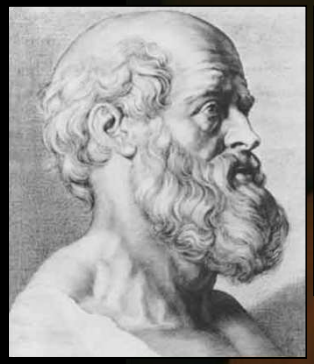
Schlank um jeden Preis – GLP-1 Agonisten & Co.



460-370 v. Chr.

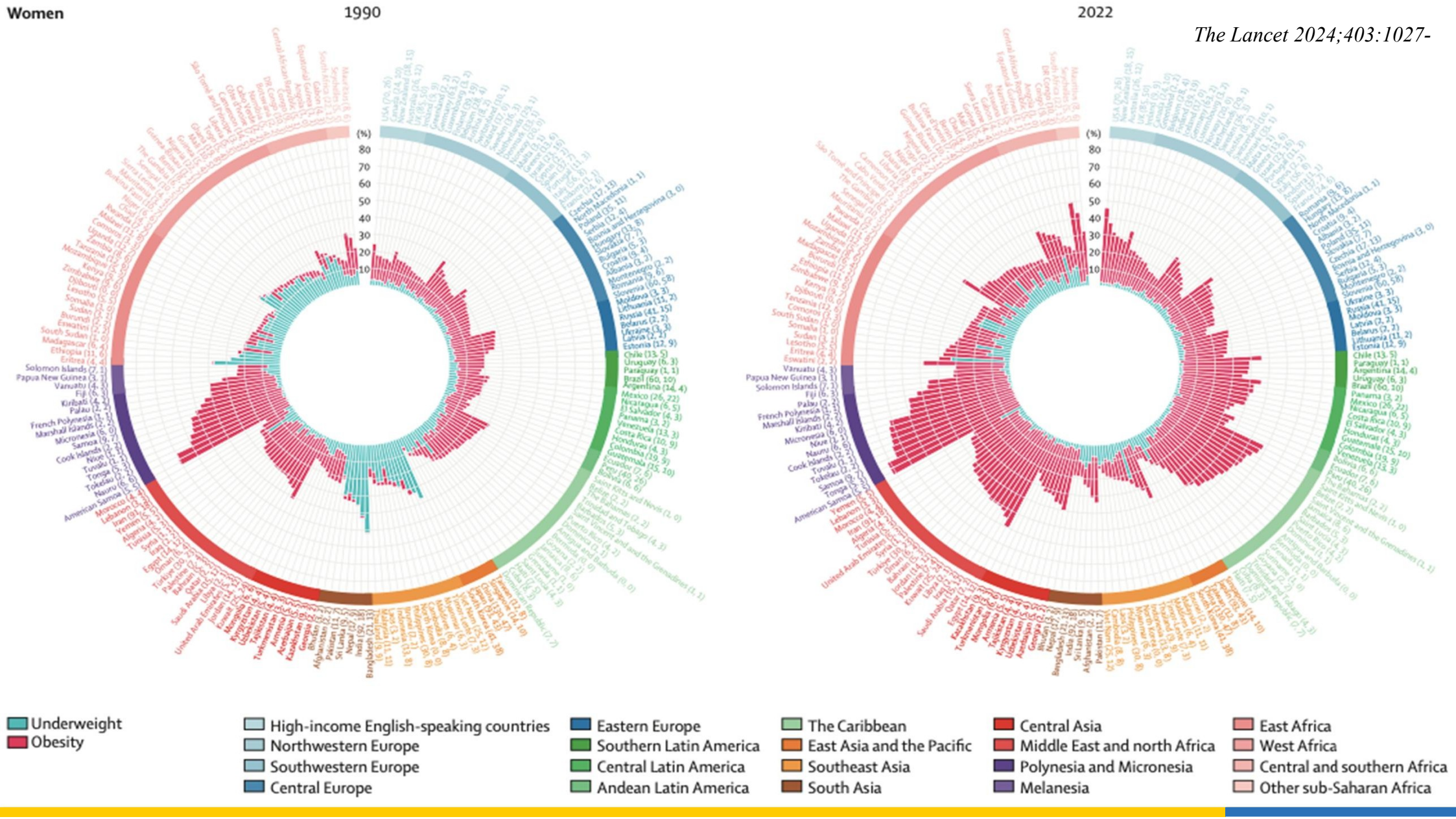
„Wenn wir jedem Individuum das richtige Mass an Nahrung und Bewegung zukommen lassen könnten, hätten wir den sichersten Weg zur Gesundheit gefunden…“

