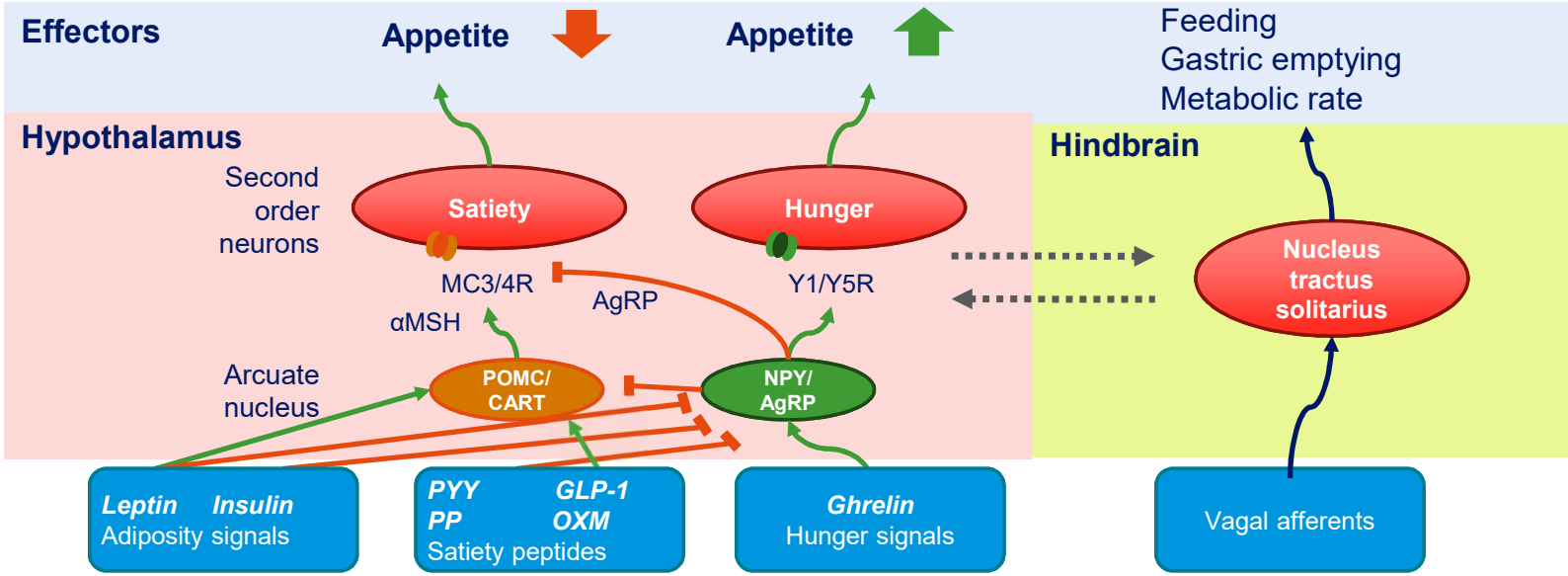
Obesity is a complex and multifactorial disease



1. Badman, Flier. *Science* 2005;307:1909–14; 2. US Department of Health and Human Services, 1998. NIH Publication No. 98-4083

Hypothalamic regulation of appetite

Peripheral signals modulate appetite and energy expenditure via hypothalamic neurons



AgRP, Agouti-related protein;
NPY, neuropeptide Y; POMC, pro-opiomelanocortin; α-MSH, α-melanocyte stimulating hormone; GLP-1R, glucagon-like peptide-1 receptor; OXM, oxyntomodulin

Adapted from: Badman *et al. Science* 2005;307:1909–14; Seo *et al. Endocr J* 2008;55:867–74; Secher *et al. J Clin Invest* 2014;124:4473–88

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

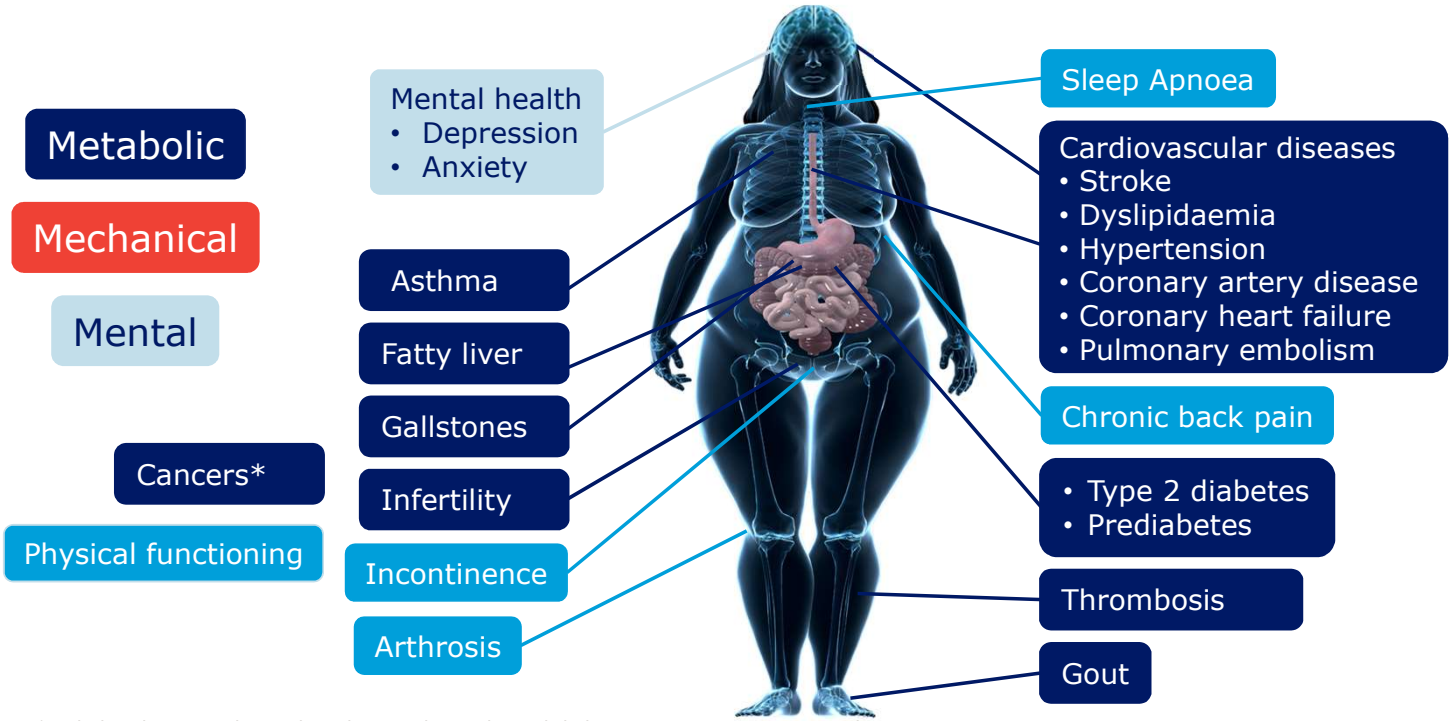
Long-Term Persistence of Hormonal Adaptations to Weight Loss

