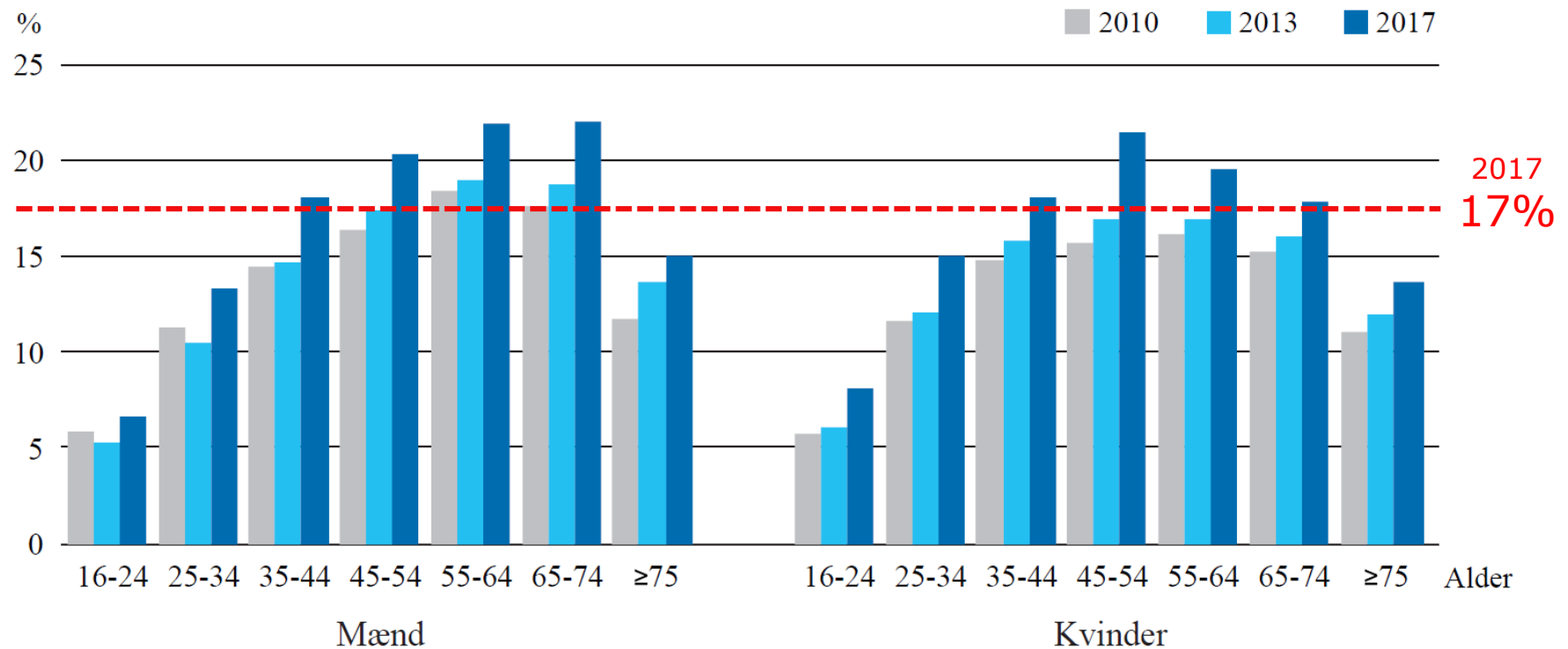
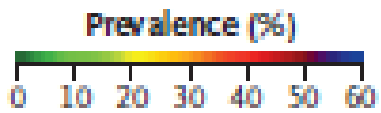


# Svær overvægt er et voksende problem

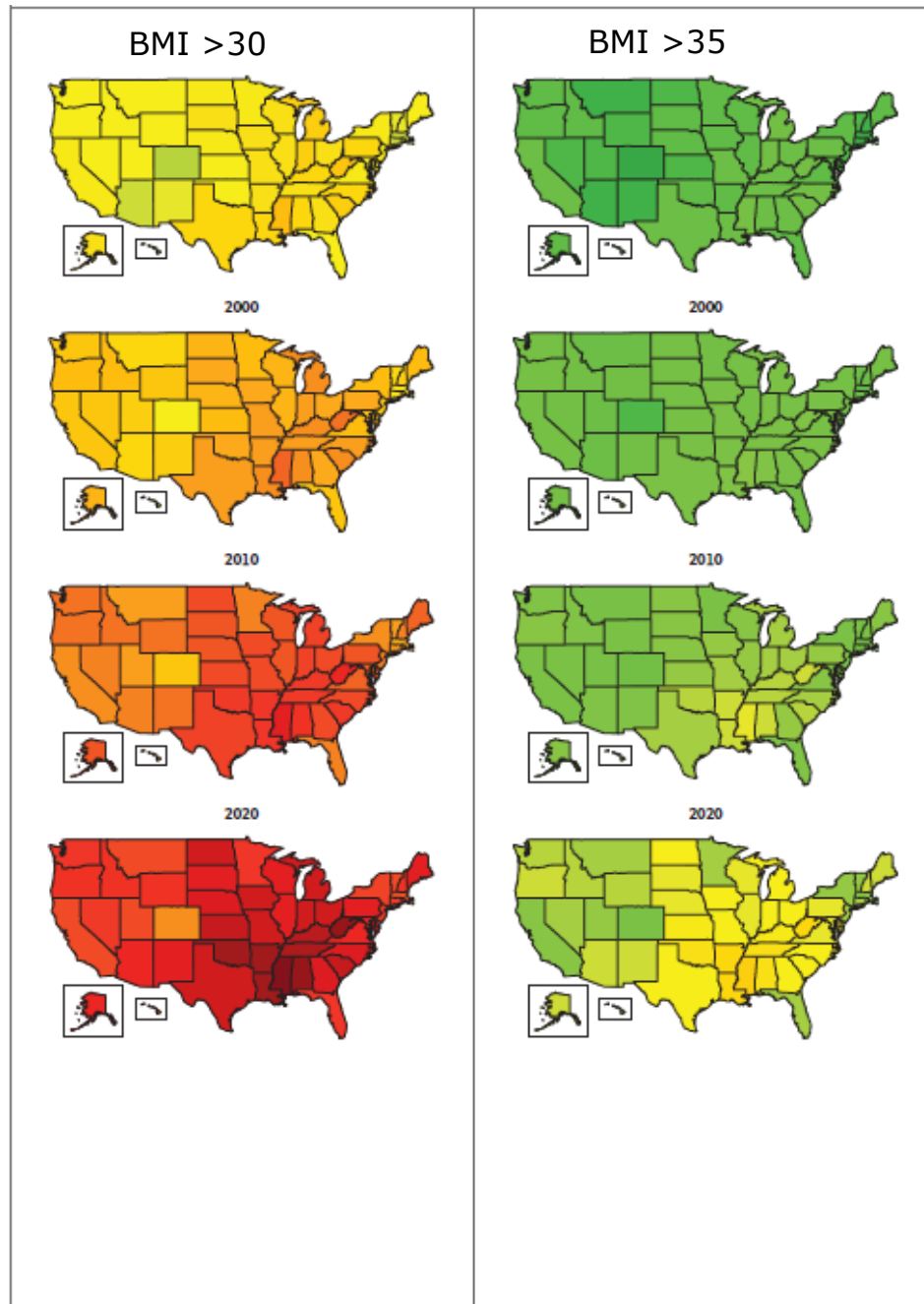
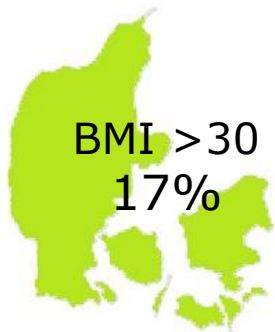
- BMI  $\geq 25$  kg/m<sup>2</sup> = overvægt
- BMI  $\geq 30$  kg/m<sup>2</sup> = svær overvægt = fedme
  - $\geq 30$  kg/m<sup>2</sup> = Class I
  - $\geq 35$  kg/m<sup>2</sup> = Class II
  - $\geq 40$  kg/m<sup>2</sup> = Class III

**Figur 4.5.2 Andel svært overvægtige (BMI $\geq$ 30) blandt mænd og kvinder i forskellige aldersgrupper. 2010, 2013 og 2017. Procent**