Kasmauski K
National Geographic

Quadrimed
Crans-Montana

Christoph Henzen luzerner kantonsspital

1. Epidemiologie von Übergewicht und Adipositas
2. Physiologie des Energie-Systems
3. Prävention / Lebensstil-Änderung
4. Stellenwert der GLP-1 Agonisten & Co.
5. Zukünftige Entwicklungen



The Lancet 2024;403:1027-

Diabetes around the world - 2024

Number of adults (20–79 years) with diabetes worldwide

International Diabetes Federation | 75 YEARS 1950 • 2025

World

2050	852.5 Million
2024	588.7 Million

45% increase

Africa (AFR)

2050	59.5 Million
2024	24.6 Million

142% increase

Europe (EUR)

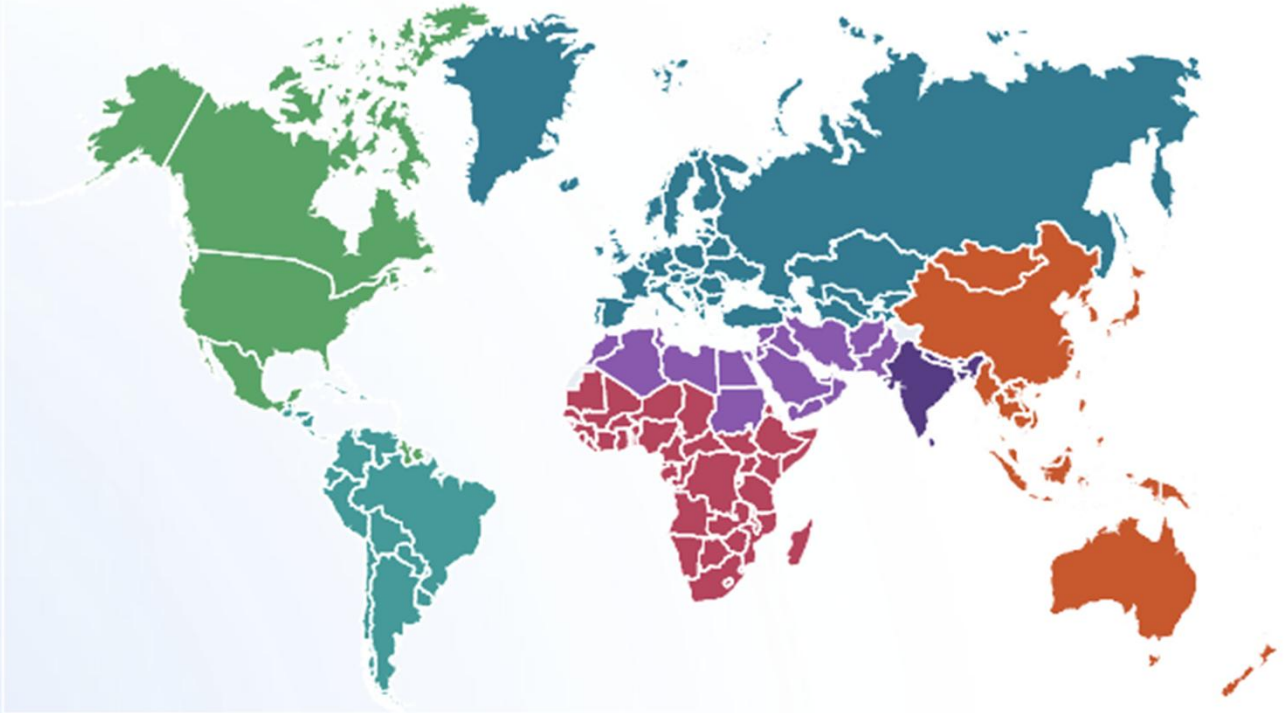
2050	72.4 Million
2024	65.6 Million

10% increase

Middle-East and North Africa (MENA)

2050	162.6 Million
2024	84.7 Million

92% increase



Highlights

- 589 million adults (20-79 years) are living with diabetes worldwide – 1 in 9.
- The total number of adults with diabetes is predicted to rise to 853 million by 2050 - 1 in 8.
- 4 in 5 adults with diabetes (81%) live in low and middle-income countries.
- Diabetes caused 3.4 million deaths in 2024 – 1 every 6 seconds.
- An estimated 43% of adults living with diabetes (252 million people) are undiagnosed. Almost 90% live in low and middle-income countries.
- Diabetes was responsible for an estimated USD 1.015 trillion in global health expenditure in 2024. This represents a 338% increase over the past 17 years.
- 635 million adults worldwide (1 in 8) have impaired glucose tolerance and 488 million have impaired fasting glucose (1 in 11) placing them at high risk of type 2 diabetes.
- 1 in 5 live births are affected by hyperglycaemia in pregnancy.