Priya Sumithran, M.B., B.S., Luke A. Prendergast, Ph.D., Elizabeth Delbridge, Ph.D., Katrina Purcell, B.Sc., Arthur Shulkes, Sc.D., Adamandia Kriketos, Ph.D., and Joseph Proietto, M.B., B.S., Ph.D.

N ENGL J MED 365;17 NEJM.ORG OCTOBER 27, 2011

Sumithran P *et al. N Engl J Med* 2011;365:1597–604

Obesity is associated with multiple comorbidities
Metabolic, Mechanical and Mental



*Including breast, colorectal, endometrial, esophageal, kidney, ovarian, pancreatic and prostate

Adapted from Sharma AM. *Obes Rev*. 2010;11:808-9; Guh *et al. BMC Public Health* 2009;9:88; Luppino *et al. Arch Gen Psychiatry* 2010;67:220–9; Simon *et al. Arch Gen Psychiatry* 2006;63:824–30; Church *et al. Gastroenterology* 2006;130:2023–30; Li *et al. Prev Med* 2010;51:18–23; Hosler. *Prev Chronic Dis* 2009;6:A48

Obesity Staging Score

	Stage 0	Stage 1	Stage 2	Stage 3
	"Normal health"	*"At risk"*	*"Established disease"*	*"Advanced disease"*
Airways	Normal	Snoring	Require CPAP	Cor pulmonale
Body mass index	<35	35-40	40-60	>60
Cardiovascular	<10% risk	10-20% risk	Heart disease	Heart failure
Diabetes	Normal	Impaired fasting glycaemia	Type 2 diabetes	Uncontrolled type 2 diabetes
Economic	Normal	Expensive travel/clothes	Workplace discrimination	Unemployed due to obesity
Functional	Can manage 3 flights of stairs	Manages 1 or 2 flights of stairs	Requires walking aids or wheel chair	House bound
Gonadal	Normal	PCOS	Infertility	Sexual dysfunction
Health perceived	Normal	Low mood or QoL	Depression or poor QoL	Severe depression
body Image	Normal	Dislikes body	Body image dysphoria	Eating disorder

Aasheim E et al, Clinical Obesity 2011

Pharmacological options for weight management

	Orlistat	Phentermine	Phentermine / Topiramate	Lorcaserin	Naltrexone / bupropion ▼	Liraglutide 3.0 mg ▼
Status (EU)	Approved (Rx and OTC)	Not approved	Rejected	Withdrawn	Approved	Approved
Status (US)	Approved (Rx and OTC)	Only approved for short term use	Approved	Approved	Approved	Approved
Indications	Adjunct to diet for obesity (BMI≥30 kg/m^2 or BMI≥27* kg/m^2 with risk factor), including weight loss and maintenance	Adjunct to diet and physical activity for chronic weight management in a) obesity BMI≥30 kg/m^2 and b) overweight BMI≥27 kg/m^2 with comorbidity				

*In EU, orlistat is indicated at BMI≥28 kg/m^2 with risk factor

FDA Drugs: http://www.fda.gov/Drugs/default.htm; EMA Medicines: http://www.ema.europa.eu/

Obesity Training in UK

Arutchelvam Vijayaraman

QM Lead, School of Medicine , HEE NE

Training programme Director , HEENE

Vice Chair, National SAC, Endocrinology and Diabetes

Chair: Northern Bariatric Association

Consultant in Diabetes, James Cook University Hospital, Middlesbrough

Current status

AMERICAN BOARD of OBESITY MEDICINE

SCOPE

5As of Obesity Management™ Canadian Obesity Network

EASO European Association for the Study of Obesity

EUROPEAN OBESITY ACADEMY

Accredited Training programme for Obesity in UK?

- Gastroenterologists?
- Diabetes, Endocrinologists?
- Separate speciality?

Why we need a programme?

