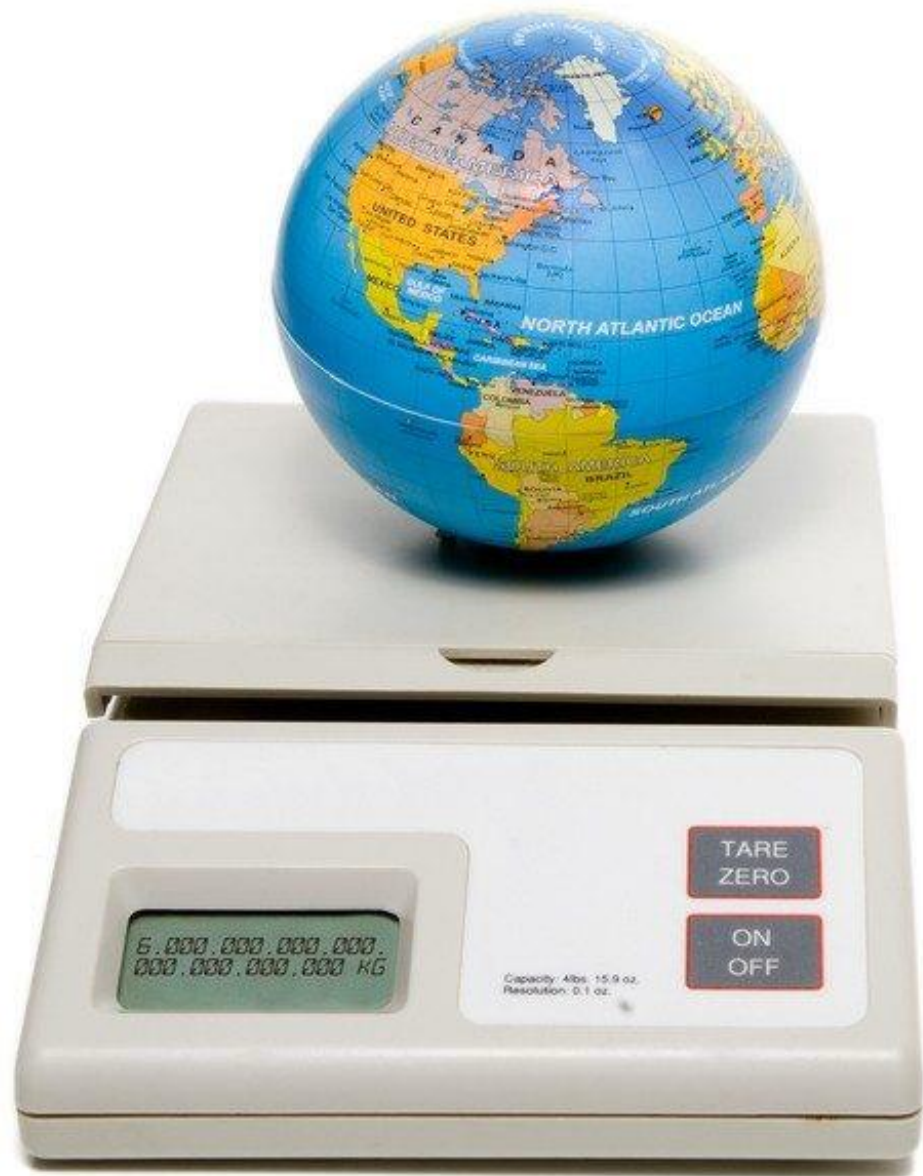


Bariatrische en metabole chirurgie

3e Diëtisten en Mondhygiënist Congres, Houten
29 november 2019

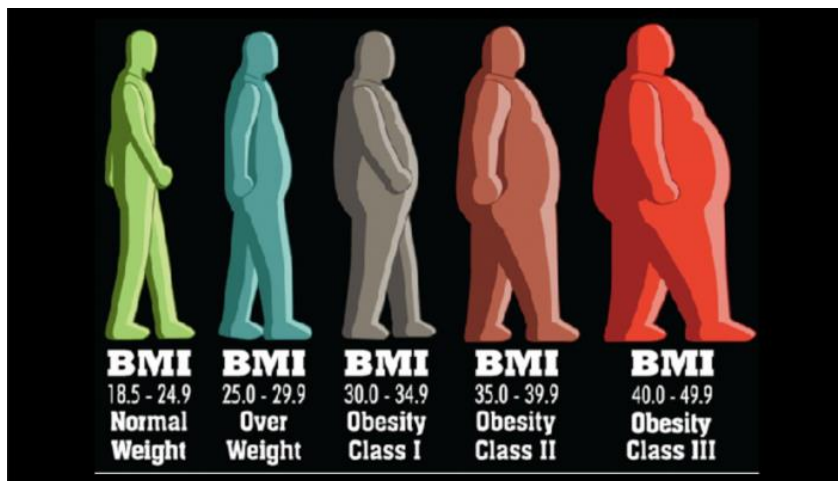
Prof. dr. E.J. Hazebroek



Obesitas

Body Mass Index (BMI) = kg/m^2

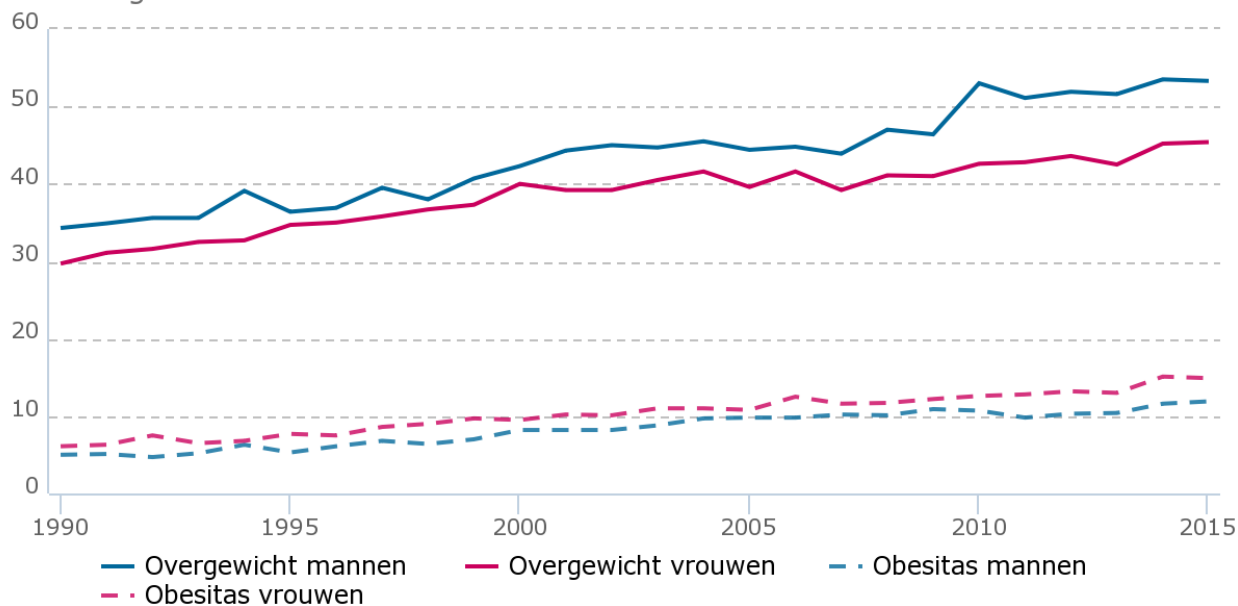
- 19 - 25 normaal gewicht
- 25 - 30 overgewicht
- 30 - 35 obesitas
- 35 - 40 ernstige obesitas
- 40+ morbide obesitas