BMI >25: 51%



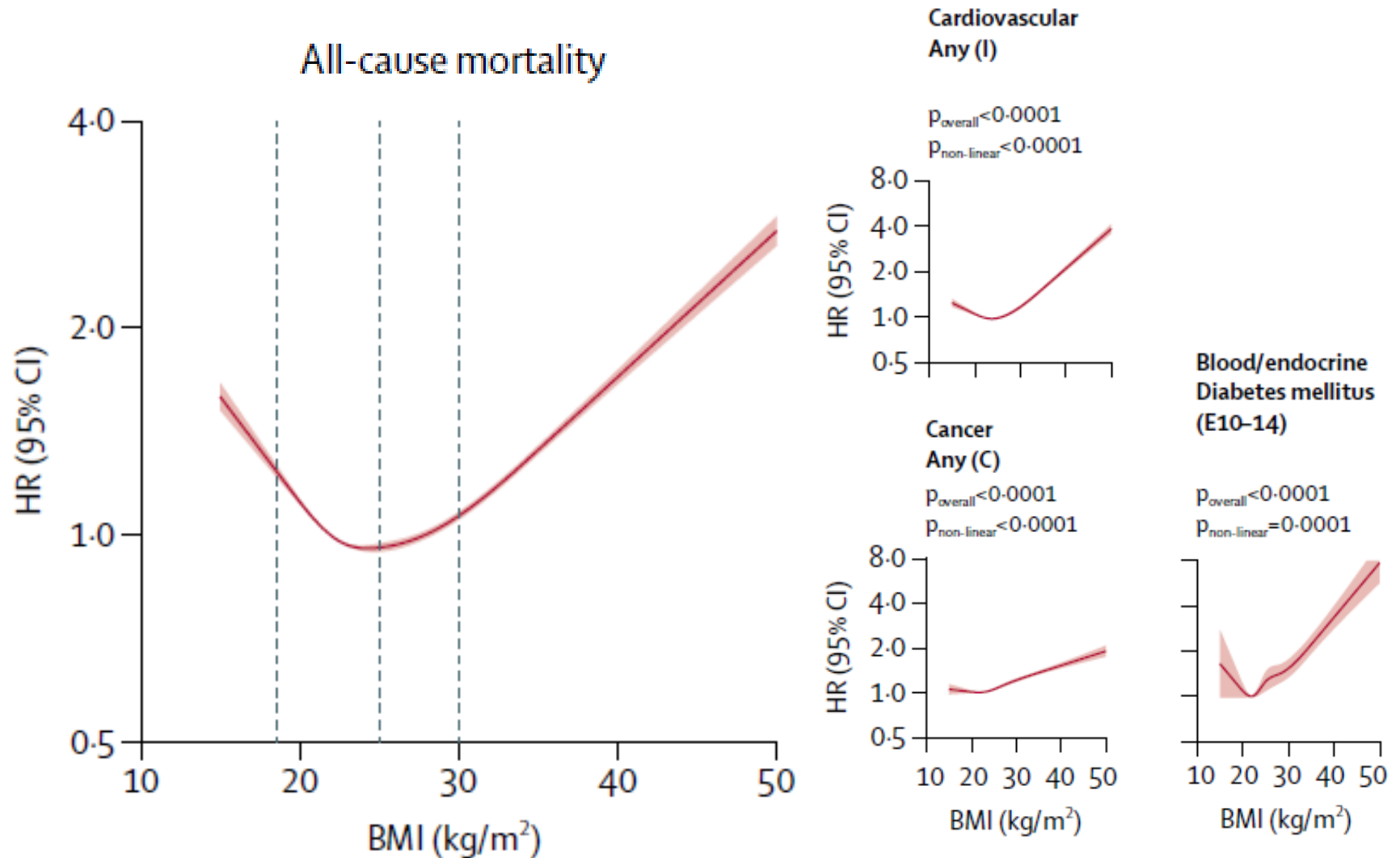
# Svær overvægt har mange omkostninger

33,6 mio \$



*Benefits Supervisor Sleeping* by Lucian Freud

# Svær overvægt er associeret med øget dødelighed...



1.9 M UK never-smokers

Bhaskaran 2018 Lancet Endo Diab

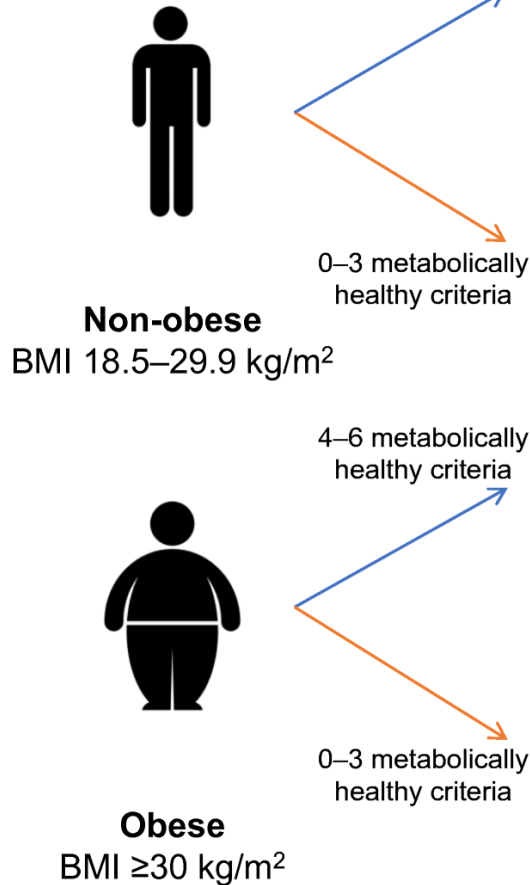
# Og markant reduction i forventet levetid.

	Men		Women	
	Expected age of death at age 40 years (years)	Reduction in life expectancy (years)	Expected age of death at age 40 years (years)	Reduction in life expectancy (years)
Underweight (<18.5 kg/m <sup>2</sup> )	77.9	4.3	79.8	4.5
Healthy weight (18.5–24.9 kg/m <sup>2</sup> )	82.2	..	84.3	..
Overweight (25.0–29.9 kg/m <sup>2</sup> )	81.2	1.0	83.5	0.8
Obese (all, ≥30.0 kg/m <sup>2</sup> )	78.0	4.2	80.9	3.5
Obese class 1 (30.0–34.9 kg/m <sup>2</sup> )	78.7	3.4	81.9	2.4
Obese class 2 (35.0–39.9 kg/m <sup>2</sup> )	76.2	5.9	79.6	4.7
Obese class 3 (≥40.0 kg/m <sup>2</sup> )	73.1	9.1	76.6	7.7

Expected age of death at age 40 years estimated from a Poisson model for overall survival with six-category BMI variable, 5-year age bands, sex, and interaction terms for BMI with age at BMI, and BMI with sex (see appendix for details); estimates assume mortality observed in the study remains constant. Reduction in life expectancy is calculated as expected age of death minus expected age at death in the healthy weight category.

**Table 3: Expected age at death for a never-smoker aged 40 years by WHO BMI category,<sup>19</sup> and estimated reduction in life expectancy compared with an individual of healthy weight**

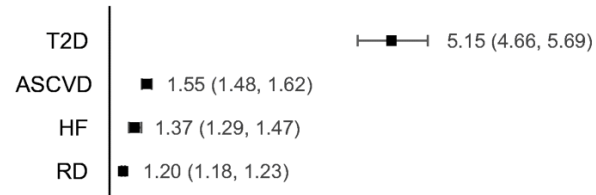
UK Biobank  
N = 381,363



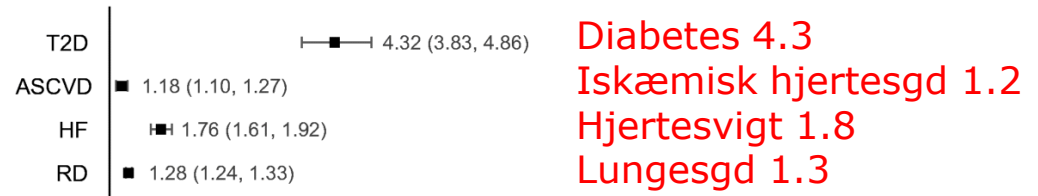
**Metabolically healthy non-obese (54.7%)**

Reference group (HR = 1)

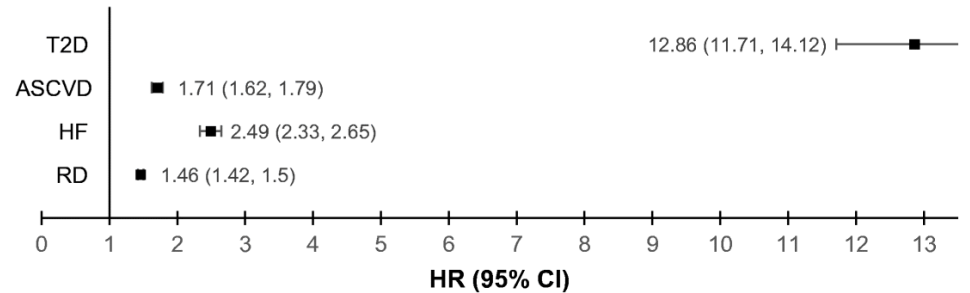
**Metabolically unhealthy non-obese (20.5%)**