North America and Caribbean (NAC)

2050	68.1 Million
2024	56.2 Million

21% increase

South and Central America (SACA)

2050	51.5 Million
2024	35.4 Million

45% increase

South-East Asia (SEA)

2050	184.5 Million
2024	106.9 Million

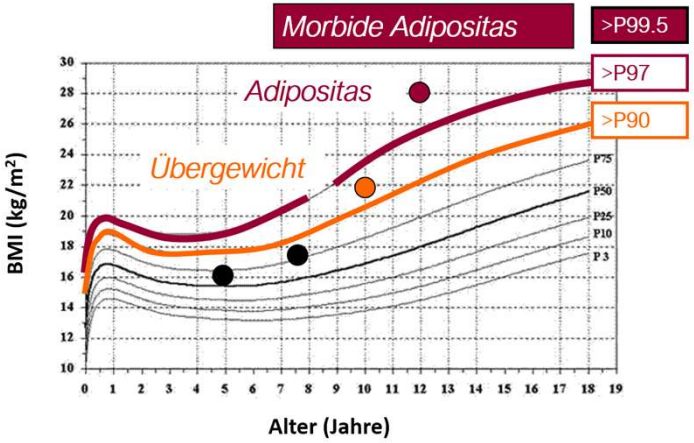
73% increase

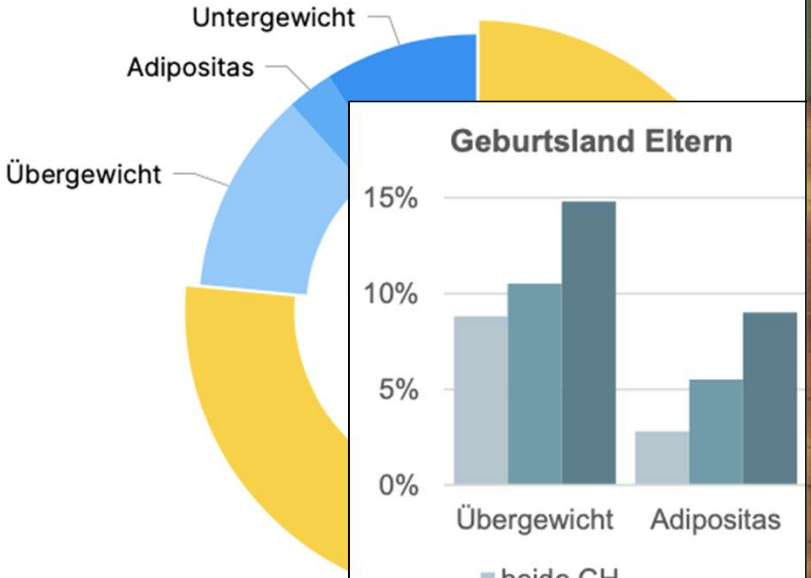
Western Pacific (WP)

2050	253.8 Million
2024	215.4 Million

18% increase

Übergewicht/Adipositas bei Kindern und Jugendlichen





Unterschiede in der Häufigkeit von Übergewicht und Adipositas (gemessen am BMI) nach Geburtsland und Ausbildung der Eltern

Psychosozial
Mangelndes Selbstbewusstsein – soziale Isolation
Depression
Essstörungen