Volwassenen met overgewicht en obesitas, 1990-2015

18 jaar en ouder

Percentage



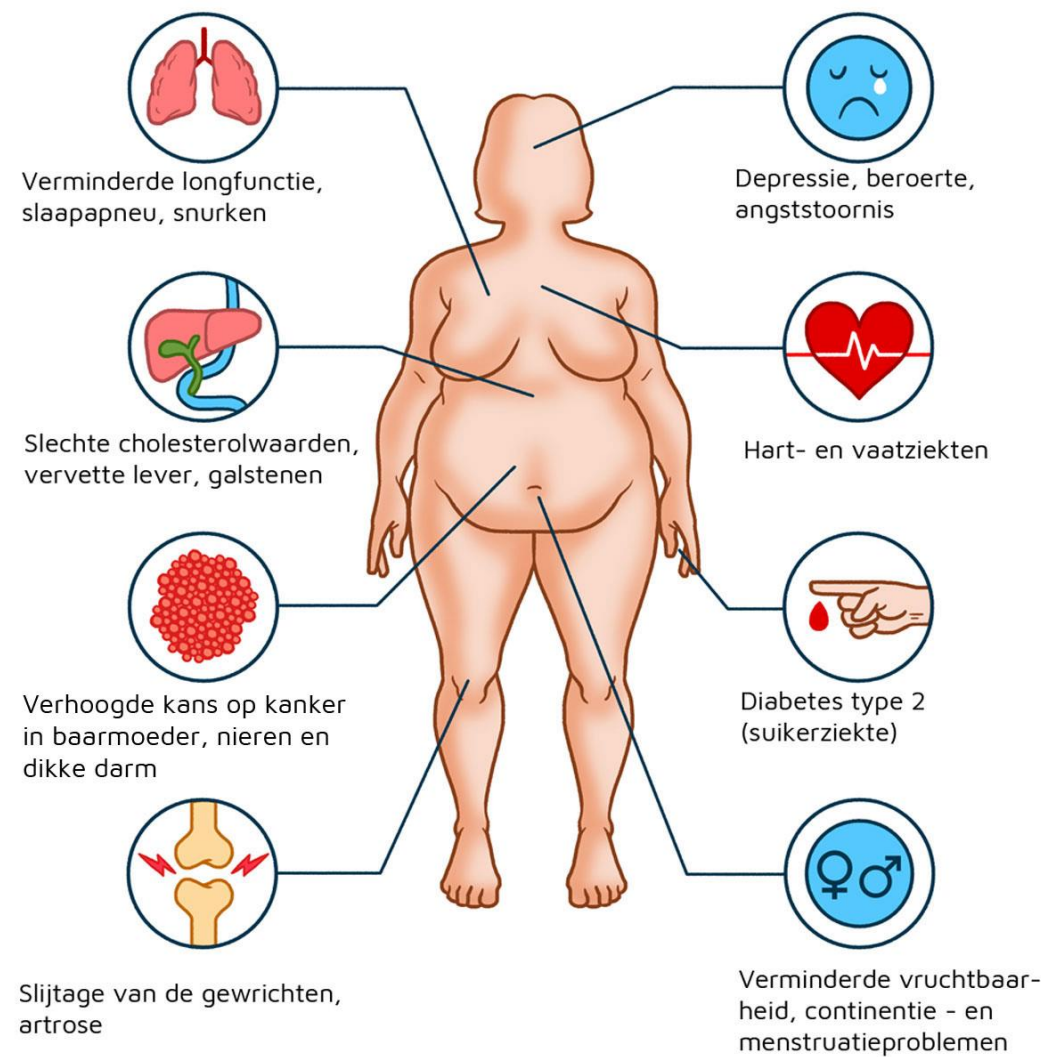
volksgezondheidszorg.info

Kliniek tegen overgewicht

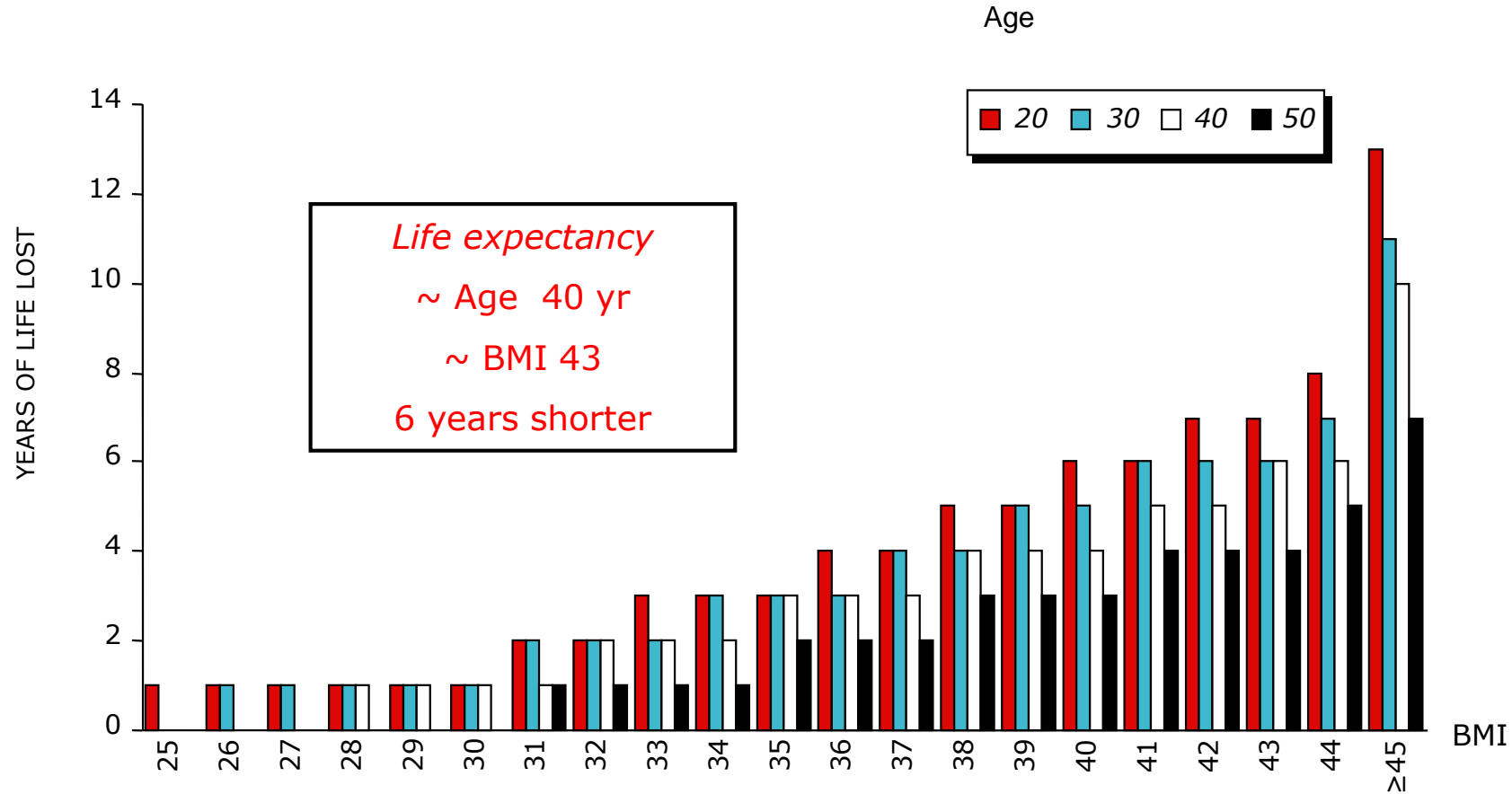
vitalys

NEDERLAND

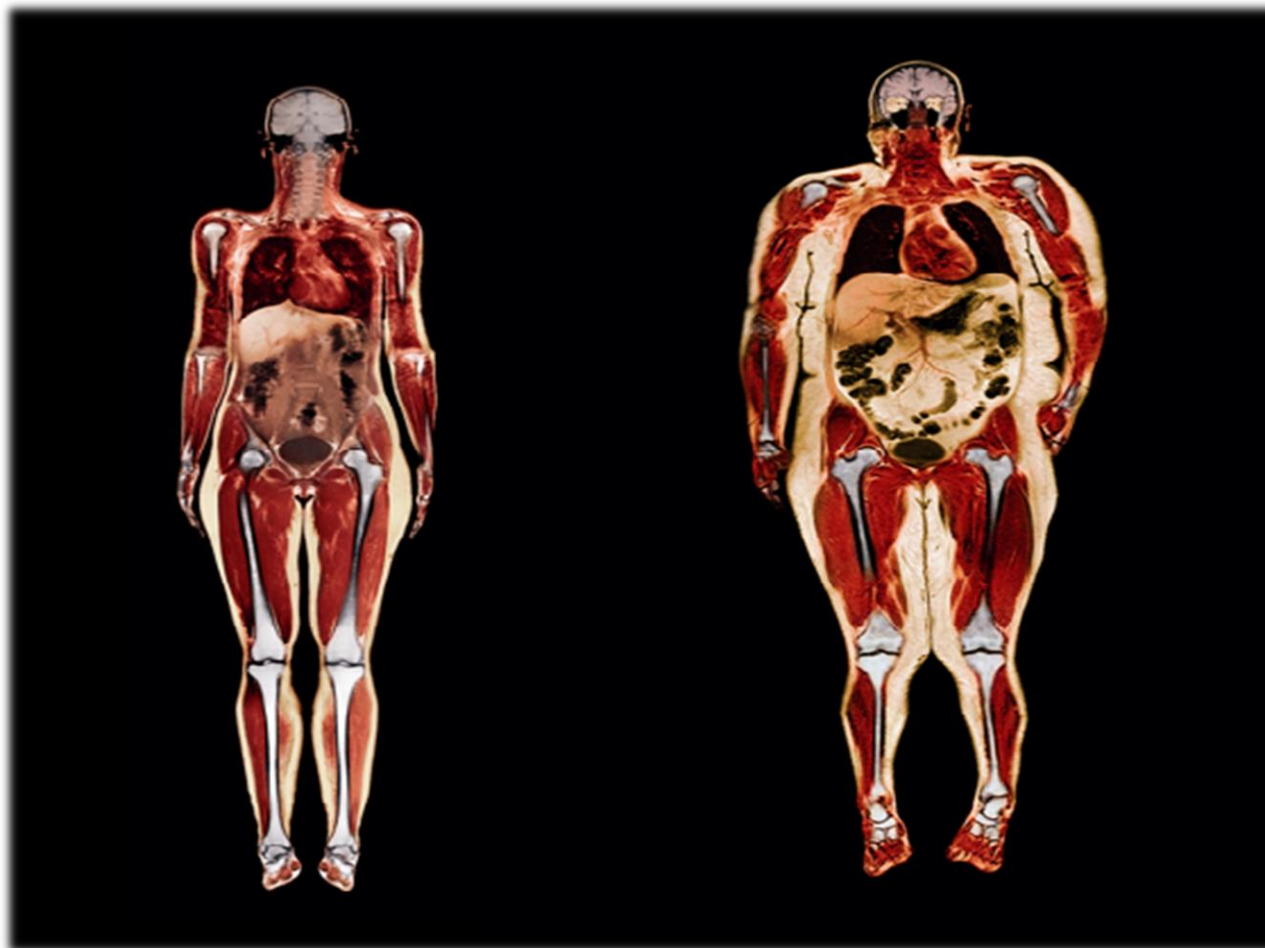
Co-morbiditeiten



Levensverwachting



Years of life lost due to obesity. JAMA 2003;289:187.



“Comparing apples with pears....”



Metabolic syndrome
(Syndrome X)

- Central obesity
- High blood pressure
- High triglycerides
- Low HDL-cholesterol
- Insulin resistance



1 in 3 Americans Have This Apple Shaped Body Leading To Risk Of Prediabetes, and Heart Disease! Weight MD Can Help Reverse It!





HORMONES



Therapeutische opties

Conservatief:

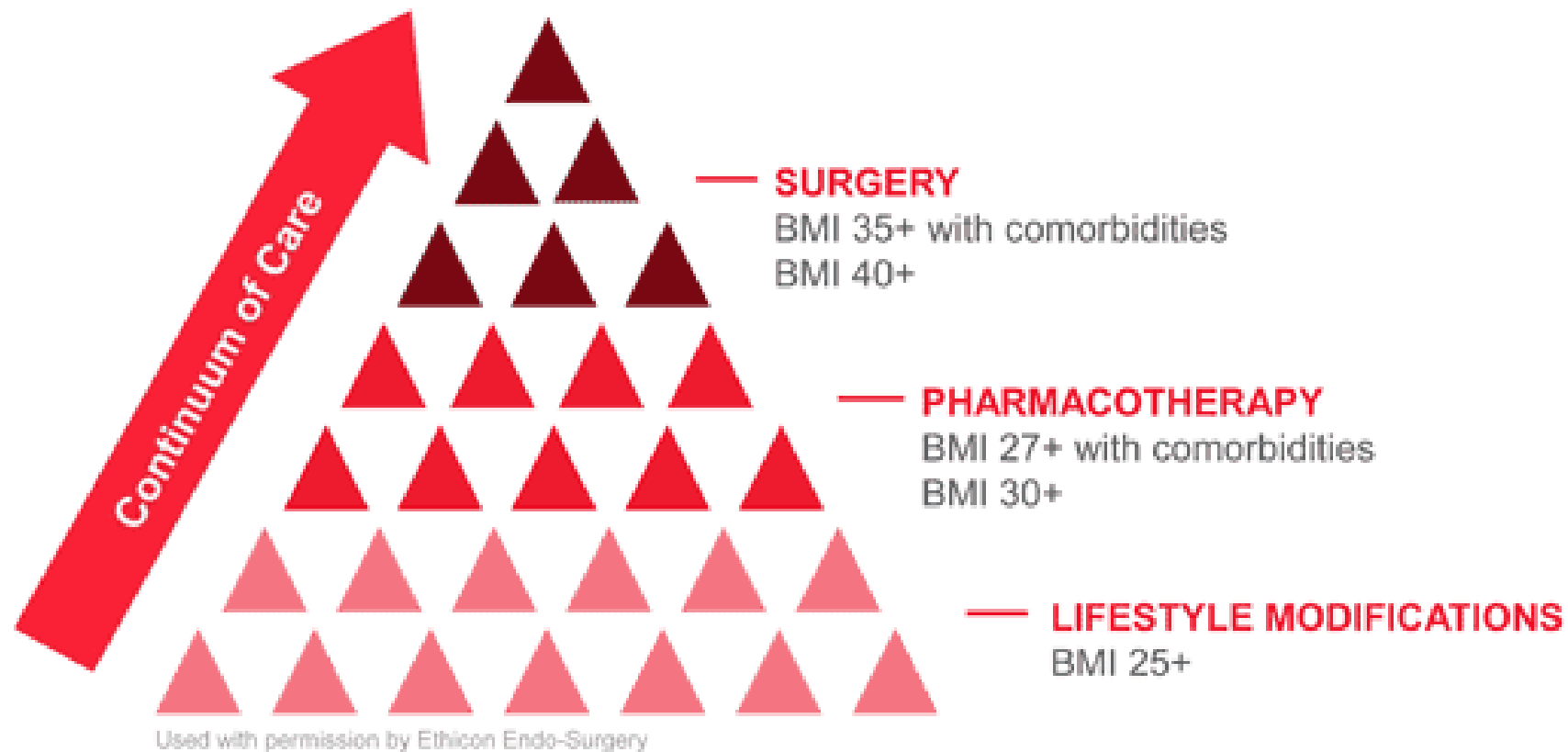
- Dieet
- Lifestyle programma's

Resultaat: max 5% gewichtsreductie na 5 jaar

Chirurgie is enige bewezen
therapie op lange termijn

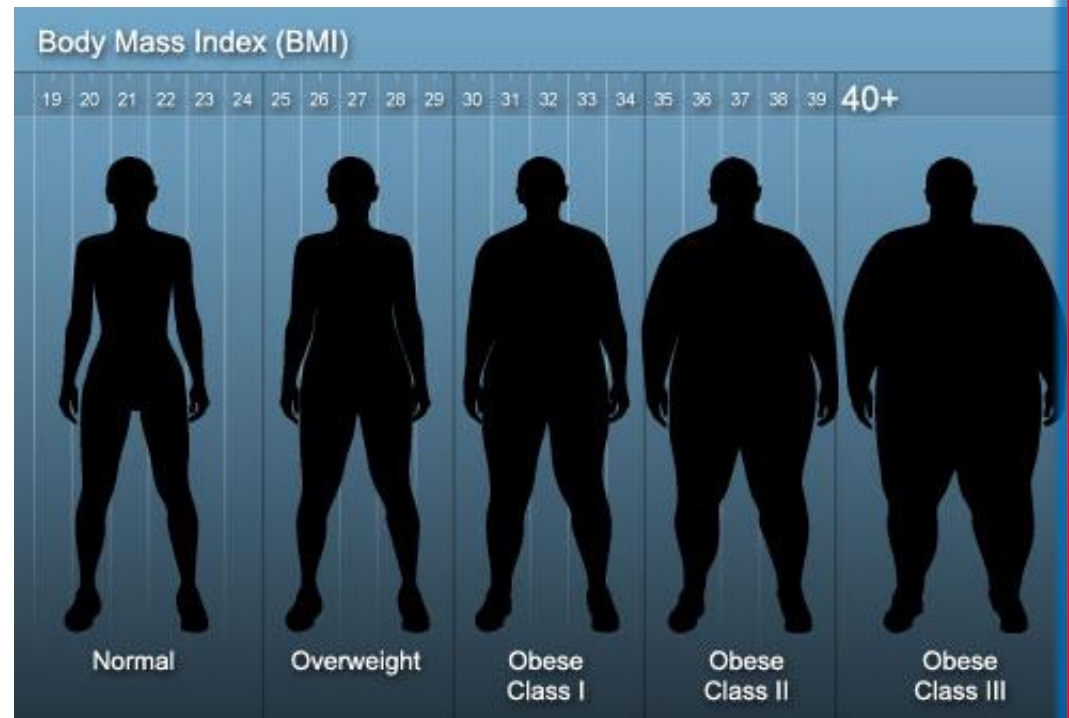


Obesity Treatment Pyramid



Wie is kandidaat?