**Metabolically healthy obese (9.2%)**



**Metabolically unhealthy obese (15.6%)**

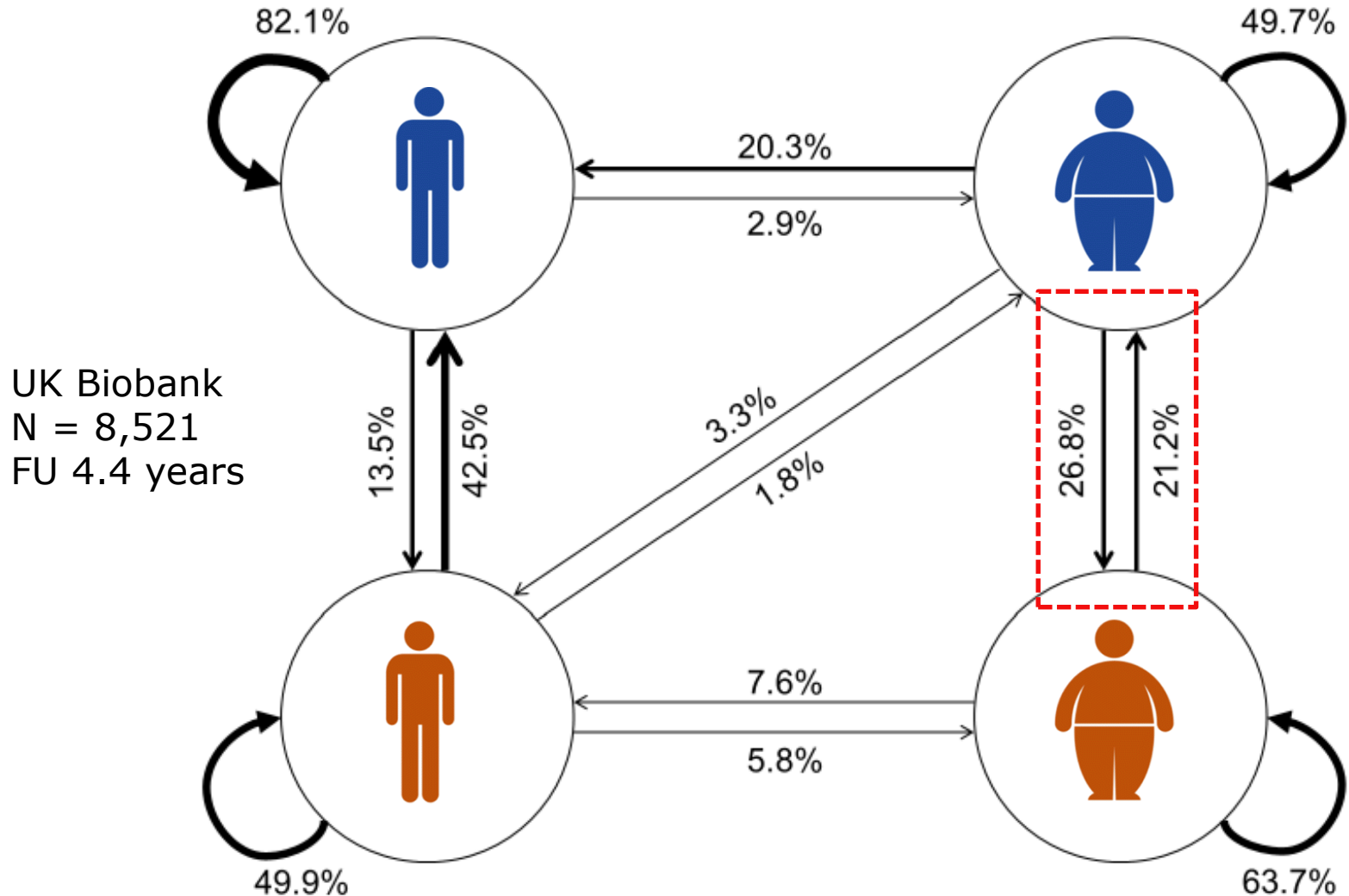


People with MHO had higher risk of type 2 diabetes (T2D), atherosclerotic CVD (ASCVD), heart failure (HF) and respiratory diseases (RD) than those who were not obese and metabolically healthy.

They are not 'healthy' and the label 'metabolically healthy obesity' is misleading.

# Metabolisk "sundhed" er ikke konstant

Transition of metabolic health and obesity status



# Svær overvægt øger risiko for sygemelding og arbejdsløshed

N = 87,796

FU 5 years (2010 → 2015)

**TABLE 2** Hazard ratios (HRs) for transitions from work to unemployment, work to sickness absence, unemployment to work, and sickness absence to work by BMI and gender

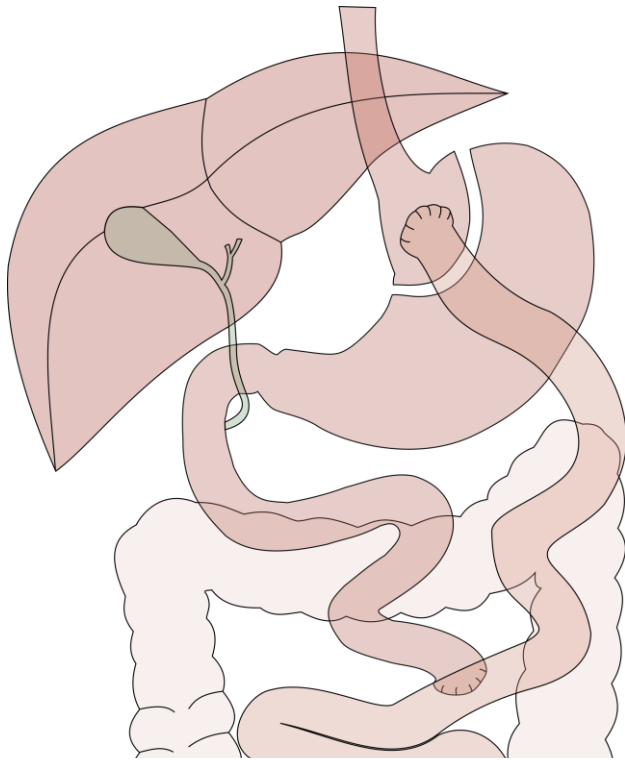
	Men			Women		
	No.	Events	HR (95% CI)*	No.	Events	HR (95% CI)*
<b>Work -&gt; unemployment</b>						
Underweight	177	49	1.45 (1.09-1.93)	880	153	1.16 (0.99-1.37)
Normal	15,480	2,142	1.00 (reference)	24,558	2,937	1.00 (reference)
Overweight	16,016	2,050	0.99 (0.93-1.05)	10,698	1,226	1.04 (0.97-1.11)
Obesity	3,956	601	1.14 (1.04-1.25)	3,703	467	1.18 (1.07-1.30)
Severe obesity	962	174	1.33 (1.14-1.55)	1,466	193	1.18 (1.02-1.37)
<b>Work -&gt; sickness absence</b>						
Underweight	177	25	1.00 (0.68-1.50)	880	166	0.82 (0.70-0.95)
Normal	15,480	2,439	1.00 (reference)	24,558	5,860	1.00 (reference)
Overweight	16,016	3,013	1.12 (1.06-1.18)	10,698	2,967	1.16 (1.11-1.21)
Obesity	3,956	878	1.29 (1.19-1.39)	3,703	1,163	1.35 (1.27-1.44)
Severe obesity	962	241	1.51 (1.33-1.73)	1,466	497	1.48 (1.35-1.63)