- Obesity : Major epidemic
- Need trained physicians for patient centred care
- Tier 3 Specialist weight management services
- Bariatric surgery
- Research in obesity Medicine
- Clinical and corporate leadership
- Career option

Curriculum up to 2016

- Section 3.7 Appetite and Weight
- Main focus on eating disorder
- No focussed training on weight management

New Curriculum
Sub section of Endocrinology

3.7 Disorders related to Weight		
Knowledge	Assessment Methods	GMP
Epidemiology of obesity and its increasing prevalence	Mini-CEX, CbD	1,2
Classification of obesity and racial and ethnic variations in associated risks	Mini-CEX, CbD	1,2
Pathophysiology of morbid obesity and metabolic syndrome	Mini-CEX, CbD	1,2
Causes of obesity including lifestyle, endocrine causes and medications	Mini-CEX, CbD, SCE	1,2
Complications of obesity including metabolic syndrome and type 2 diabetes	Mini-CEX, CbD, SCE	1,2
Principles of management of obesity and morbid obesity including lifestyle, medications and bariatric surgery	Mini-CEX, CbD, SCE	1,2
Essential components of a bariatric service	Mini-CEX, CbD	1,2
The principles of peri-operative management of the obese patient including adjustment of anti-diabetes medication	Mini-CEX, CbD	1,2
The principles of long term management of the bariatric patient following surgery	Mini-CEX, CbD	1,2

Skills

Skills	Assessment Methods	GMP
Assess a patient with morbid obesity	Mini-CEX, CbD	1,2
Investigate for secondary causes of obesity	Mini-CEX, CbD	1,2
Investigate for complications of obesity including diabetes and metabolic syndrome, sleep apnoea, fatty liver disease	Mini-CEX, CbD	1,2
Theory behind working up someone for referral for bariatric surgery based on current guidelines- Not mandatory	Mini-CEX, CbD	1,2,3

Behaviours

Behaviours	Assessment Methods	GMP
Recognise the effect that morbid obesity may have on the patient and their family	Mini-CEX, CbD	1,3,4
Recognise the complex underlying issues associated with morbid obesity and be willing to explore them	Mini-CEX, CbD	1,3,4
Recognition of psychological impact of obesity, and seeking appropriate support	Mini-CEX, CbD	3,4
Recognise the role of multi-disciplinary team in management of morbid obesity	Mini-CEX, CbD	3
Recognise the importance of detailed evaluation before referring a patient for bariatric surgery	Mini-CEX, CbD	1,2,3,4
Recognise the need for special equipment for patients with morbid obesity, when in clinic or when admitted to hospital	Mini-CEX, CbD	1,2,3,4

Transition of current trainees

Year 1-3 trainees (ST3-ST5)

Trainees will be expected to use the amended curriculum with immediate effect and will be expected to demonstrate that they have met the revised competencies in relation to weight management.

Year 4-5 trainees (ST6-ST7)

Trainees in their final 2 years of training will not be mandated to record evidence or progress for the new section but will be encouraged to use the opportunities in getting the relevant training in weight management.

Eportfolio guidance

The 2016 amendments to the 2010 curriculum will be added to the ePortfolio. There will not be a separate curriculum so trainees can continue to use the current curriculum in the e-portfolio and maintain the linked evidence.

ARCP decision aid updated

To start

- For the new starters in August 2017
- Need availability of weight management services in each training programme
- SCE Should be updated
- Bariatric surgery in each training programme
- Will communicate after the SAC meeting on 24.2.17

Future

- Post CCT Modular credentialing
- Research programmes
- Exchange programmes
- In 3-5 years: There will be accredited bariatric physicians across the country

In conclusion

- Diabetologists are best placed to manage patients with T2DM and obesity
- Currently they are not adequately trained – hit and miss and some trainees may never set foot in a Tier 4 bariatric centre
- Our mentors have not been taught how to manage obesity and often do not prioritise commissioning and support of much needed obesity training and care pathways
- Current curriculum attempts to introduce some obesity training but not enough
- Obesity should be taught all the way through medical school, postgraduate and specialist training
- It is the commonest disease and a worldwide epidemic and it needs to be taught and managed with the respect it deserves

If you believe in changing things for the better….

PLEASE SUPPORT THIS MOTION

Association of British Clinical Diabetologists

Gold Supporters:

Silver supporters:

AUTUMN MEETING

BMA House, London

8th & 9th November 2018

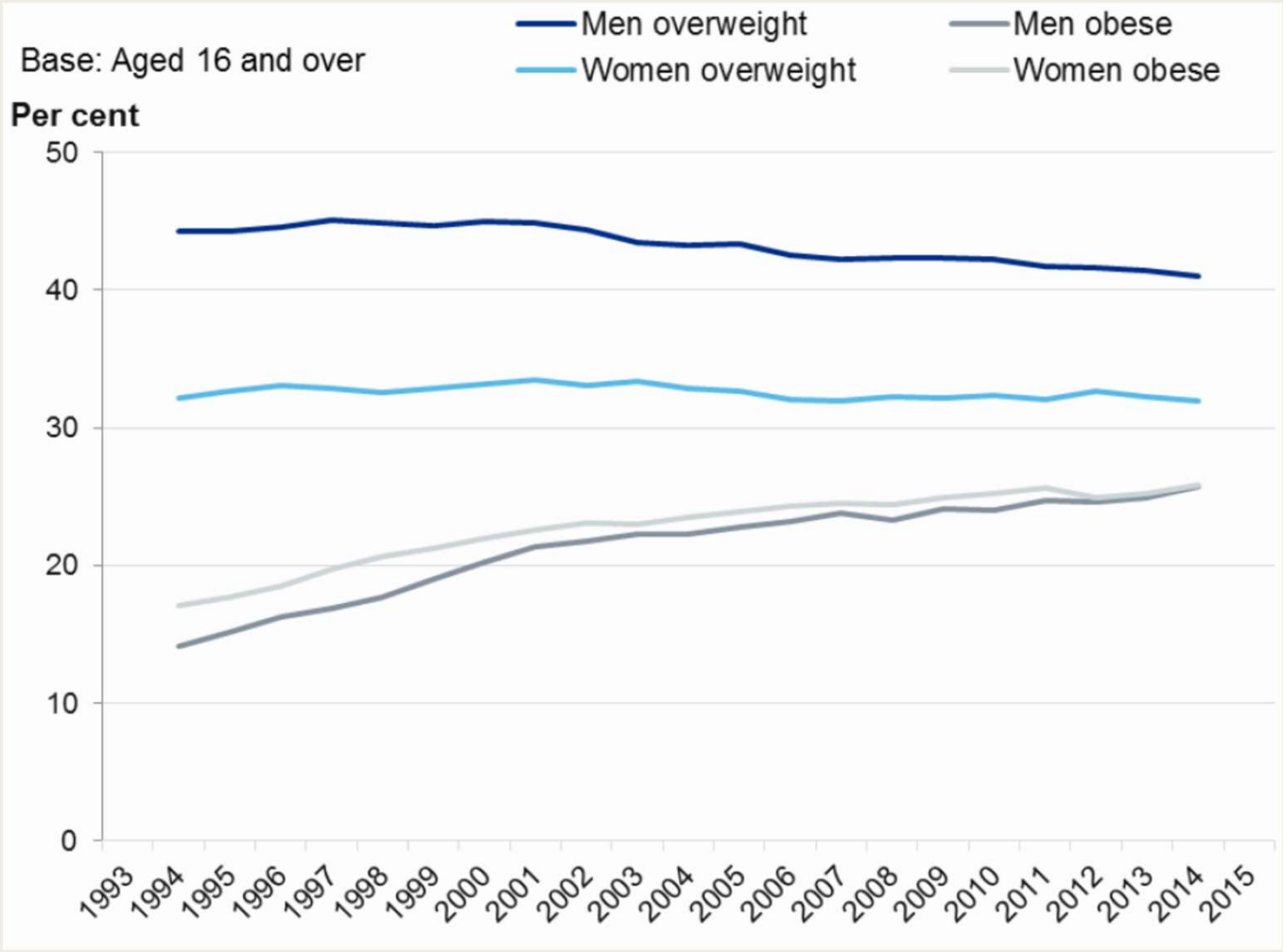
The sponsoring pharmaceutical companies have not had any editorial input into the agenda or material being presented, with the exception of the sponsored symposium