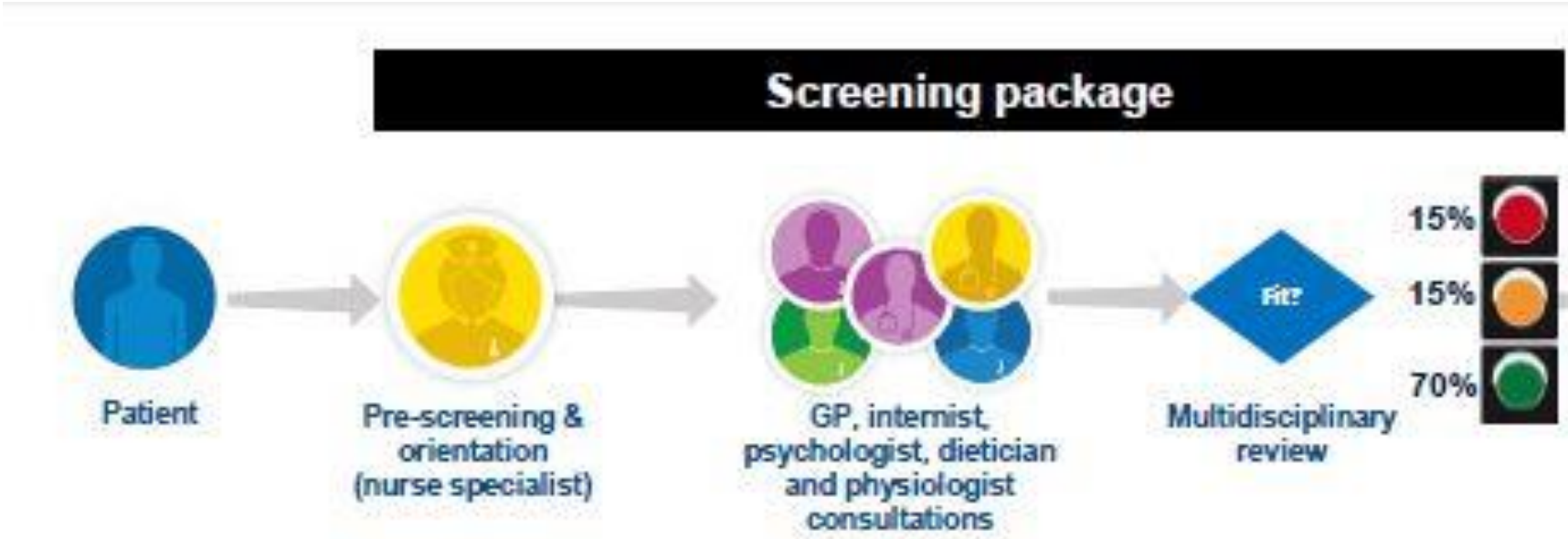
- BMI \geq 40
- BMI \geq 35 met co-morbiditeit
- Leeftijd: 18-65 jaar



Zorgpad

- Oriëntatie fase (consult)
- Multidisciplinaire screening (chirurg, internist, diëtist, psycholoog)
- Voorbereiding (groep, motivatie)
- Operatie
- Leefstijl aanpassing
- Consolidatie fase (intensiteit follow-up ↓)