# Svær overvægt er også associeret med lavere indkomst, flere sociale ydelser og øgede sundhedsudgifter

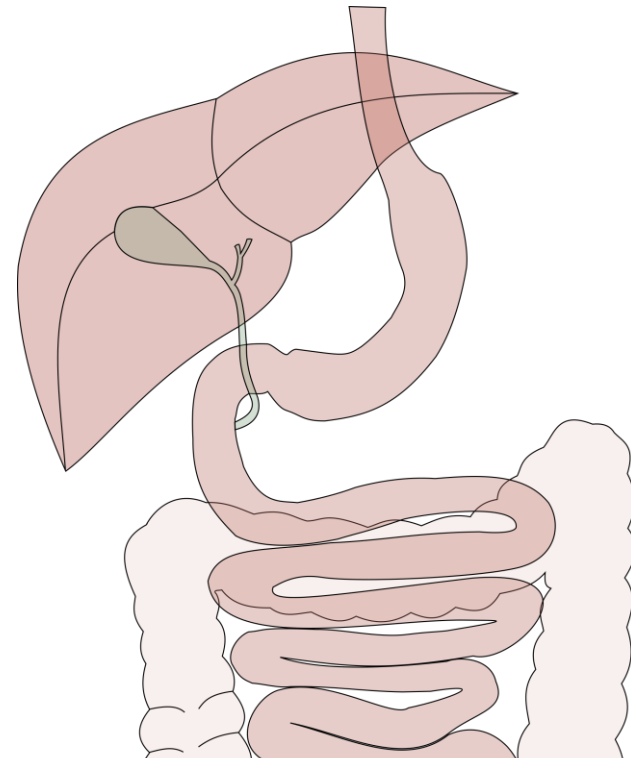
	BMI 30-34.9	BMI 35-39.9	BMI >40	
	Class I N = 33,735	Class II N = 8,219	Class III N = 2,950	Change per BMI-point >30
Income, EUR	31,379	28,684	25,422	↓ 2%
Total social transfer payments, EUR	9,039	9,889	11,039	↑ 3%
Total healthcare costs, EUR	3,230	3,577	4,672	↑ 4%
Total home help costs, EUR	214	295	601	



## Gastric bypass

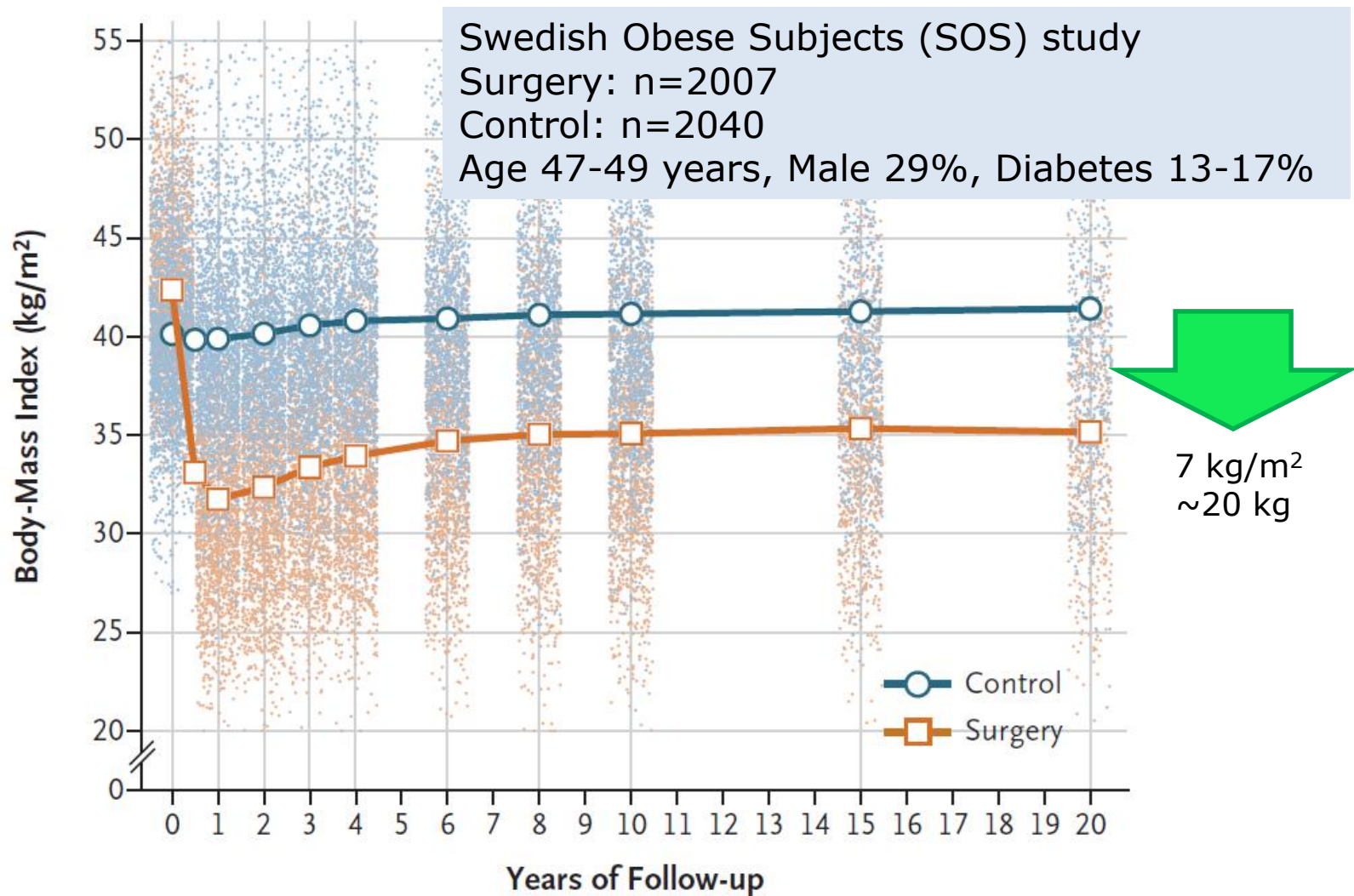


## Sleeve gastrektomi

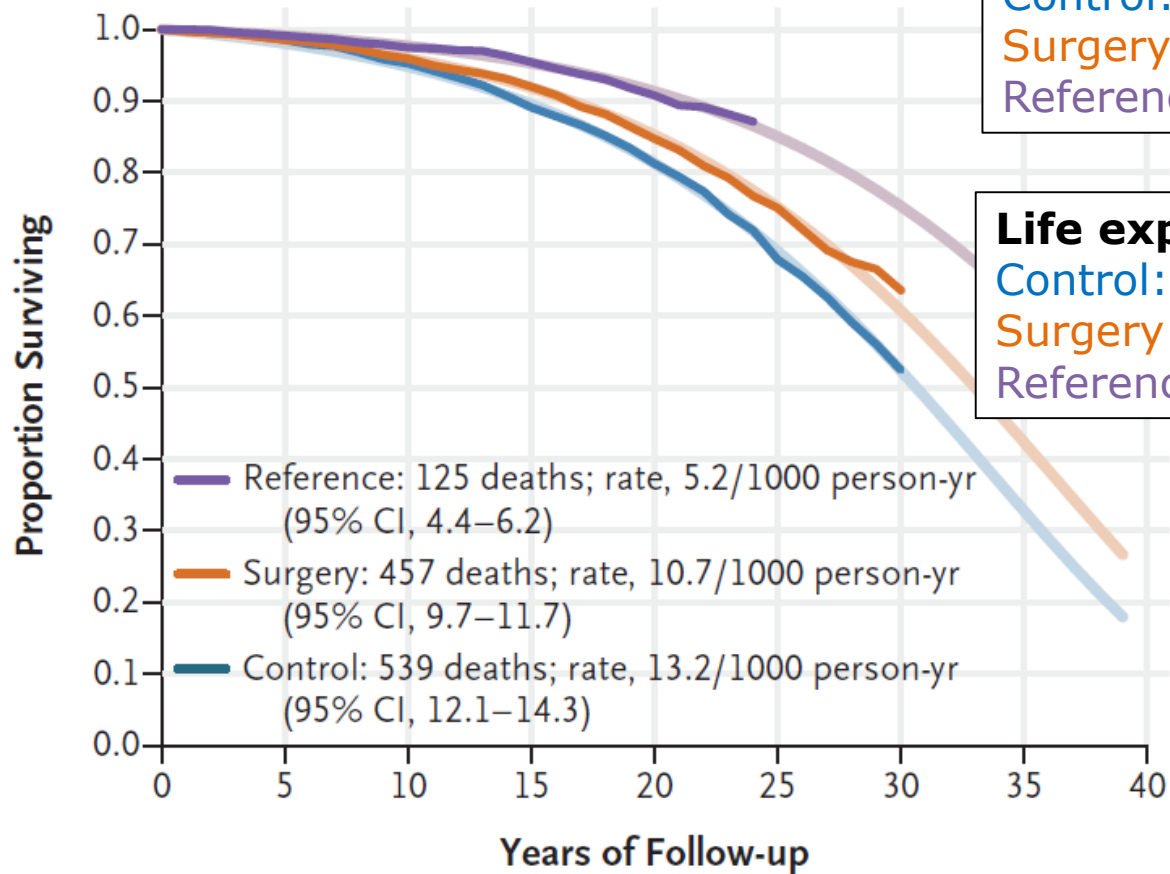


Operationer i 2020	Gastric bypass	Sleeve gastrektomy
DK	<b>36%</b> (528)	<b>64%</b> (944)
Hvidovre	<b>46%</b> (39)	<b>54%</b> (46)