"CURRENT DIABETOLOGISTS ARE NOT ADEQUATELY EQUIPPED TO MANAGE OBESITY WITH DIABETES"

Abd A Tahrani
MD, MMedSci, SCOPE (National Fellow), FRCP (London), PhD
Honorary Consultant in Diabetes and Endocrinology
Lead for Translational and Weight Management Research
Lead for Diabetic Neuropathy Services

ABCD Autumn Meeting, London, November 2019

Trends of Obesity and Overweight in England



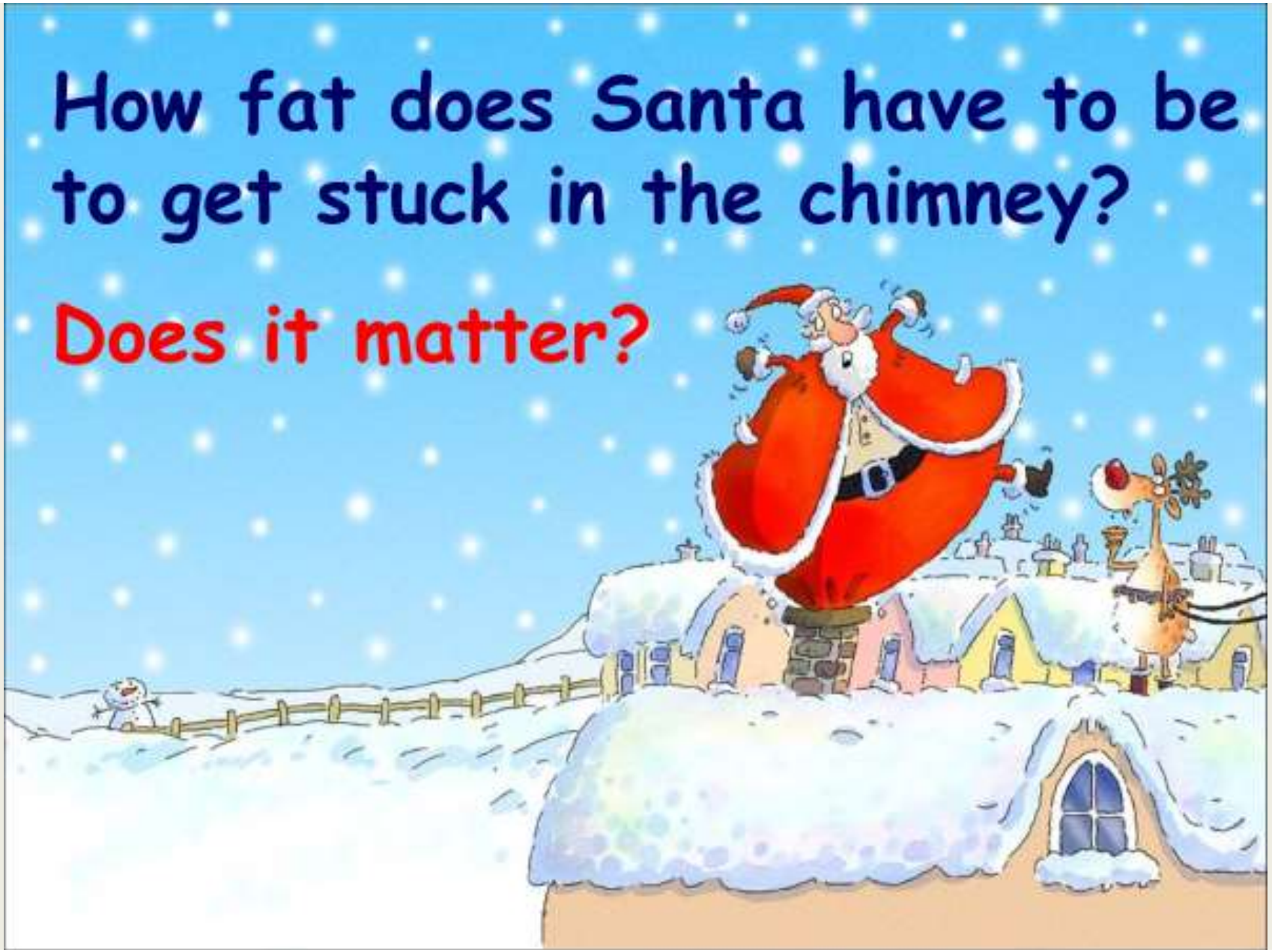
Even Santa Became Obese!