Screening



Faciliteiten



Medical / Psychologist
consultation-room



Space for online screening
questionnaires



Facilities setup for obese people

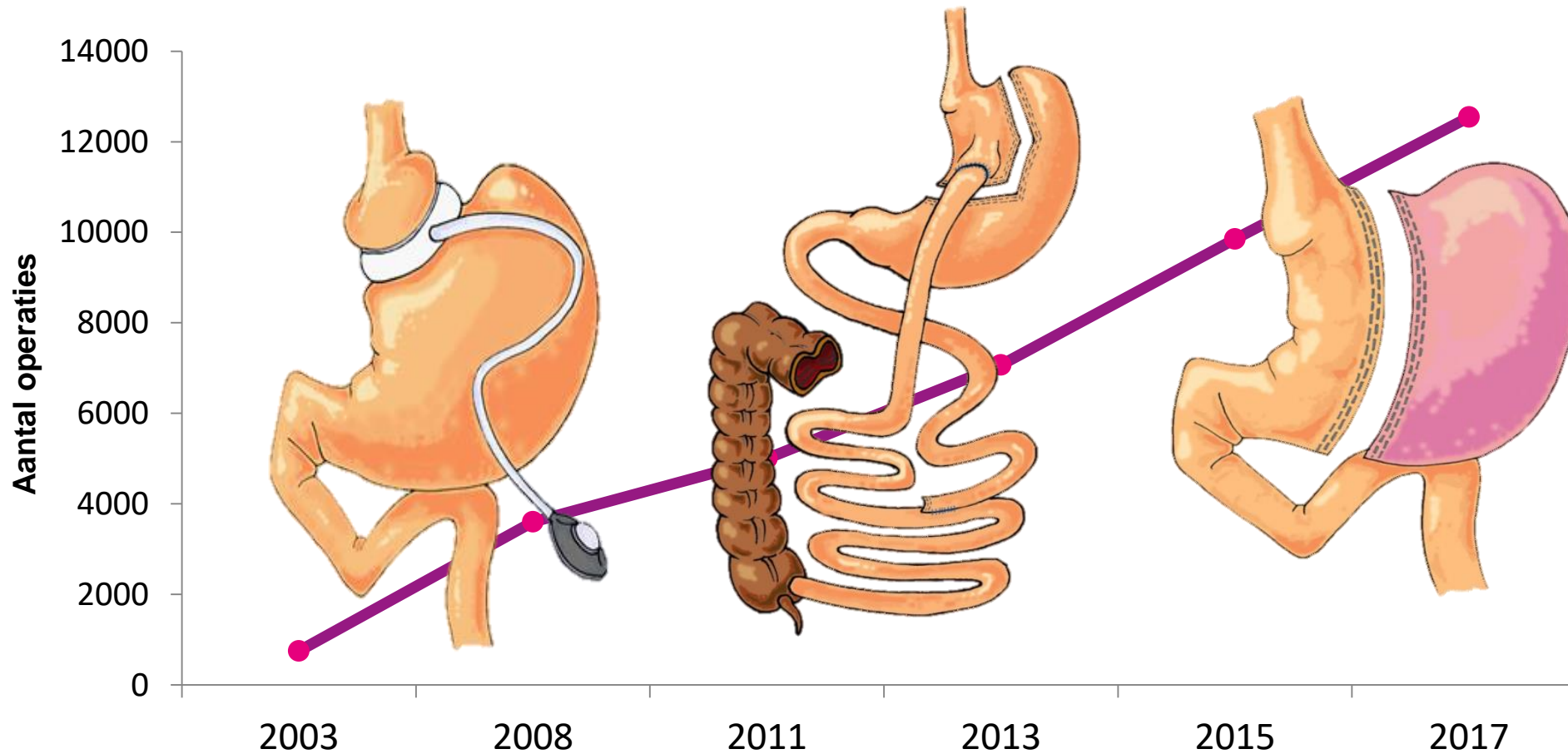


Physiotherapist group-session



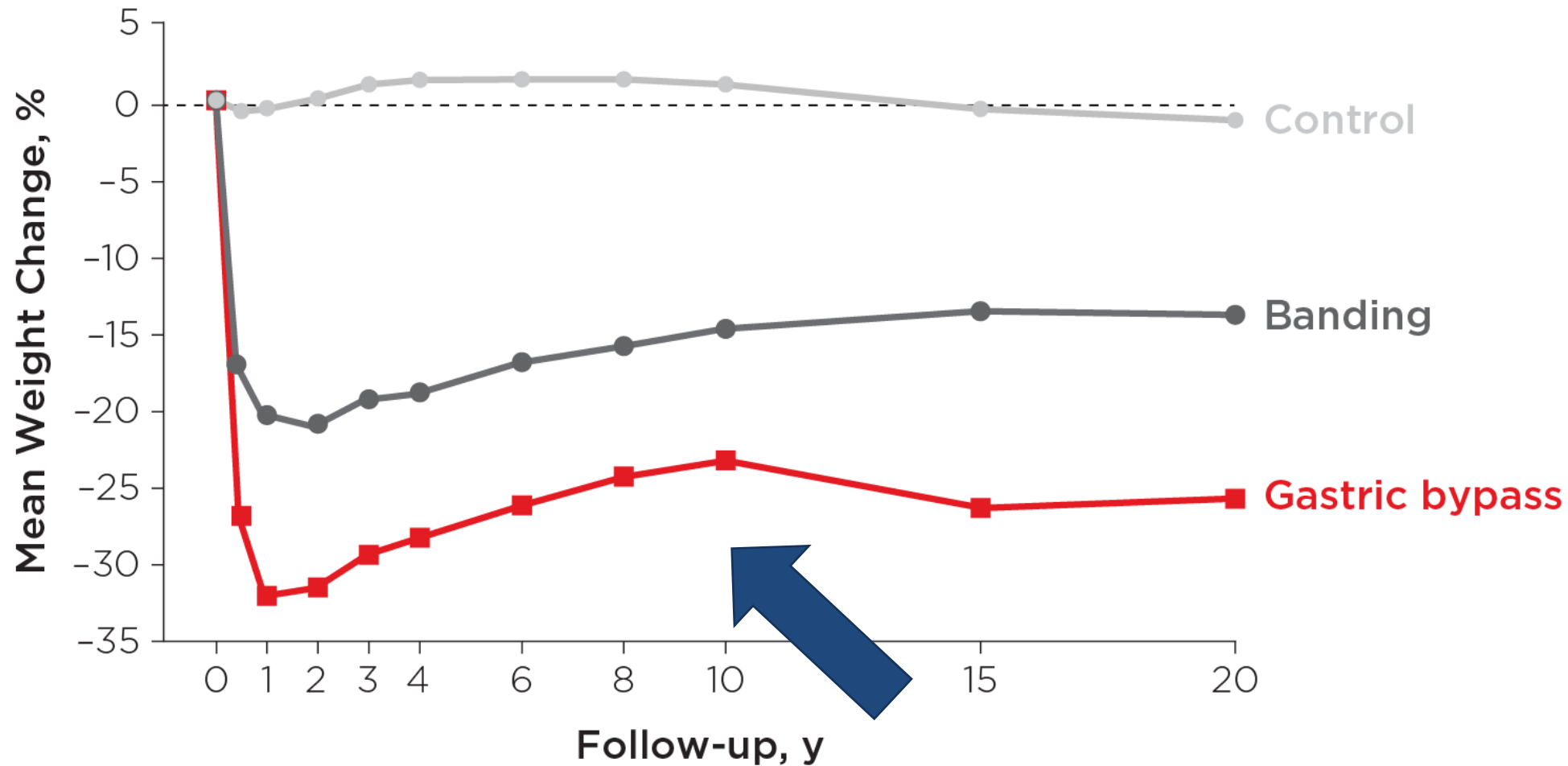
Physiotherapist materials

Bariatrische procedures



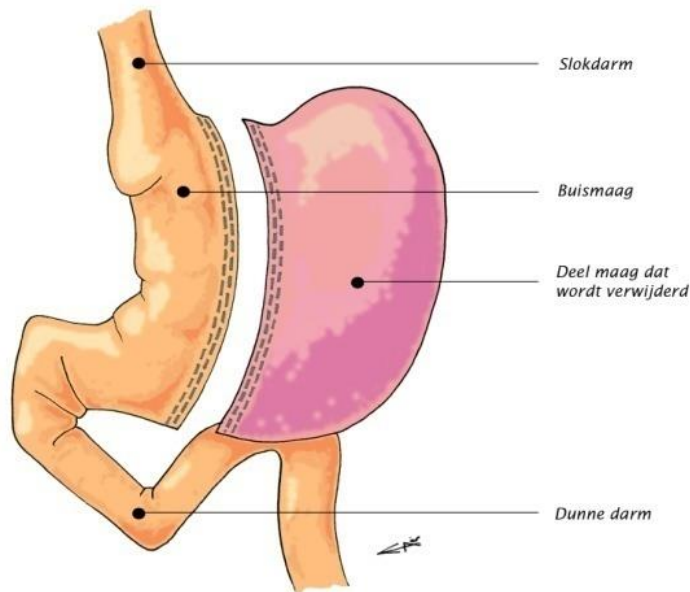
Kliniek tegen overgewicht

Bariatrische procedures

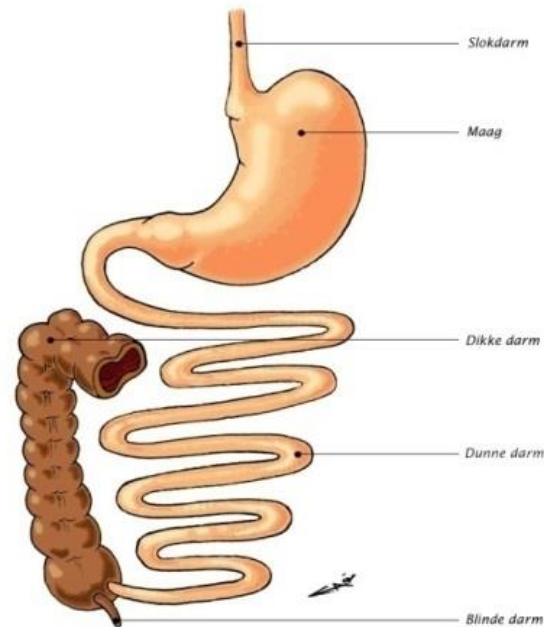


Diverse bariatrische operaties

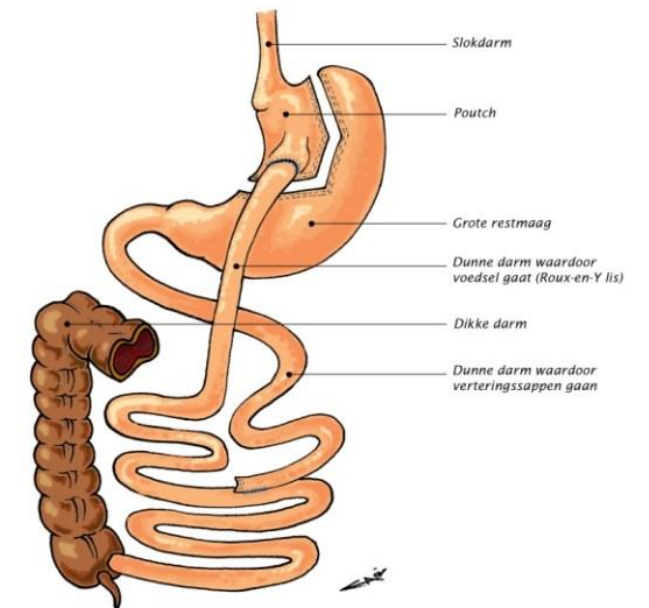
Gastric sleeve



Geen operatie



Gastric bypass



Maagband



- Lage chirurgische morbiditeit/complexiteit

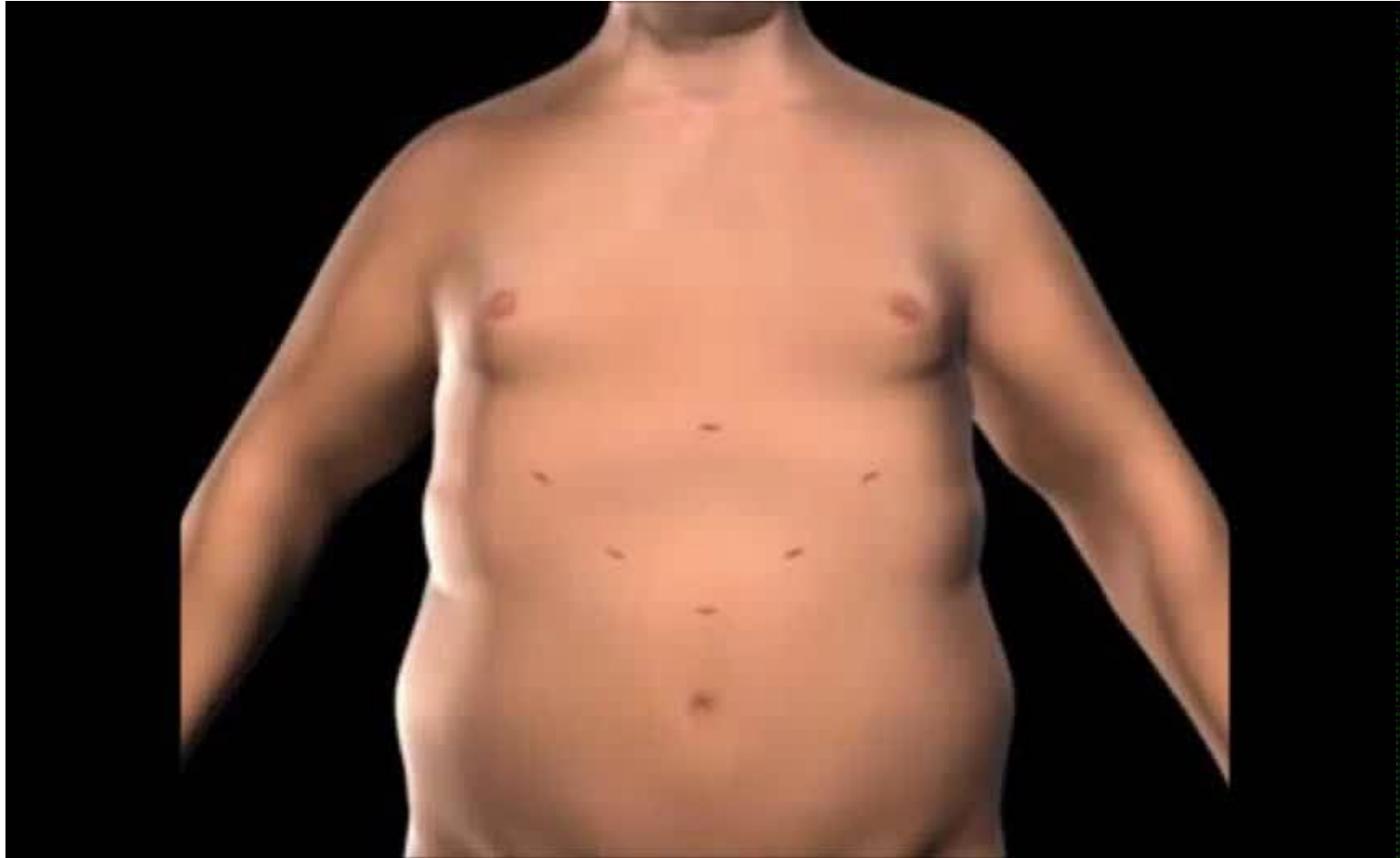


- Overgeven
- High maintenance
- Port/device problemen
- Beperkt gewichtsverlies (mn bij hoge BMI)

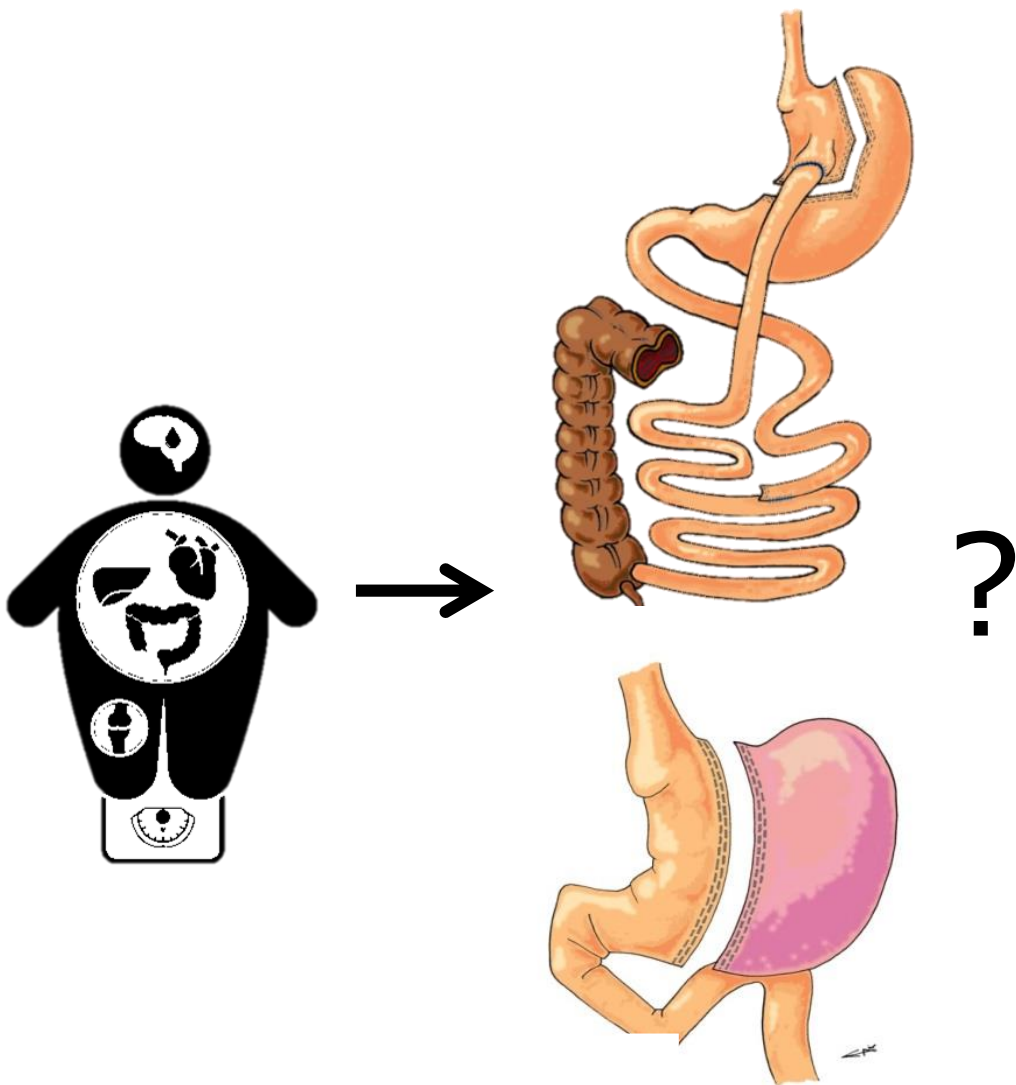
Gastric bypass



Sleeve Gastrectomy

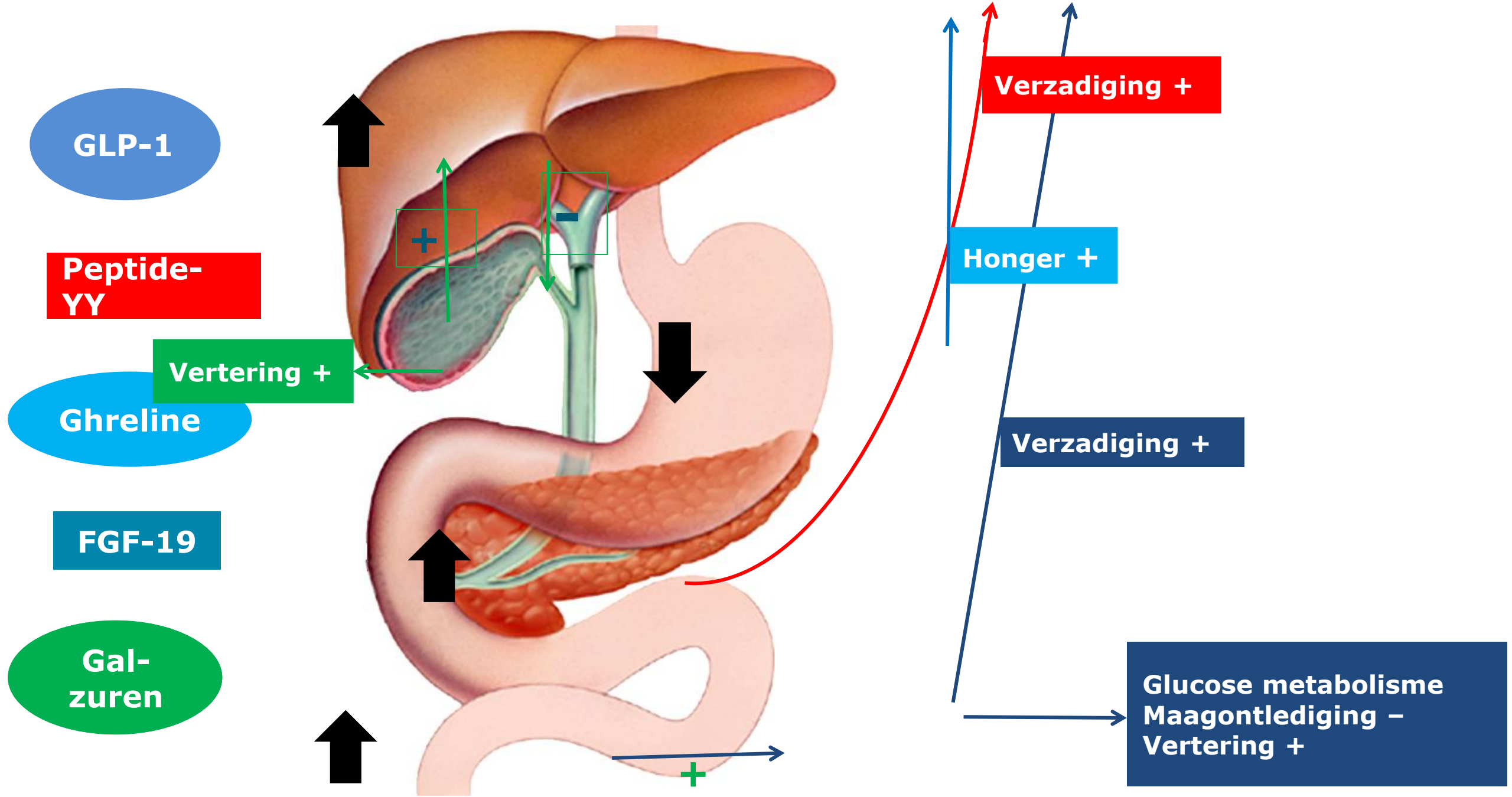


Welke operatie?