# Overvægtskirurgi medfører et stort varigt vægttab – erfaringer fra SOS studiet



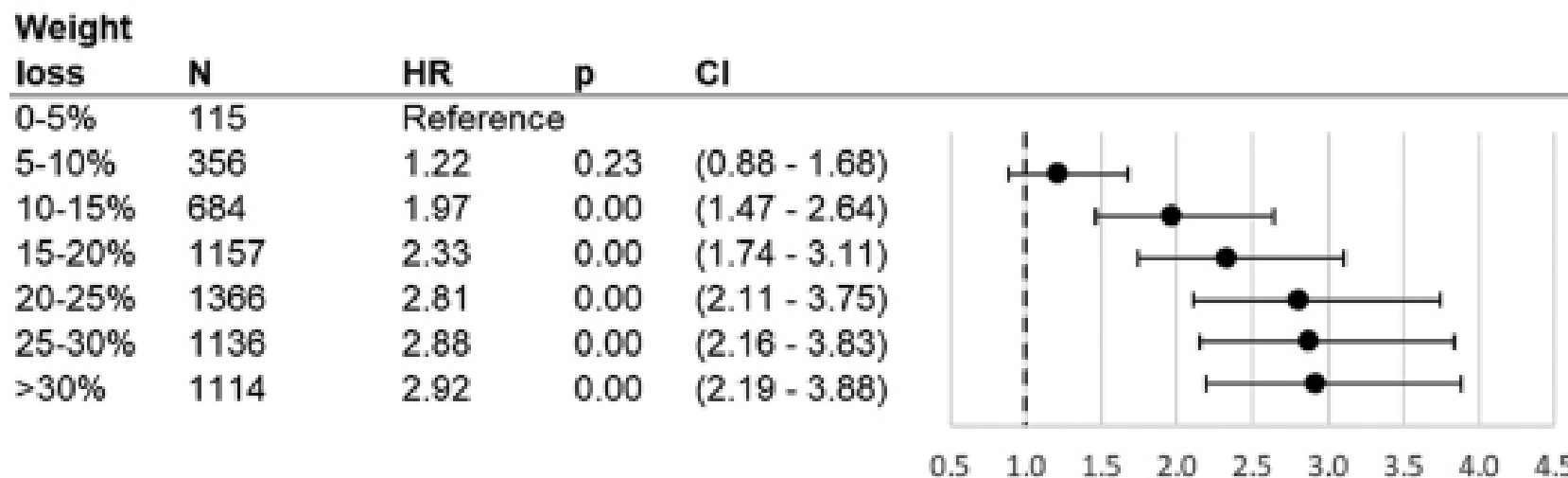
# Og reducerer mortaliteten



## No. at Risk

Reference	1135	1125	1106	1083	905	0	0
Surgery	2007	1915	1837	1744	1390	580	34
Control	2040	1961	1815	1589	1238	488	26

# Remission af diabetes er afhængig af graden af vægttab



# Kirurgiske komplikationer

## Early complications (<30 days):

- Anastomosis leakage
- Haemorrhage
- Infection
- Thrombosis (DVT, PE)
- Small bowel obstruction (ileus)

## Late complications (>30 days):

- Stenosis
- Gastroesophageal reflux
- Small bowel obstruction
- Gallstones
- Gastro-jejunal ulcers

Reoperation	<30 dage	30 dage – 1 år	1-5 år
Gastric bypass	<b>2.6%</b>	<b>2.5%</b>	<b>8.9%</b>
Sleeve gastrektomi		<b>2.3%</b>	<b>5.8%</b>

Dødsfald <90 dage i perioden 2010-2020 i DK: **0.05%** (7/15.436)

# Anæmi (jernmangel) er den hyppigste medicinske komplikation efter fedmekirurgi

Dansk register studie med 9.985 patienter med gastric bypass operation i perioden 2006-2010 versus 247.375 matchede kontroller.

Incidence rate ratio	Før Gastric bypass	Efter Gastric bypass
Anæmi	0.84	17.92
Hypoglykæmi	0.38	6.70
Selvskadende adfærd	1.72	3.61
Alkohol overforbrug	0.59	2.17
Kardiovaskulær sgd	2.44	1.65
Diabetes	6.50	1.13

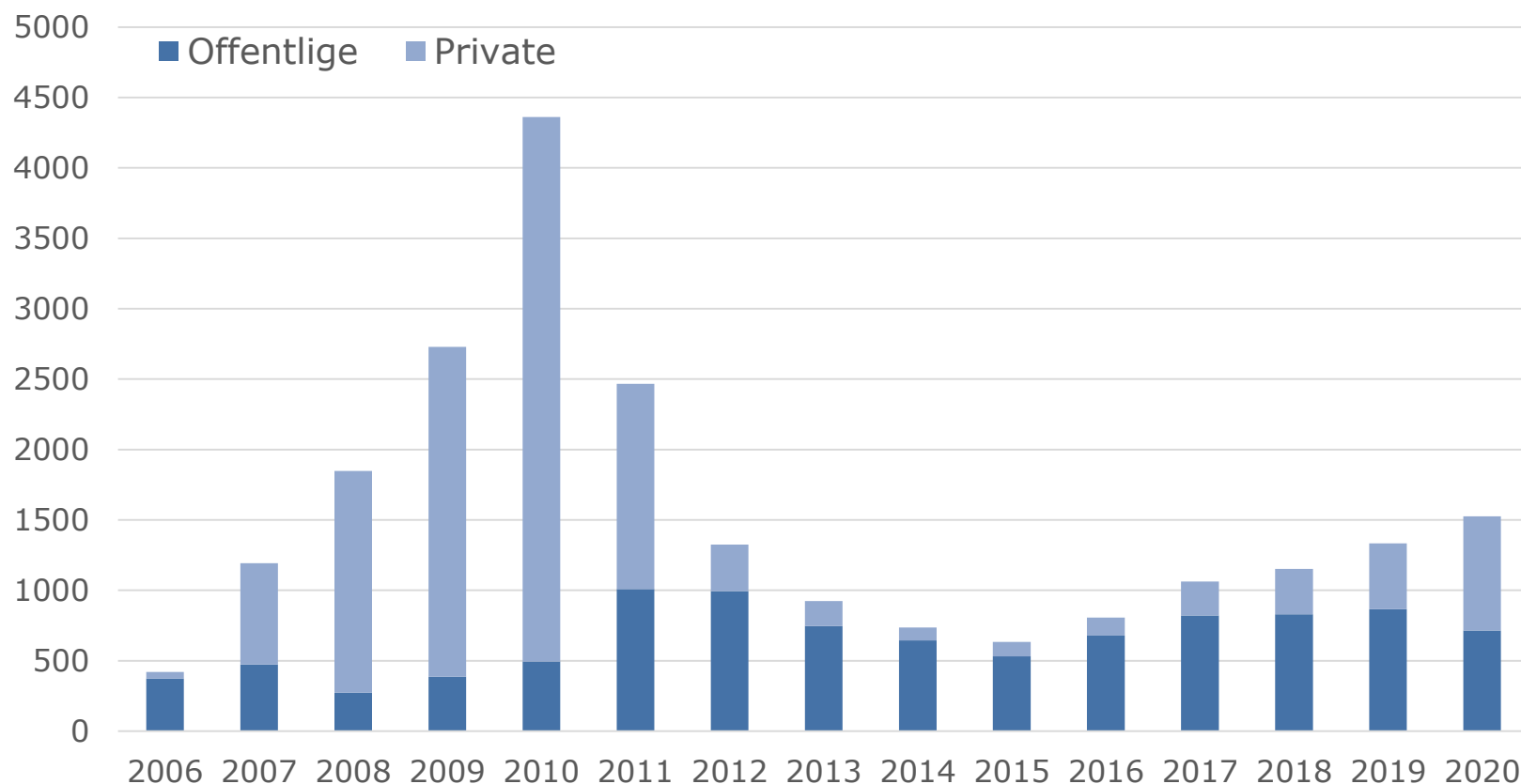


# Anbefalede kosttilskud efter fedmekirurgi

<b>Vitamin/mineral</b>	<b>Anbefalet tilskud</b>
Vitamin B 12	1 mg cyanokobalamin/d per oralt (f.eks. 1 tb Betolvex a 1 mg/d). Alternativ: injektion af 1 mg B12-vitamin i.m. hver 3. måned
Jern	100 mg jern/d, hos fertile kvinder 100mg x 2/d
Vitamin D og kalk	38 µg vitamin D og 800 mg calcium/d (f.eks. Unikalk forte 1 tb x 2/d)
Multivitaminer/mineraler	F.eks. Multi total + 50, 1 tb x 2/d