c.1800

1930

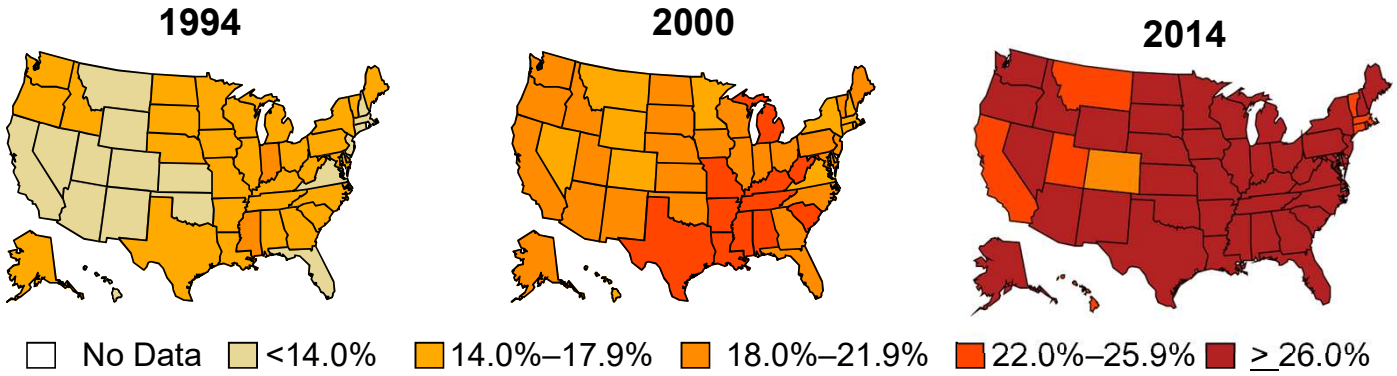
1980

1990

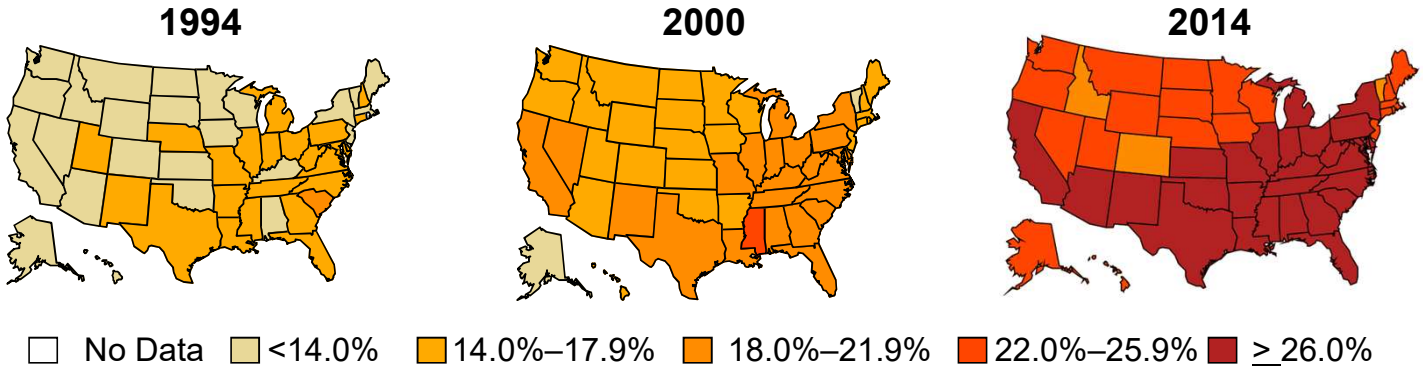

How fat does Santa have to be to get stuck in the chimney?
Does it matter?

Age-adjusted prevalence of obesity and type 2 diabetes among US adults

Obesity (BMI ≥30 kg/m^2)



Diabetes



CDC's Division of Diabetes Translation. United States Surveillance System available at http://www.cdc.gov/diabetes/data

SO IF DIABETOLOGISTS ARE NOT EQUIPPED TO TREAT DIABETES “WITH OBESITY”…. THEN WHO IS?

obesityreviews

WORLD OBESITY

World Obesity Federation Position Statement | Free Access

Obesity: a chronic relapsing progressive disease process. A position statement of the World Obesity Federation