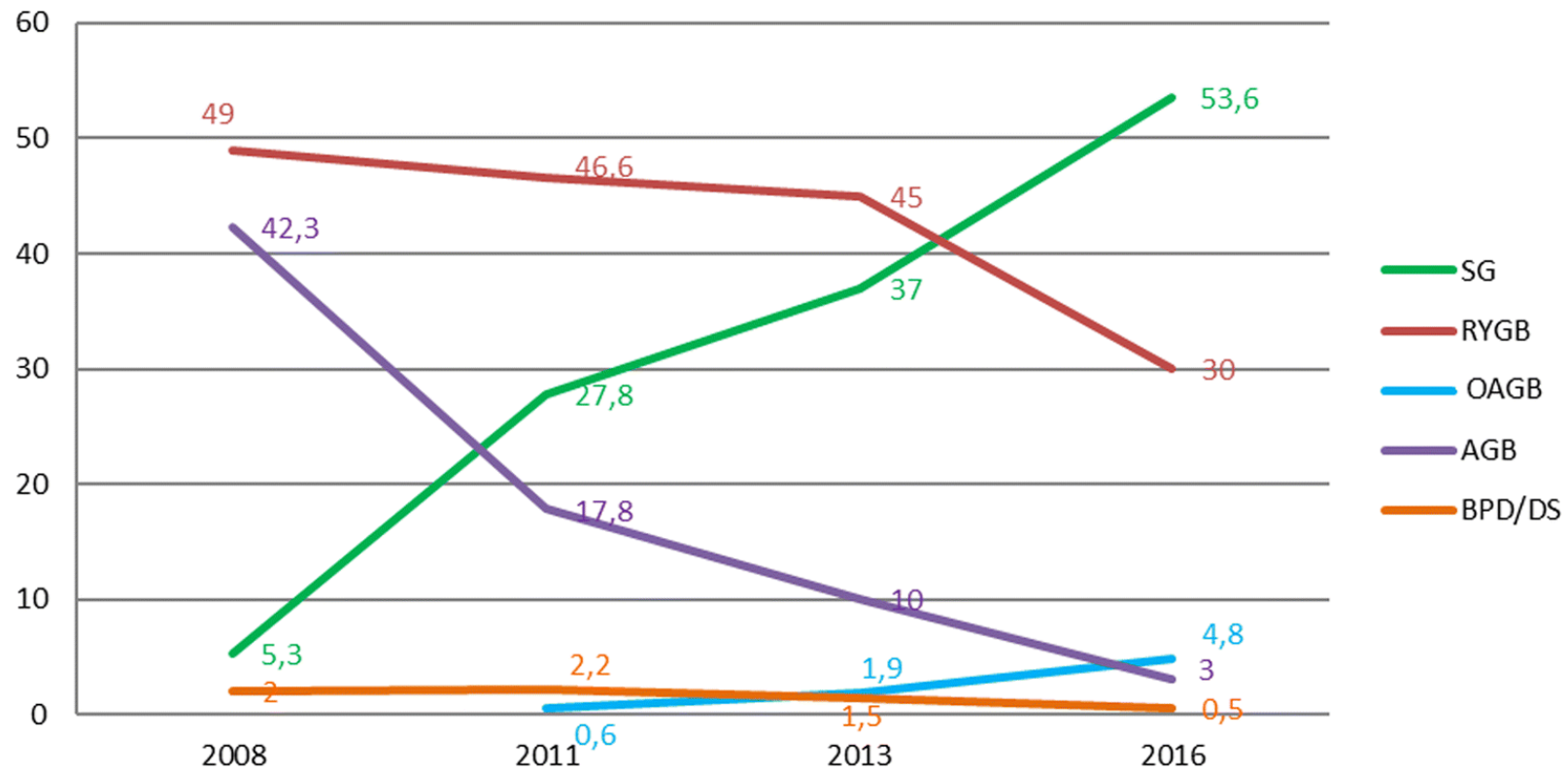


Individueel bepaald:

- Super-obees ($BMI > 60\text{kg/m}^2$)
- Leeftijd
- Eetpatroon
- Co-morbiditeiten (Diabetes, Crohn, reflux)
- Medische VG (maagband, abdominale chir)



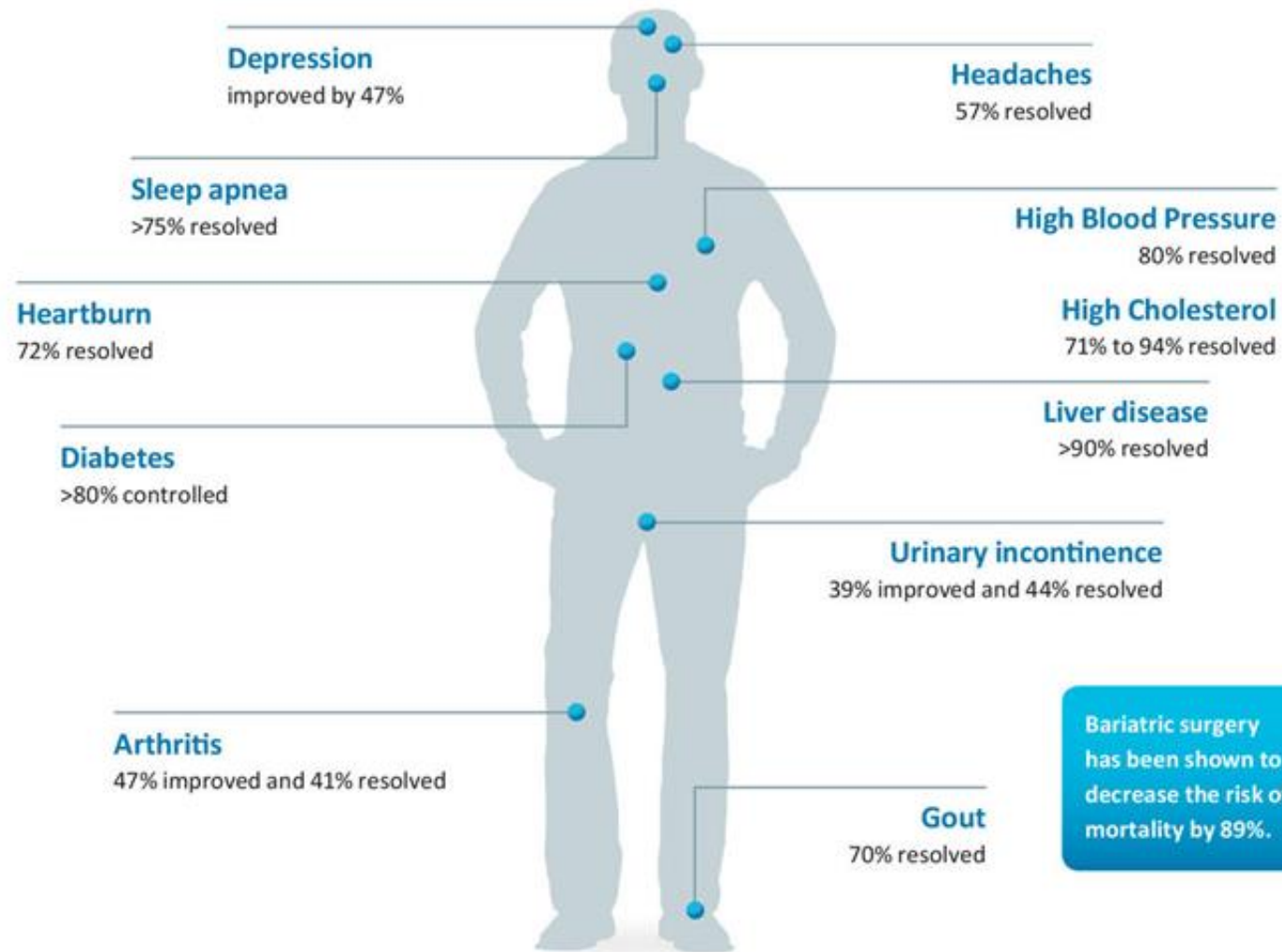
Trend bariatrische & metabole procedures wereldwijd



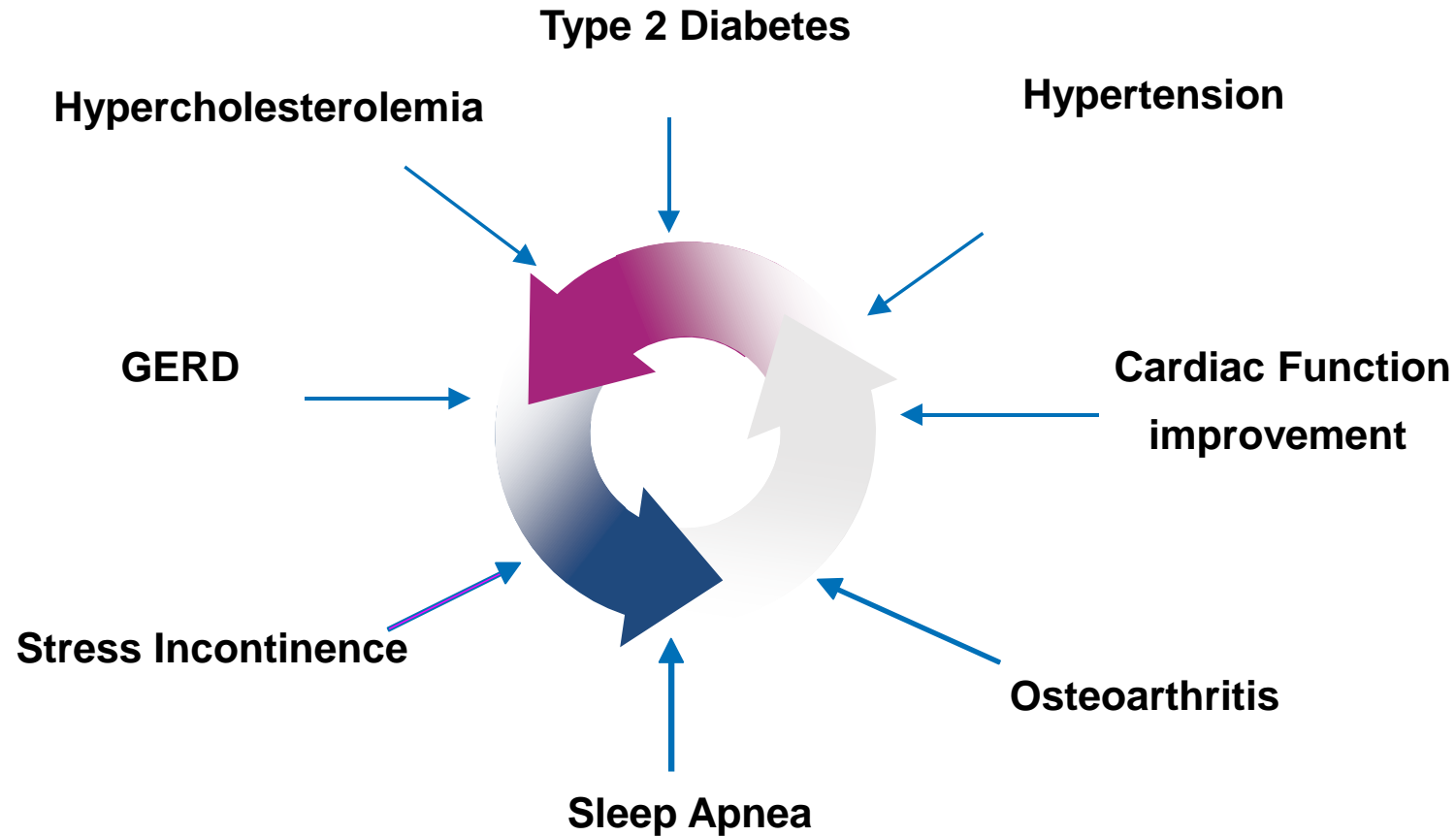
Voor en na..



Co-morbiditeiten



Bariatrische en metabole chirurgie



De metabole consequenties...