# Og debatten – ikke mindst den politiske – har smittet direkte af på antallet af operationer

Overvægtskirurgiske operationer i DK



# Effekten af intensiv livsstilsintervention

## Look AL

16 centre i

## Deltagere

- N ~2500
- BMI 36
- Type 2 diabetes
  - HbA1c
  - Var

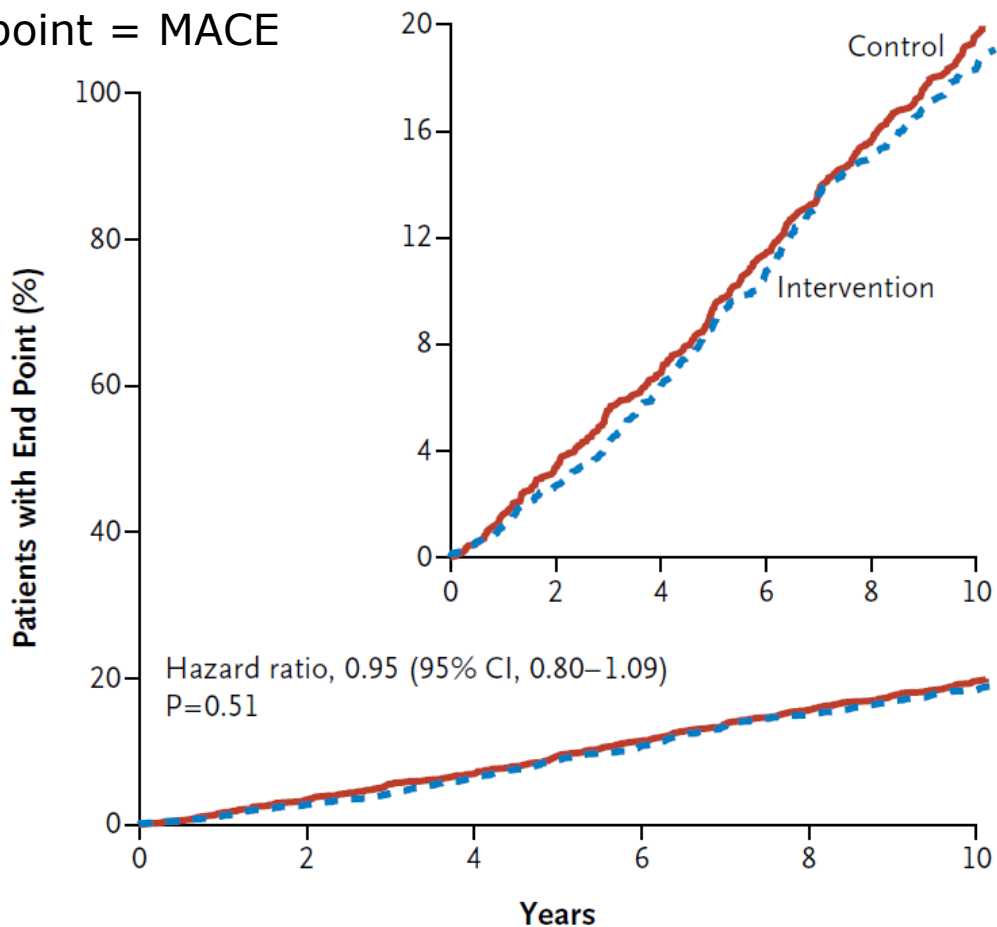
## Intensiv i

- Mål 7%
- Diæt
  - 120
  - Red
  - Mål

## Motion

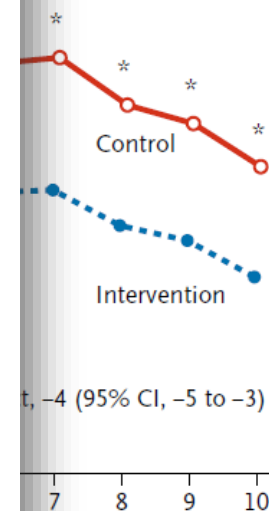
- Ugentlig kontakt de første 6 mdr, derefter aftagende hyppighed

End point = MACE



No. at Risk

Control	2575	2425	2296	2156	2019	688
Intervention	2570	2447	2326	2192	2049	505



# Effekten af måltidserstatning

## DROPLET trial

**Design:** Total meal replacement vs. standard weight management by GP

**Participants:**

Intervention: n = 138

Controls: n = 140

Age: 47-48 y

Male: 40%

BMI: 37 kg/m<sup>2</sup>

Type 2 diabetes: 20%

Hypertension: 30%

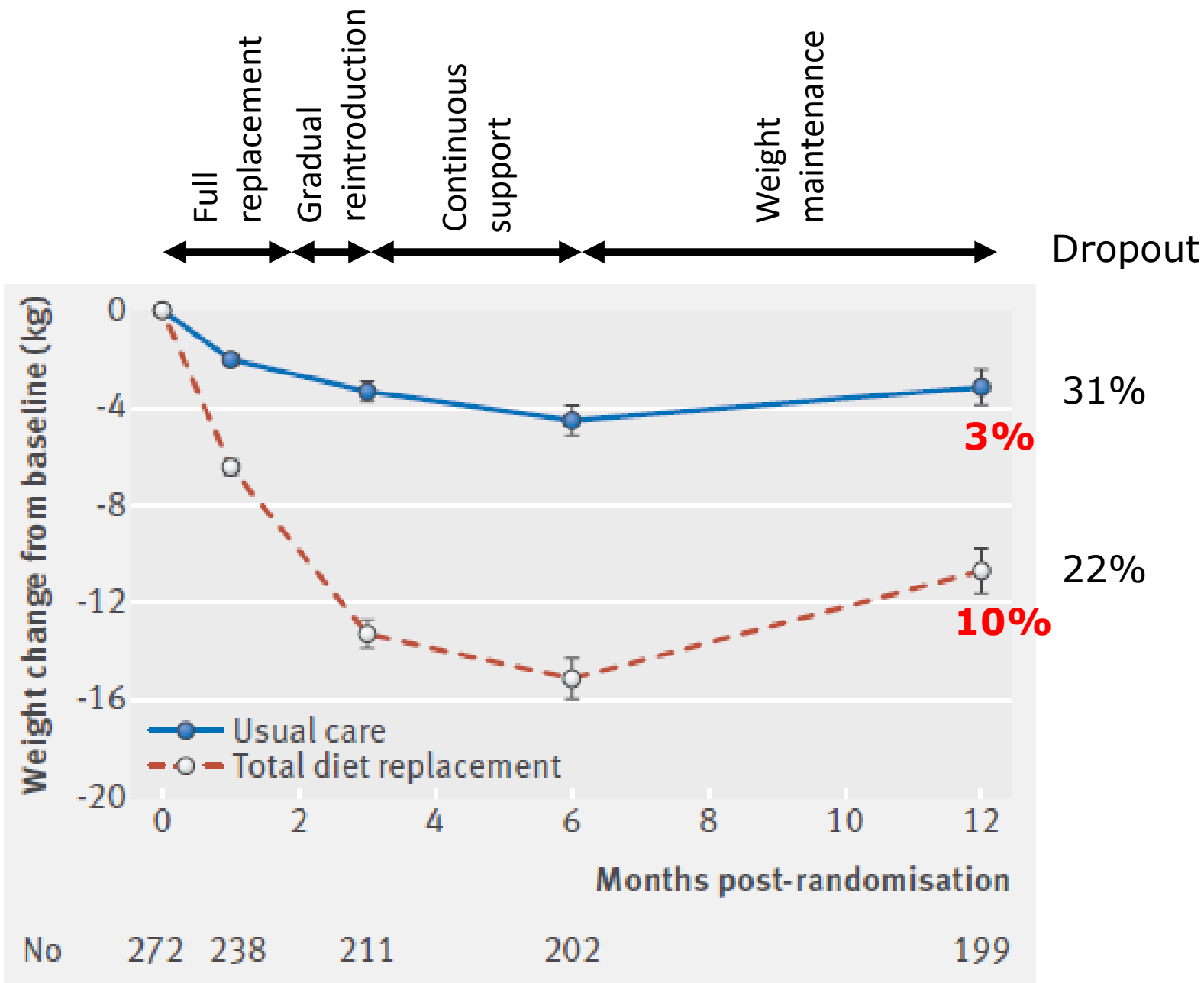
**Intervention:**

8 weeks TMR (810 kcal/dag, Cambridge Weight Plan)