G.A. Bray ✉, K.K. Kim, J.P.H. Wilding, on behalf of the World Obesity Federation

First published: 10 May 2017 | https://doi.org/10.1111/obr.12551 | Cited by: 25

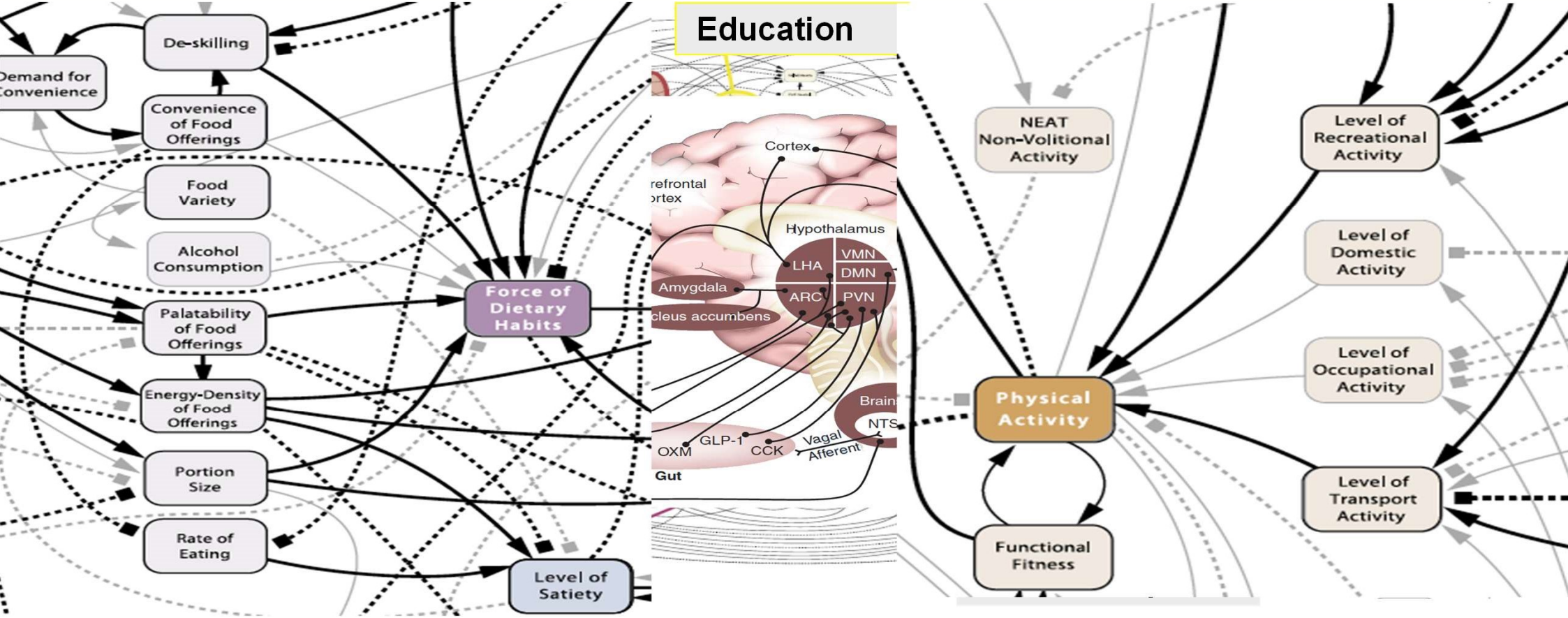
What do diabetologists aim to do?

- Improve HbA1c
- Lower BP
- Lower LDL
- Lower CVD
- Lower mortality
- Reduce microvascular complications
- Improve QOL

What does weight loss do in diabetes

- Improves HbA1c
- Lowers BP
- Lowers LDL
- Lowers CVD
- Lowers mortality
- Reduces microvascular complications
- Improves QOL

Who does understand hormones better?



Foresight: Tackling Obesities: Future Choices – Project Report
http://s3.amazonaws.com/foresight/17.pdf

3.7 Disorders related to weight

Diagnose, manage and provide care for patients with disorders related to weight		
Knowledge	**Assessment Methods**	**GMP**
Demonstrate Knowledge of:		
Epidemiology of obesity and its increasing prevalence	Mini-CEX, CbD, MCR	1,2
Classification of obesity and racial and ethnic variations in associated risks	Mini-CEX, CbD, MCR	1,2
Pathophysiology of morbid obesity and metabolic syndrome	Mini-CEX, CbD, MCR	1,2
Causes of obesity including lifestyle, endocrine causes and medications	Mini-CEX, CbD, SCE, MCR	1,2
Complications of obesity including metabolic syndrome and type 2 diabetes	Mini-CEX, CbD, SCE, MCR	1,2
Principles of management of obesity and morbid obesity including lifestyle, medications and bariatric surgery	Mini-CEX, CbD, SCE, MCR	1,2
Essential components of a bariatric service	Mini-CEX, CbD, MCR	1,2
The principles of peri-operative management of the obese patient including adjustment of anti-diabetes medication	Mini-CEX, CbD, MCR	1,2
The principles of long term management of the bariatric patient following surgery	Mini-CEX, CbD, MCR	1,2
The endocrine consequences of anorexia nervosa and bulimia	CbD, SCE, MCR	1,2

Skills		
Assess a patient with morbid obesity	Mini-CEX, CbD, MCR	1,2
Investigate for secondary causes of obesity	Mini-CEX, CbD, MCR	1,2
Investigate for complications of obesity including diabetes and metabolic syndrome, sleep apnoea, fatty liver disease	Mini-CEX, CbD, MCR	1,2
Understand what is required to work up a patient for referral for bariatric surgery based on current guidelines	Mini-CEX, CbD, MCR	1,2,3

Behaviours		
Recognise the effect that morbid obesity may have on the patient and their family	Mini-CEX, CbD, MCR	1,3,4
Recognise the complex underlying issues associated with morbid obesity and be willing to explore them	Mini-CEX, CbD, MCR	1,3,4
Recognition of psychological impact of obesity, and seeking appropriate support	Mini-CEX, CbD, MCR	3,4
Recognise the role of multi-disciplinary team in management of morbid obesity	Mini-CEX, CbD, MCR, MSF	3
Appreciation of racial and ethnic variations in BMI and varying thresholds in BMI for treatment	Mini-CEX, CbD, MCR	3
Recognise the importance of detailed evaluation before referring a patient for bariatric surgery	Mini-CEX, CbD, MCR	1,2,3,4
Recognise the need for special equipment for patients with morbid obesity, when in clinic or when admitted to hospital	Mini-CEX, CbD, MCR	1,2,3,4

What are the more effective treatments for sustained long term weight loss?