THE
LANCET



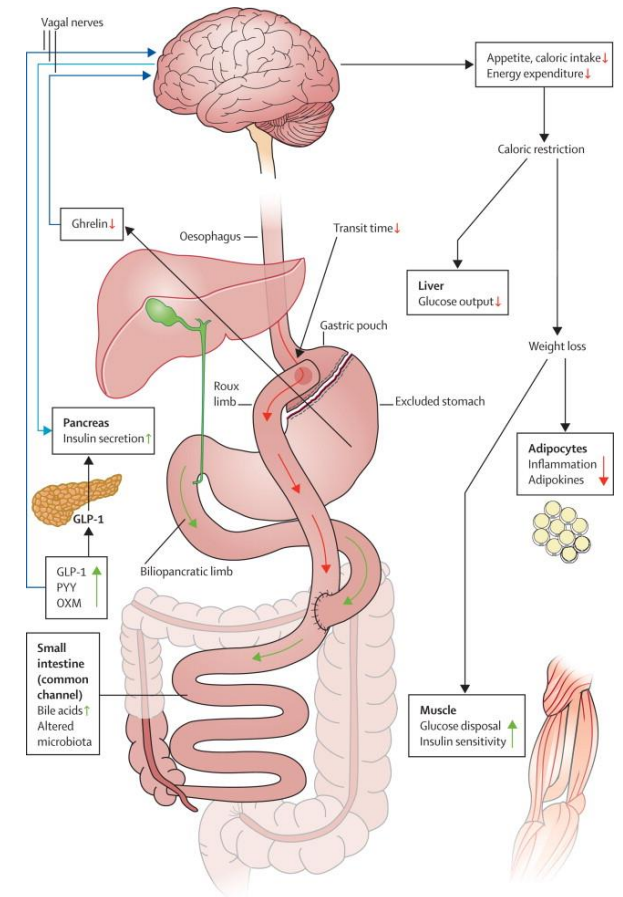
The NEW ENGLAND
JOURNAL of MEDICINE



Diabetes verbetering d.m.v. chirurgie

Verbeterde bloedsuiker-controle: niet exclusief door gewichtverlies

Verbeterde insuline werking, bèta-cel functie en complex samenspel darmhormonen

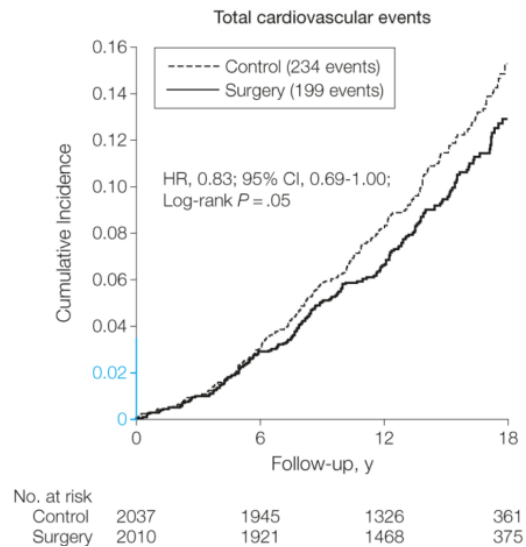
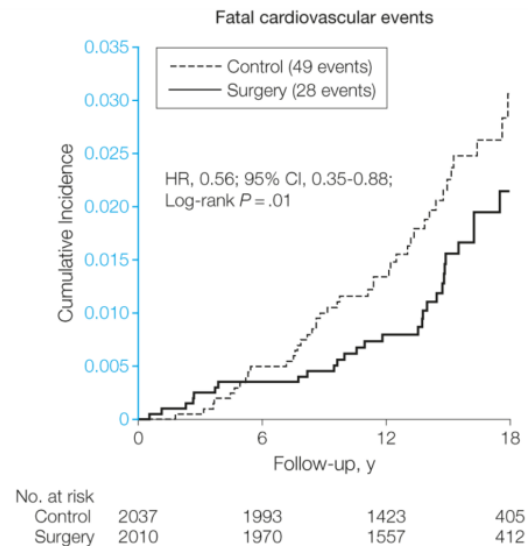


Le Roux. et al. Ann Surg 2007
Masbad et al. Lancet 2014

20 jaar resultaten SOS

Sjöstrom et al. JAMA 2012

- Lagere cardiovasculaire mortaliteit
- Lagere incidentie cardiovasculaire events



Metabole chirurgie: behandelen van DM type 2 & cardiovasculair risico in patienten met obesitas

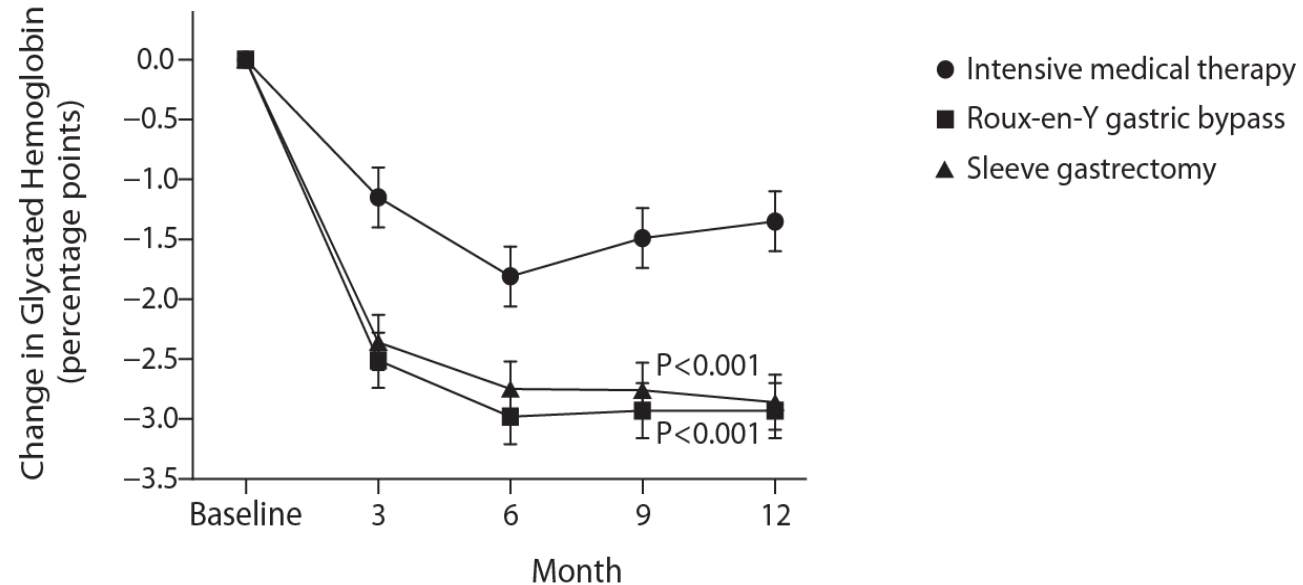
Wetenschappelijk bewijs

<u>Investigator</u>	<u>Study Type</u>	<u># Diabetic Patients</u>	<u>Primary Endpoint</u>	<u>Study Duration</u>
STAMPEDE (Schauer)	RCT, single center	150 pts, 3 arms	HbA1c \leq 6 with or w/o meds	Year 1 of 5-year study
Mingrone	RCT, single center	60 pts, 3 arms	HbA1c \leq 6.5 without meds	2 years

STAMPEDE

Average levels of HbA1c were significantly lower after bariatric surgery

A Change in Glycated Hemoglobin



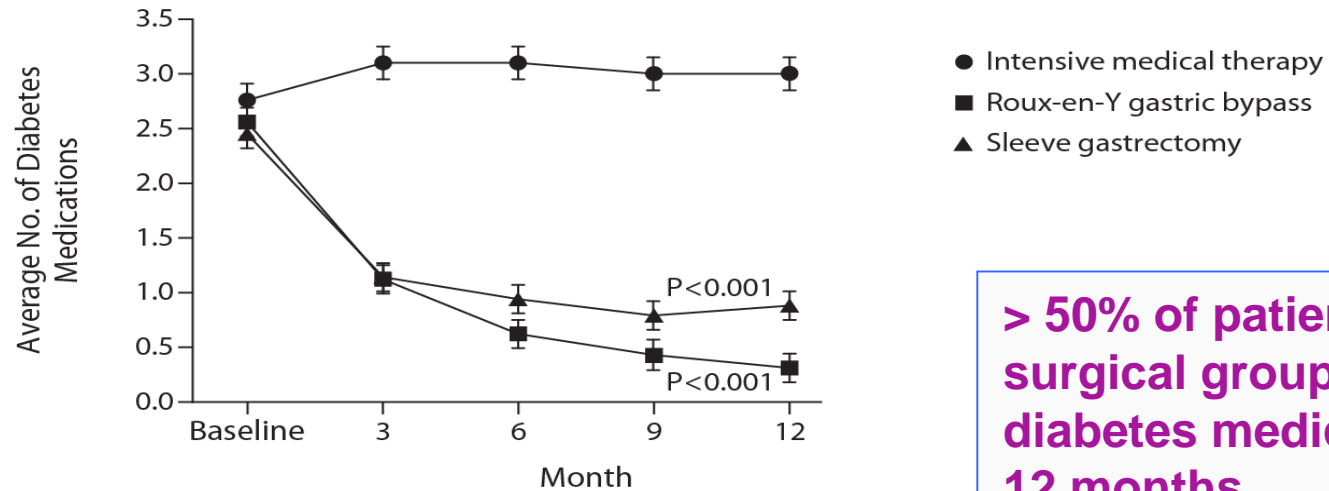
Value at Visit

Intensive medical therapy	8.9	7.7	7.1	7.4	7.5
Roux-en-Y gastric bypass	9.3	6.8	6.3	6.4	6.4
Sleeve gastrectomy	9.5	7.1	6.7	6.7	6.6

STAMPEDE

Significant decrease in **diabetic medication** usage with bariatric surgery

C Average No. of Diabetes Medications



Value at Visit

Intensive medical therapy	2.8	3.1	3.1	3.0	3.0
Roux-en-Y gastric bypass	2.6	1.1	0.6	0.4	0.3
Sleeve gastrectomy	2.4	1.1	0.9	0.8	0.9

> 50% of patients in each surgical group used no diabetes medication at 12 months

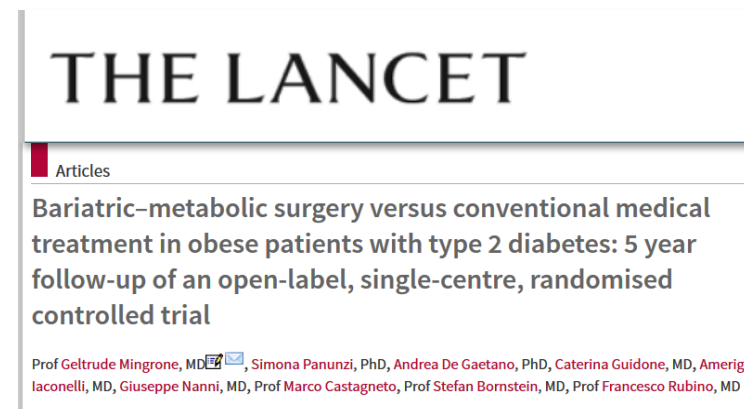
Treating type 2 diabetes

5 year results of metabolic surgery

STAMPEDE (2017)



Mingrone (2015)



Diabetes Surgery Summit (DSS-II)

52 international societies, including:

American Diabetes Association

American Heart Association

International Diabetes Federation

American Association of Clinical Endocrinologists

The Endocrine Society

Growing consensus

POSITION STATEMENT

AHA Scientific Statement

Bariatric Surgery and Cardiovascular Risk Factors

Paul Poirier
Barry A. Franklin

International Diabetes Federation

The rate of obesity in those with >40 kg/m². Clinical family practitioners increasingly contend with postoperative associated with mortality. In addition, severely obese. Significant modifications in this population, suggested that patients with BMI obesity-related condition, type 2 diabetes. When indicated, improvements in diabetes mellitus, hypertension, obesity, dysfunction. Recurrent, or case-control bariatric surgery. Different types formed. Historical 0.1% and 2.0%.

AACE Guidelines

**AMERICAN ASSOCIATION OF CLINICAL ENDOCRINOLOGISTS
MEDICAL GUIDELINES FOR CLINICAL PRACTICE FOR
DEVELOPING A DIABETES MELLITUS COMPREHENSIVE CARE PLAN**

THE ENDOCRINE SOCIETY

Evaluating the Benefits of Treating Type 2 Diabetes with Bariatric Surgery

An Endocrine Society Statement to Providers on Study Findings Related To Medical versus Surgical Treatment of Obese Patients with Type 2 Diabetes

This week's (March 28, 2012) issue of the *New England Journal of Medicine* includes two randomized controlled trials reporting superior weight loss and diabetes remission for surgical compared to medical treatment of obese patients with type 2 diabetes.

Observational studies have suggested that weight loss surgery can rapidly improve glycemic control and even produce remission of diabetes in severely obese patients with type 2 diabetes. This improvement and/or remission of diabetes is noted before meaningful weight loss occurs, and is thought to be due to a weight-loss independent change in the incretin hormone milieu as a result of the alteration in intestinal anatomy. Complete remission is defined as a fasting glucose level below 101 mg per deciliter and a glycated hemoglobin level of less than 6.0% for at least 1 year without active pharmacologic therapy. Until now, however, there has been a paucity of randomized controlled trials showing greater efficacy for surgical versus medical therapy, and for the variety of weight loss procedures available.