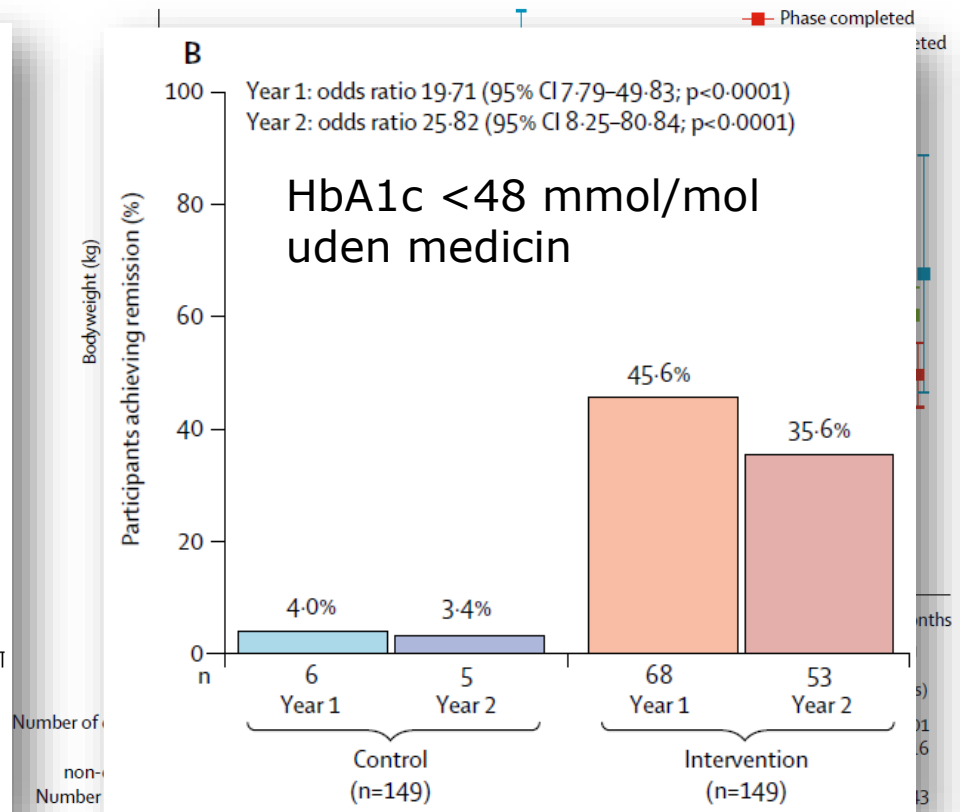
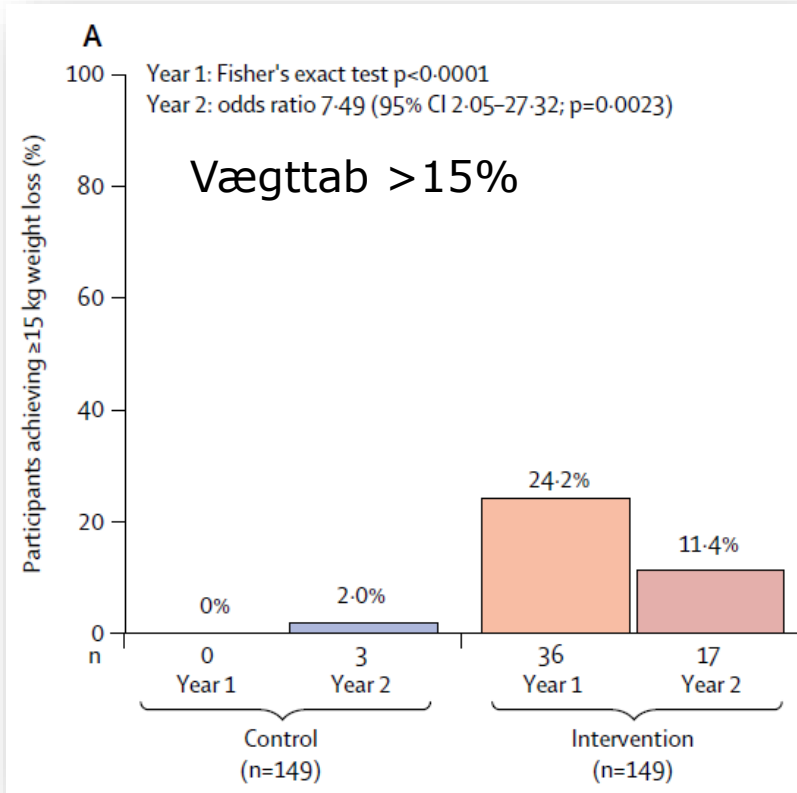
4 weeks food re-introduction

12 weeks weight maintenance counseling (monthly)