- Bariatric Surgery
- Saxenda
- Semaglutide
- Many more….

What are the most exciting treatments in diabetes?

The nurse says I'm morbidly obese...So what are you going to do about it!

IF DIABETOLOGISTS ARE NOT EQUIPPED, THEN WHO IS DOING IT NOW?

McGowan, Barbara - consultant in diabetes and endocrinology

Quick links

Find a consultant

Find a service

Our wards

Contacts

Secretary tel: 020 7188 1912

Area of expertise: diabetes and endocrinology and obesity

Languages spoken: English and Italian

uclh

Services

- Service A to Z
- Our hospitals
- **Find a consultant**
- How to refer (GPs)
- How to refer (patients)

Dr Rachel Batterham

Tel: 020 3447 9419
Fax: 020 3447 9217 / 020 3447 9218
Email: rachel.batterham@nhs.net

Location:
University College Hospital

Specialities:
UCLH Bariatric Centre for Weight Management and Metabolic Surgery

Professional background

Rachel Batterham is professor of obesity, diabetes and endocrinology. She established and

Prof John Wilding

Prof John Wilding leads Clinical Research into Obesity, Diabetes and Endocrinology at the University of Liverpool. He trained at Southampton and the Hammersmith Hospital, London where he also undertook three years laboratory-based research into the neurobiology of obesity and diabetes. He has worked at University Hospital Aintree, Liverpool since 1996 and as Professor of Medicine since 2005.

He leads specialist services for severe obesity at University Hospital Aintree – designated a Centre for Obesity Management by the European Association for the Study of Obesity.

Working within the Diabetes Complications Research Centre and the Section of Surgery and Surgical Specialities the focus of his research is primarily concerned with increased mortality and morbidity associated with obesity and diabetes. A better mechanistic understanding of how the "gut talks to the brain" will allow safer and more effective treatments to be used in future. To this end the role of gut hormones, bile acids and changes in food preference are areas of interest.

Professor Carel le Roux

Professor Melanie J Davies, CBE, MB, ChB, MD, FRCP, FRCGP

Diabetes Research Centre / Department of Health Sciences

Professor of Diabetes Medicine

Melanie Davies is a clinician with over 25 years experience working as a diabetologist and physician and since 2006 is Professor of Diabetes Medicine at the University of Leicester. She is an NIHR Senior Investigator, one of only a handful in diabetes in the UK, Director of the NIHR Leicester-Loughborough Diet, Lifestyle and Physical Activity Biomedical Research Unit, Director of a Clinical Trial Unit, Lead for Division 2 of the Clinical Research Network East Midlands and PI on a number of large global studies in the field of diabetes, obesity and cardiovascular disease. Professor Davies is the global PI on the SCALE Obesity trial, a large multinational study investigating management of obesity with GLP-1 analogue.

IS IT THE DIABETOLOGIST THAT IS NOT EQUIPPED OR IS IT THE SYSTEM?

Obesity treatment is a MDT effort... not just the diabetologist

- Dieticians
- Psychologists
- Physiotherapists
- Surgeons
- Nurses

Delivering 1-2-1 interventions?

	Weight Watchers	Slimming World	Rosemary Conley	Size Down	General practice	Pharmacy	Choice	Exercise
Weight loss at programme end (kg)								
BOCF†	4.43 (3.6 to 5.3)**	3.56 (2.7 to 4.4)**	4.23 (3.2 to 5.2)**	2.38 (1.7 to 3.1)**	1.37 (0.4 to 2.3)*	2.11 (1.0 to 3.2)**	3.32 (2.5 to 4.1)**	2.01 (1.2 to 2.8)**
Complete cases only‡	5.15 (4.2 to 6.1)**	4.25 (3.3 to 5.2)**	5.29 (4.2 to 6.4)**	3.22 (2.3 to 4.1)**	2.17 (0.7 to 3.7)*	2.80 (1.4 to 4.2)**	3.81 (2.9 to 4.7)	2.96 (1.8 to 4.1)**
LOCF‡	4.71 (3.9 to 5.6)**	3.76 (2.9 to 4.6)**	4.37 (3.4 to 5.4)**	2.37 (1.7 to 3.1)**	1.13 (0.0 to 2.3)	2.14(1.0 to 3.2,)**	3.56 (2.8 to 4.3)**	1.87 (1.0 to 2.78)**
Weight loss at one year								
BOCF†	3.46 (2.1 to 4.8)**	1.89 (0.9 to 2.9)**	2.12 (0.9 to 3.4)**	2.45 (1.3 to 3.6)**	0.83 (−0.4 to 2.0)	0.66 (−0.4 to 1.7)	2.15 (0.9 to 3.4)**	1.08 (0.1 to 2.1)*
Complete cases only‡	4.43 (2.7 to 6.1)**	3.10 (1.5 to 4.7)**	3.27 (1.4 to 5.1)**	3.71 (2.0 to 5.4)**	1.26 (−0.6 to 3.1)	1.19 (−0.7 to 3.1)	2.94 (1.2 to 4.7)**	1.66 (0.1 to 3.2)*
LOCF‡	4.35 (3.0 to 5.7)**	3.28 (2.2 to 4.4)**	3.17 (1.8 to 4.5)**	3.10 (1.9 to 4.3)**	1.13 (−0.1 to 2.4)	1.85 (0.5 to 3.2)*	2.96 (1.7 to 4.3)**	1.33 (0.2 to 2.4)*

Jolly et al. BMJ 2011; 343 doi: https://doi.org/10.1136/bmj.d6500

GP vs Weight Watcher

- RCT
- 1,267 participants
- GP brief advice, vs. referral to Weight Watchers for 3 or 12 months.
- GP referral to a weight loss programme led to significantly more weight loss than brief advice. The longer programme led to greater weight loss at 12 and 24 months
- Cost effective

Ahern et al. Lancet. 2017 Jun 3;389(10085):2214-2225. doi: 10.1016/S0140-6736(17)30647-5.