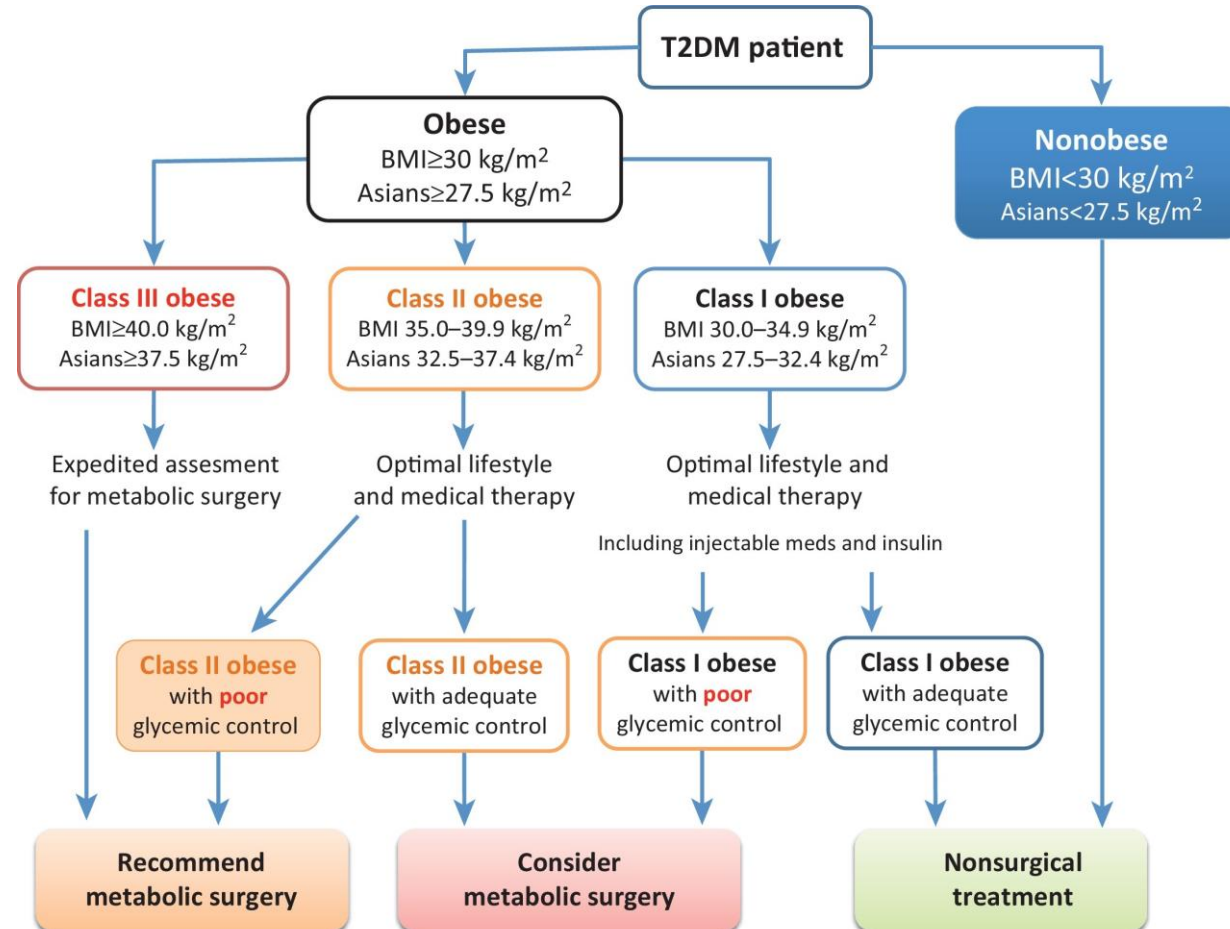
The two studies published this week are each single center, randomized, non-blinded, controlled trials evaluating surgery versus medical treatment in obese patients with type 2 diabetes whose glycated hemoglobin level was >7.0%. Mingrone et al. randomized 80 patients with BMI ≥35 kg/m² or more and at least 5 years of diabetes to medical therapy or either gastric bypass or the more malabsorptive biliopancreatic diversion, with 2 year follow-up. They found complete remission of diabetes at 2 years had occurred in none of the medically treated group versus 75% in the gastric bypass group and 95% in the biliopancreatic diversion group. Schauer et al randomized 150 patients with BMI of 27-43 kg/m² to medical therapy alone or medical therapy plus Roux-en-Y gastric bypass or sleeve gastrectomy. After one year, complete remission of diabetes was seen in 12% of the medically treated group versus 42% in the gastric bypass group and 37% in the sleeve gastrectomy group.

In interpreting these findings, The Endocrine Society notes the differences between the two studies which likely contribute to the difference in magnitude of the results:

- The BMI of the patients in the Schauer study started at a BMI of as low as 27 and was restricted to up to 43, whereas the Mingrone study accepted patients with BMI over 35 kg/m². This may have affected remission rates of diabetes even though the studies report that preoperative BMI did not predict control of diabetes after surgery. While this is certainly the case,

DSS-II recommendations

Rubino et al. Diabetes Care 2016



Toekomst

- Lange termijn follow-up huidige procedures
- Beste optie voor weight regain
- Adolescenten
- Nieuwe technieken

- Duurzaamheid metabole chirurgie...



Complicaties en bijwerkingen van chirurgie

Voeding- en nutriëntenopname

Complicaties



Vroeg:

- Bloeding
- Lekkage
- Trombose
- Pneumonie

Laat:

- Vitaminedeficiënties
- Galstenen
- Maagzweer
- Inwendige herniatioe
- Adhesies/darmobstructie
- Littekenbreuk



Complicaties

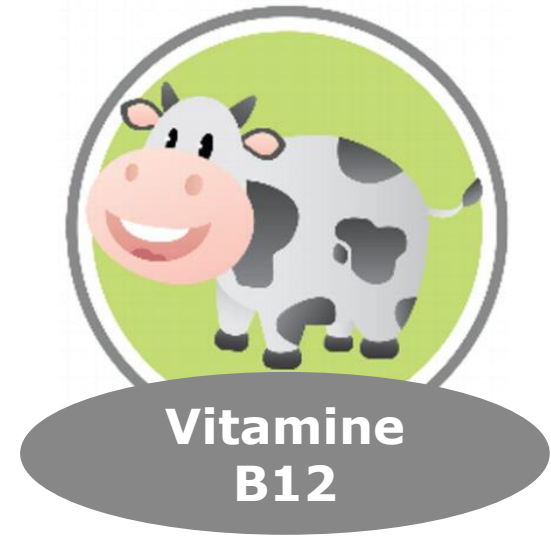
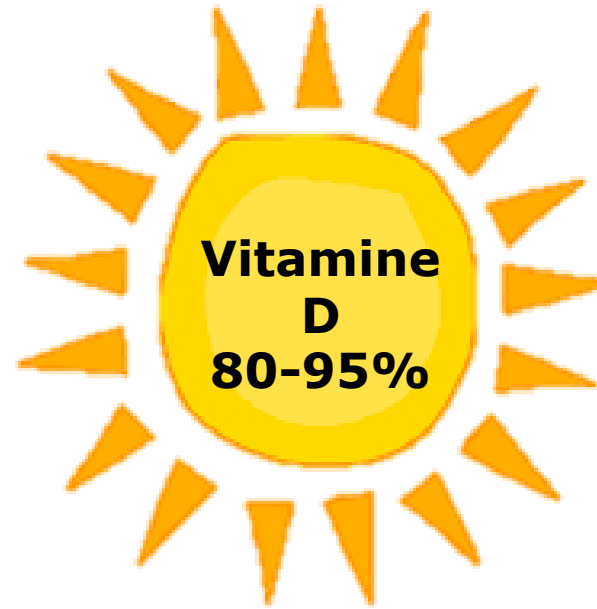
Vroeg (<30 dgn)		Laat (>30 dgn)	
Naadlekkage	0,5%	Inwendige hernia	2,3%
Bloeding	2,3%	Maagzweer	2,7%
Trombose/embolie	0,1%	Galstenen	7,8%
Pneumonie	1,4%	Darmobstructie	0,9%
Overlijden	0,2%		

Deficiënties

Voor de operatie:

- Ongevarieerd eetpatroon
- Onvolwaardig dieet (relatief hoog vet/KH en laag eiwit, zuivel, groenten en fruit)
- Onderliggende chronische conditie
- Medicatie

**Standaard zorg:
preoperatieve check
'voedingsstatus' en suppletie
zo nodig**

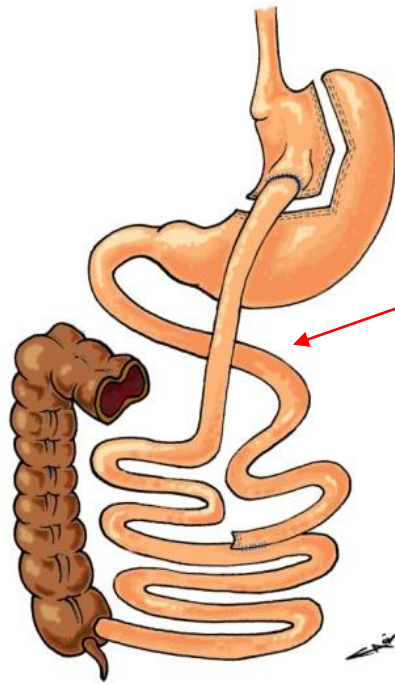


**Foliumzuur
en ijzer**

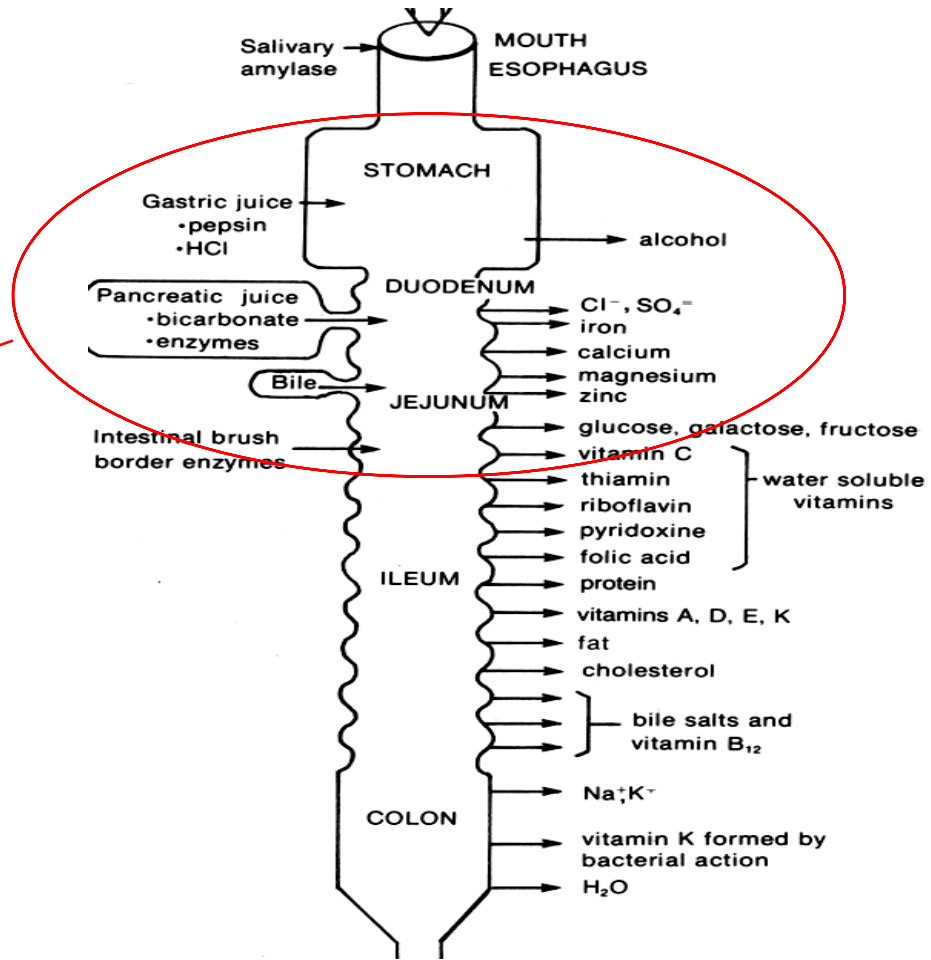
**Internationale
studies:
40-80% van de
patiënten**