12 months follow-up

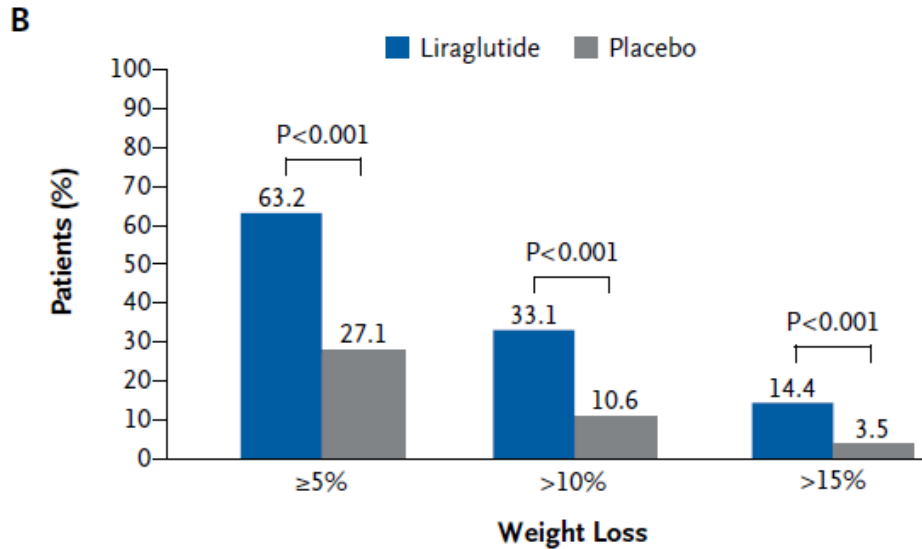


# Effekt af lavkalorisk måltidserstatning



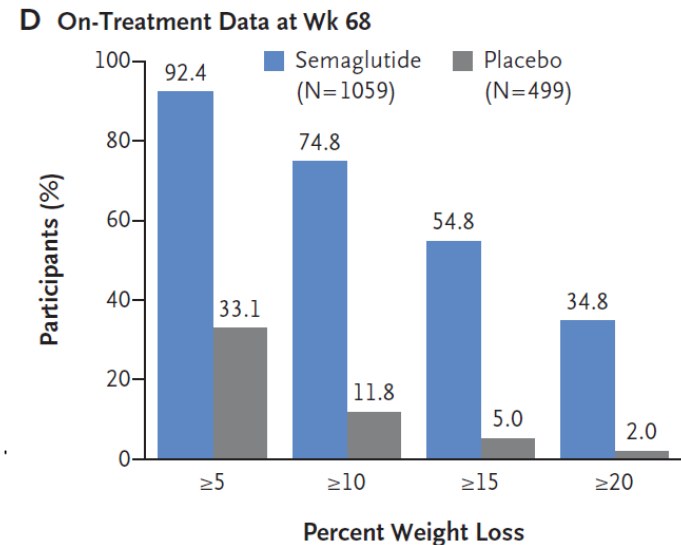
# Effekt af GLP-1 analogerne

**SCALE trial**  
(Liraglutide 3.0 mg daily for 52w)



1/3 opnår  $>10\%$  væggtab

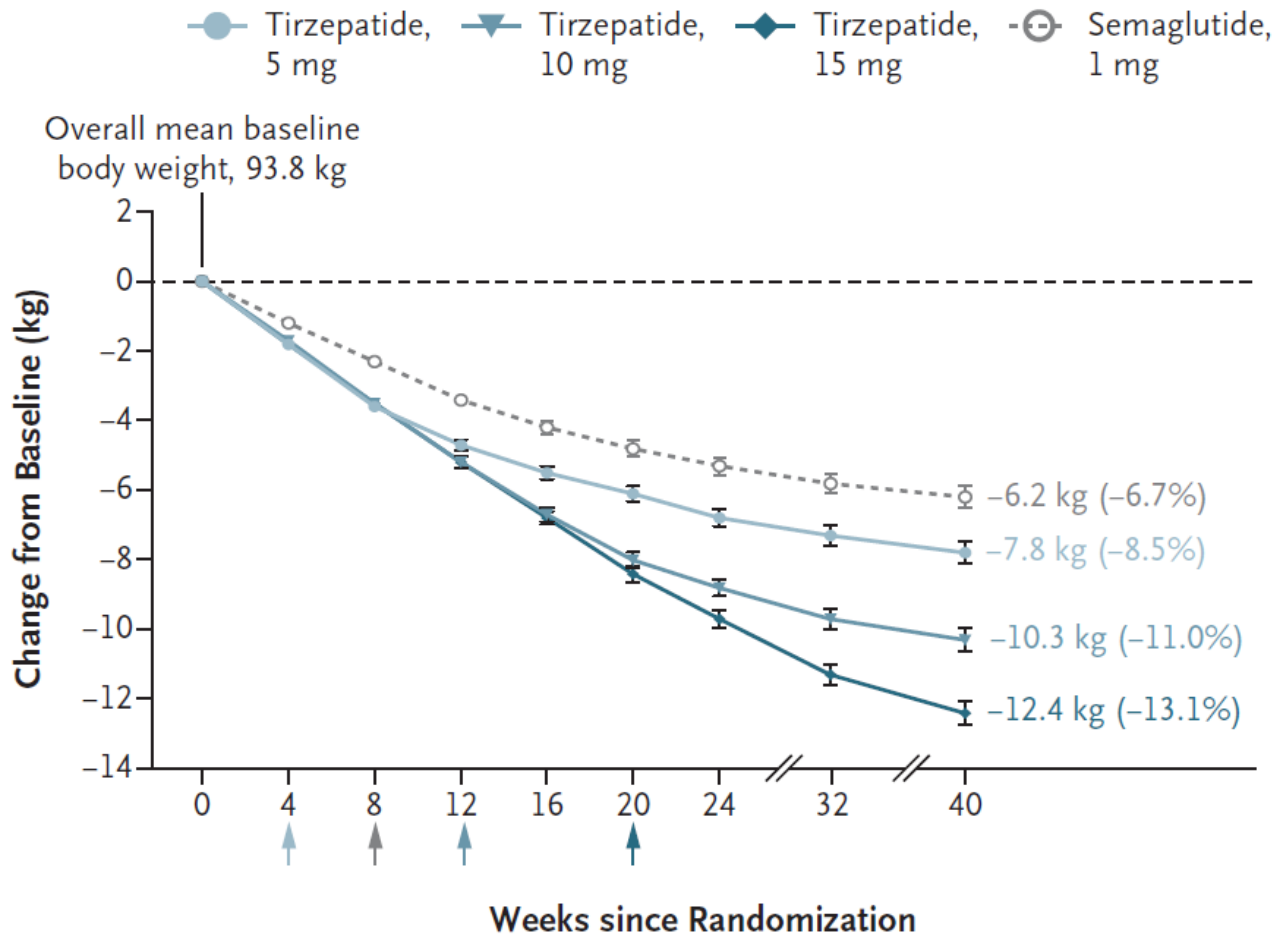
**STEP trial**  
(Semaglutide 2.4 mg daily for 68w)



1/3 opnår  $>20\%$  væggtab

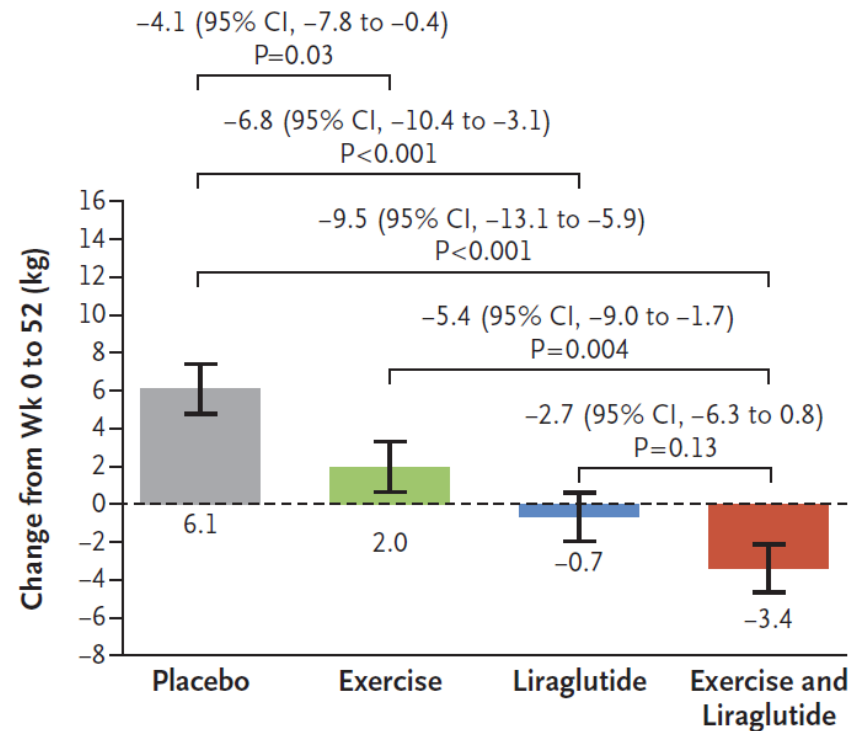
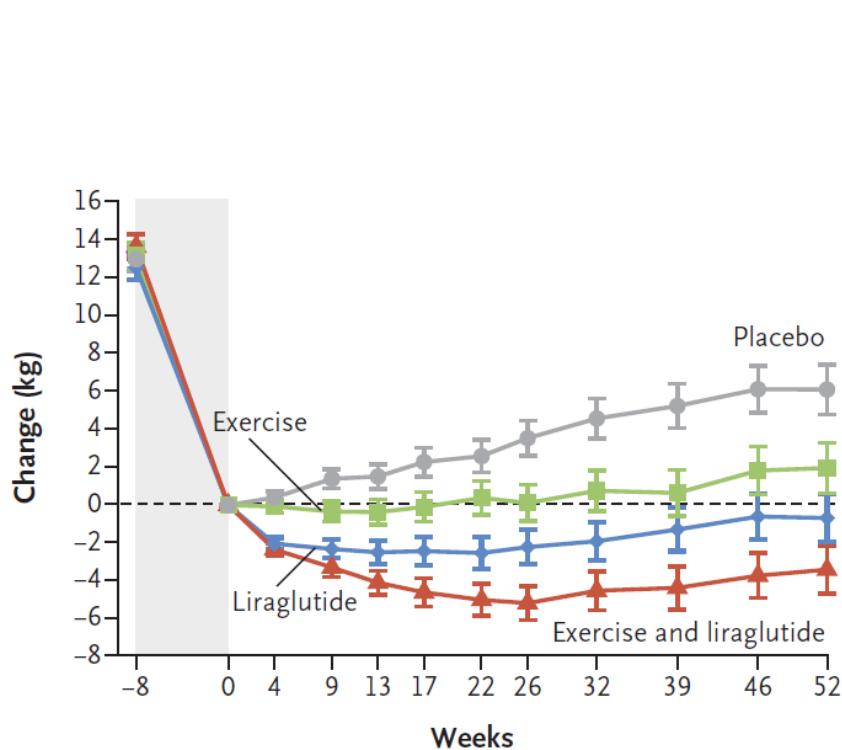
# Og lovende effekt af ny GLP-1/GIP analog (tirzepatid)

**B** Change in Body Weight from Wk 0 to Wk 40



# Effekt af combination af lavkalorisk måltidserstatning, motion og medicin

## A Change in Body Weight



No. of Participants

215	195	187	183	181	178	178	175	171	169	168	166
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

No. Who Underwent Randomization

49	48	49	49
----	----	----	----

No. Who Completed Trial

40	40	41	45
----	----	----	----

Corona

Patient

Personale

Organisation



### Hvidovre Hospital har et nyt tilbud til personer med svær overvægt

Med medicinsk behandling og en styrket indsats i kommunerne er der godt nyt til de svært overvægtige, der ikke kan behandles med kirurgi.

- En styrket indsats for behandling af svær overvægt på AHH.
- Et behandlingstilbud baseret på **måltids-erstatning** og **medicin** til patienter med **svær overvægt** og **alvorlige følgesygdomme** som ikke kan tilbydes kirurgisk behandling.
- På længere sigt en styrket tværsektoriel indsats i samarbejde med kommuner og praktiserende læger.