GP role is complimentary to other HCPs. Refer to the Dietitian but treat CVD risk

Cluster RCT. N=503, over 12 months

60 general practitioners in the Copenhagen County were randomized to: give nutritional counselling vs. refer to a dietician. Patients were included after opportunistically screening (n=503 patients),

Weight loss was greater in the dietician group (**mean 4.5 kg vs. 2.4 kg**), and increase of HDL-cholesterol was larger in the GP group (**mean 0.13 mmol/l vs. 0.03 mmol/l**).

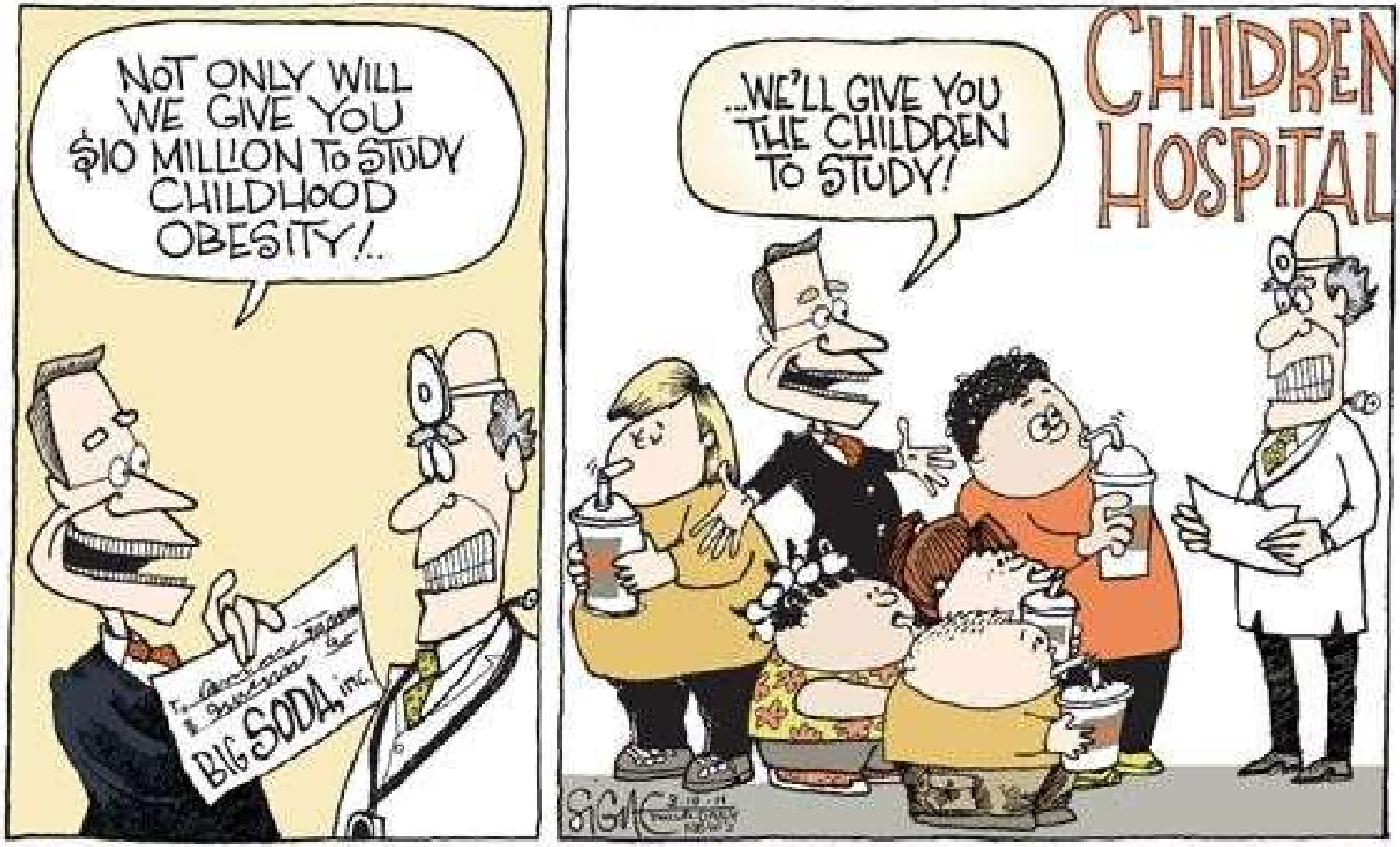
The **reduction of the cardiovascular risk score** was significantly larger in the GP group (P=0.0005). Other health outcomes were not significantly different.

Willaing et al. Eur J Cardiovasc Prev Rehabil. 2004 Dec;11(6):513-20.

GPs play an important role in...

Helping	Helping patients to understand the causes of obesity and the impact of obesity on health.
Conveying	Conveying health risks to their patients (QRISK and Framingham calculators)
Signposting	Signposting patients to appropriate support, which may require referral,
Treating	Treating obesity complications
Providing	Providing holistic perspectives to the patient's weight context.

Pryke et al. Issue: 2015, Vol 1, No 1, Pages 1–40



“IN BRIEF Rates of obesity and diabetes are growing, as are their costs. Because the two diseases share many key determinants, the paradigms for their treatment overlap. For both, optimal treatment involves a multidisciplinary team following the Chronic Care Model of health care delivery.”

Foster et al. Diabetes Spectrum 2017 Nov; 30(4): 244-249

DIABETOLOGISTS ARE NOT “NOT EQUIPPED”, THEY ARE WELL SUITED TO TREAT OBESITY… BUT THE SYSTEM IS ILL EQUIPPED

Obesity
APPG Survey
2018