**≥ 1 micronutriënt
deficiënties**

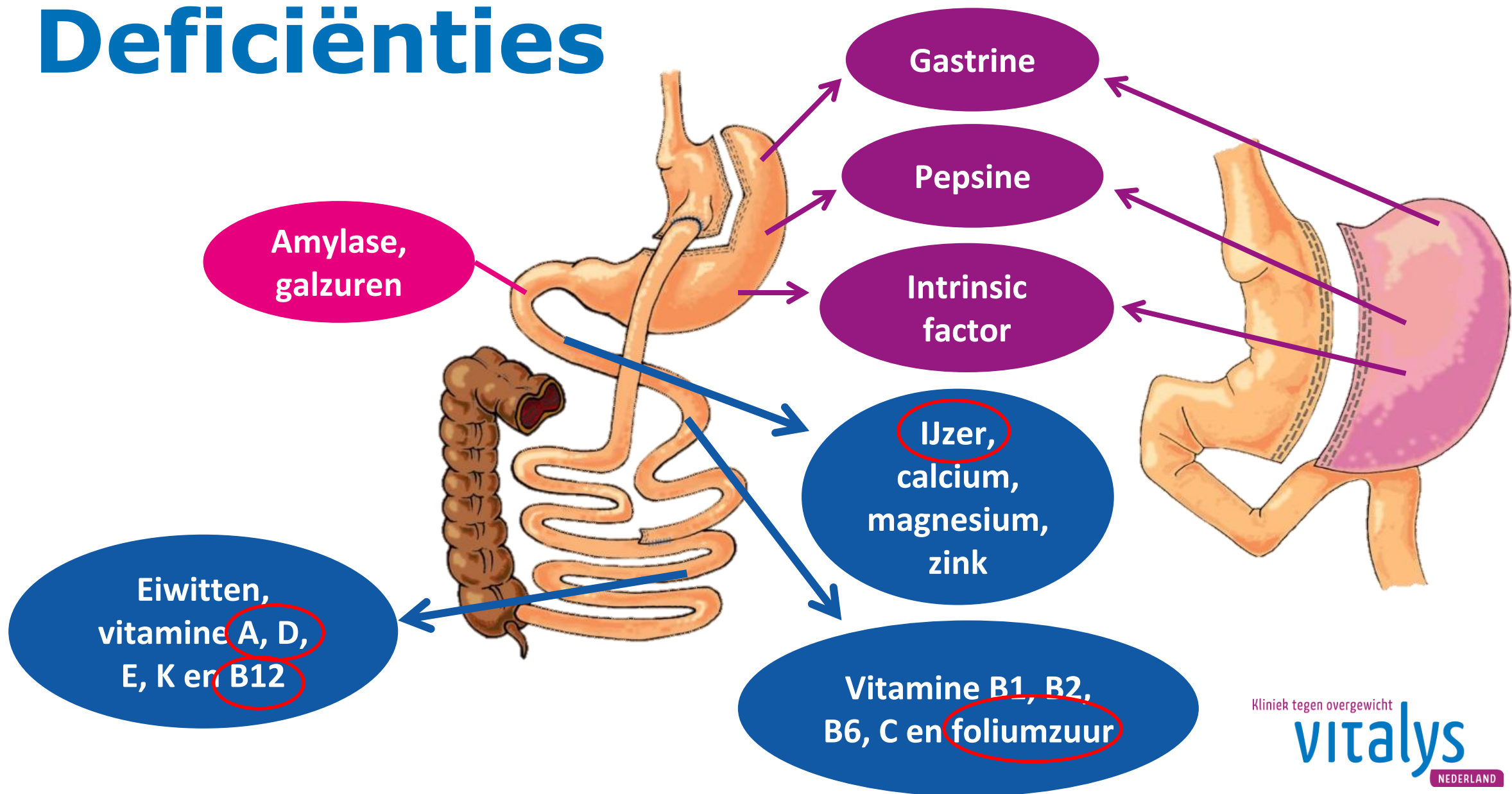
Deficiënties



Gastric bypass

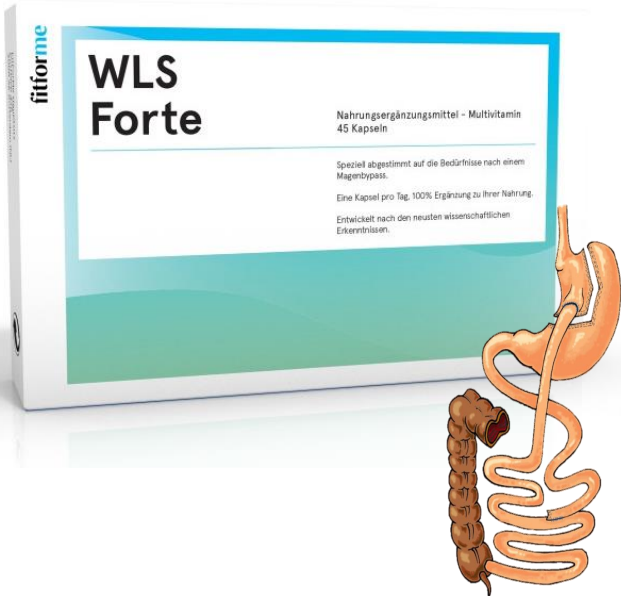
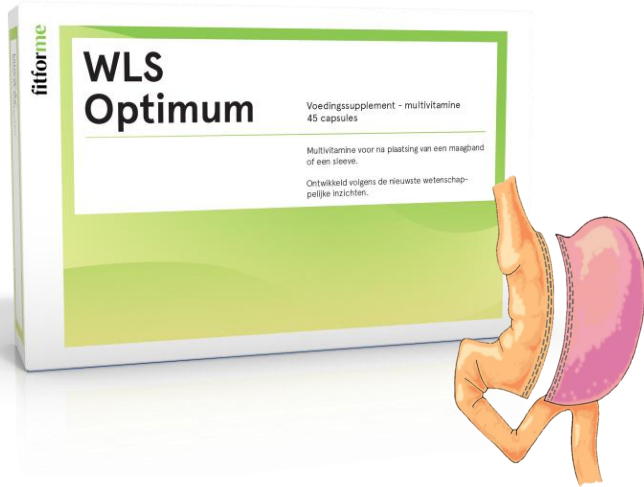


Deficiënties



ASMBS Allied Health Nutritional Guidelines for the Surgical Weight Loss Patient

Allied Health Sciences Section Ad Hoc Nutrition Committee:
 Linda Aills, R.D. (Chair)^a, Jeanne Blankenship, M.S., R.D.^b, Cynthia Buffington, Ph.D.^c,
 Margaret Furtado, M.S., R.D.^d, Julie Parrott, M.S., R.D.^{e,*}

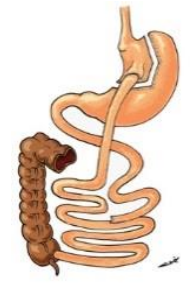


WLS Optimum

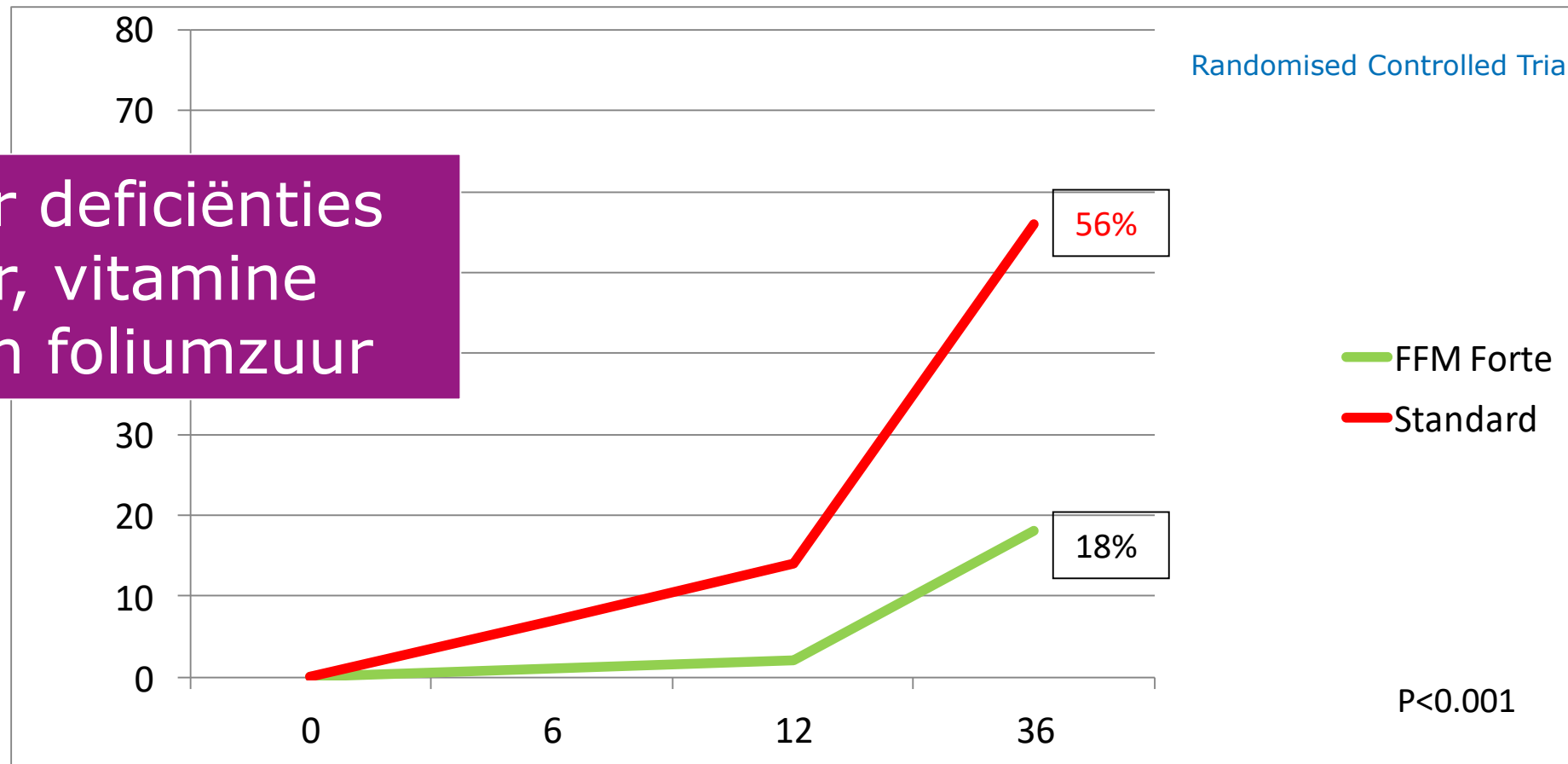
WLS Forte

Ingredients per capsule		%RDA		%RDA
Vitamins				
Vitamin A (Retiöl palmitate)	800 µg RE	100%	600 µg	75%
Vitamin B1 (Thiamine HCL)	2.75 mg	250%	2.75 mg	250%
Vitamin B2 (Riboflavin)	2 mg	143%	3.5 mg	250%
Vitamin B3 (Nicotinamide)	25 mg NE	156%	32 mg	200%
Vitamin B5 (Calcium pantothenate)	9 mg	150%	18 mg	300%
Vitamin B6 (Pyridoxine HCL)	2 mg	143%	0.98 mg	70%
Biotin	150 µg	300%	100 µg	200%
Folic acid	500 µg	250%	600 µg	300%
Vitamin B12 (Cyanocobalamin)	100 µg	4000%	350 µg	14000%
Vitamin C (Ascorbic acid)	100 mg	125%	120 mg	150%
Vitamin D3 (Cholecalciferol)	75 µg	1500%	75 µg	1500%
Vitamin E (Tocopherol succinate)	12 mg	100%	24 mg	200%
Minerals				
Chromium (Chromium III Chloride)	40 µg	100%	160 µg	400%
Copper (Copper gluconate)	1.9 mg	190%	3 mg	300%
Iron (Iron fumerate)	28 mg	200%	70 mg	500%
Iodine (Potassium iodide)	150 µg	100%	225 µg	150%
Manganese (Manganese citrate)	3 mg	150%	3 mg	150%
Molybdenum (Sodium molybdate)	50 µg	100%	112.4 µg	225%
Selenium (Sodium selenite)	55 µg	100%	105 µg	191%
Zinc (Zinc citrate)	28 mg	280%	22.5 mg	225%

VITAAAL studie



Minder deficiënties
in ijzer, vitamine
B12 en foliumzuur



Kliniek tegen overgewicht

vitalys
NEDERLAND

Voedingsadviezen

- Minimaal 6x per dag eten
- Eten en drinken scheiden
- Rustig eten. Minimaal 30 min per maaltijd
- Goed kauwen zodat speeksel vermengd > verbeterde opname



Voedingsadviezen



- Voldoende eiwitten

De formule van Gallagher (voor niet-Aziatische personen)

gewicht in kg, lengte in meter en leeftijd in jaren



$$\text{VVM (kg)} = 0,446 \times \text{gewicht} - 0,00087 \times \text{leeftijd} \times \text{gewicht} + 9,438 \times \text{lengte}^2$$



$$\text{VVM (kg)} = 0,24 \times \text{gewicht} - 0,00053 \times \text{leeftijd} \times \text{gewicht} + 10,978 \times \text{lengte}^2$$



Eiwitbehoefte:
Geschatte VVM x 1,5 g eiwit/kg.



**500-600 ml
melkproducten**



1-2x kaas



**Beginnen met
vlees tijdens diner**

- Aandacht voor lactose intolerantie en voedingshypes

Voedingsadviezen

- Verhoogde behoefte
- Calcium + vitamine D suppletie

Bij voorkeur calciumcitraat ivm opname

- Elke dag 15-30 minuten naar buiten



**Halvarine op
brood**



**Vloeibaar bak-
en braadproduct**



Vette vis

Voedingsadviezen

- Invloed op absorptie:

Calcium ↓ **Vitamine C** ↑

Suppletie niet samen met calcium supplement/zuivelproducten

- Risico op gastro-intestinale klachten

IJzer suppletie gescheiden innemen van multivitamine (bv. FFM kauw)



Ook aandacht voor..

- **Zink:** haarverlies
- **Jodium:** lage inname van brood
- **Foliumzuur:** met name bij zwangerschap(swens)

- **Therapietrouw supplementen!**



Take home messages

Factsheet 1

Morbide obesitas	BMI > 40 kg/m²
Co-morbiditeiten	Metabool syndroom Slaap apnoe / reflux artrose / cardiovasculair kanker / infertiliteit
Nederland	15% obees 1.5% morbide obees
Toekomst	Adolescenten/kinderen

Factsheet 2

Conservatief

**Kort: 5% TWL
Lang: 5% TWL**

Bariatrische chirurgie

**Kort: 35% TWL
Lang: 25% TWL**

Metabool

**Superieur
RCTs**

QoL

Verbetering

Factsheet 3

Chirurgie

BMI >40

BMI >35 met co-morbiditeit

.....

Contra-indicatie

Relatief

Instabiele ziekte

Commitment?

Vereist

Multidisciplinair team

Follow-up

Lange termijn

Voedingsdeficiënties (suppletie + voedingsadviezen)

Dank!