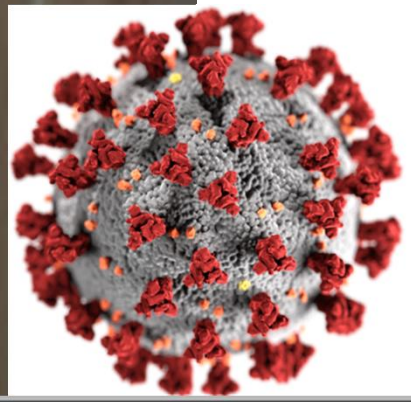
Neurologisch
Pseudotumor cerebri

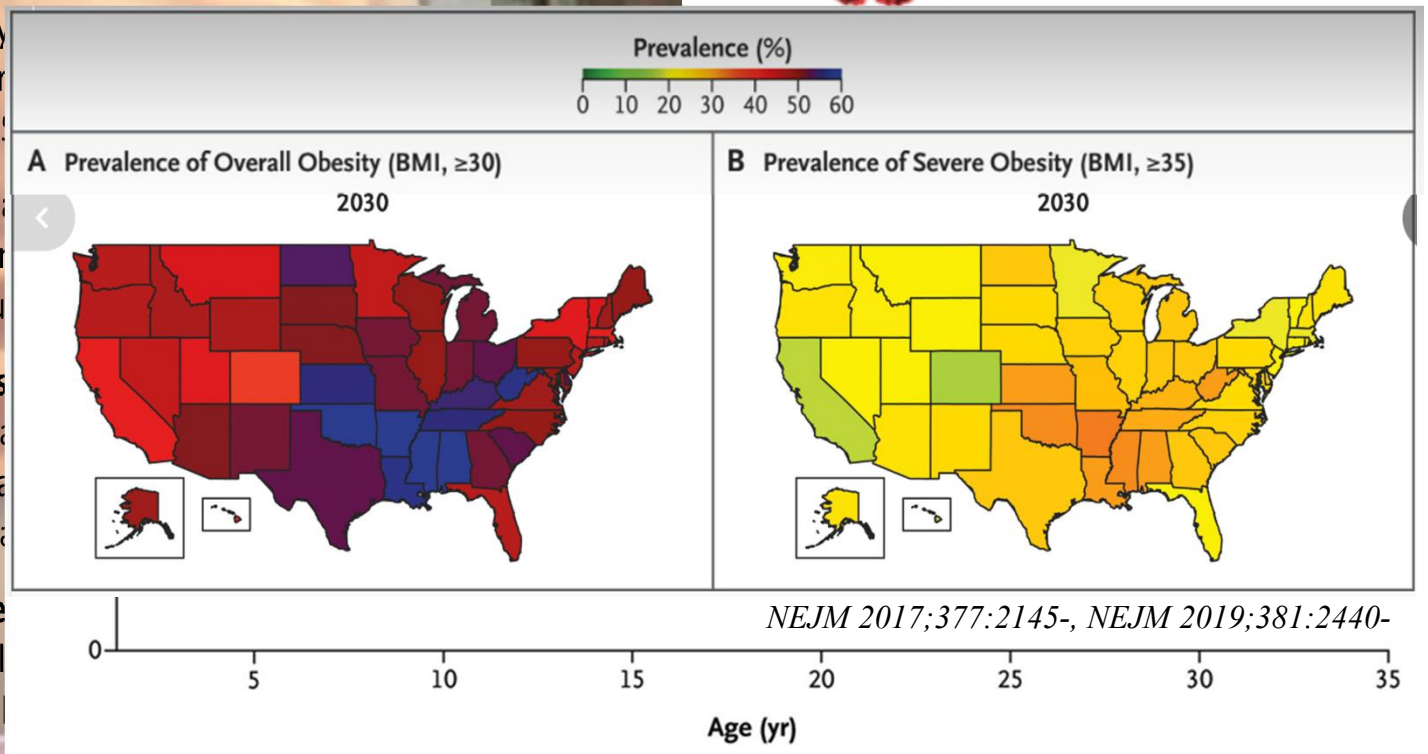
Endokrin
Insulinresistenz – Ty
Pubertas pr
Polycystische Ovarien (PCO

Pulmon
Schlaf-Apr
Asthma – Anstrengu

Gastrointes
Gastroösophage
Steatohepa
Cholelithi

Muskuloske
Epiphysiol
Lumbovertebra





NEJM 2017;377:2145-, NEJM 2019;381:2440-

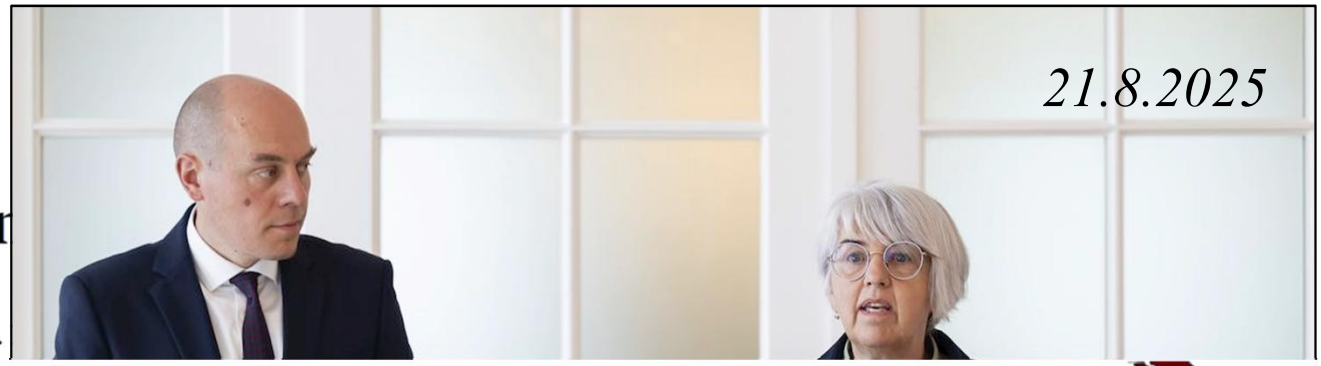
Tages-Anzeiger

Migros und Coop wollen zu gesun erziehen

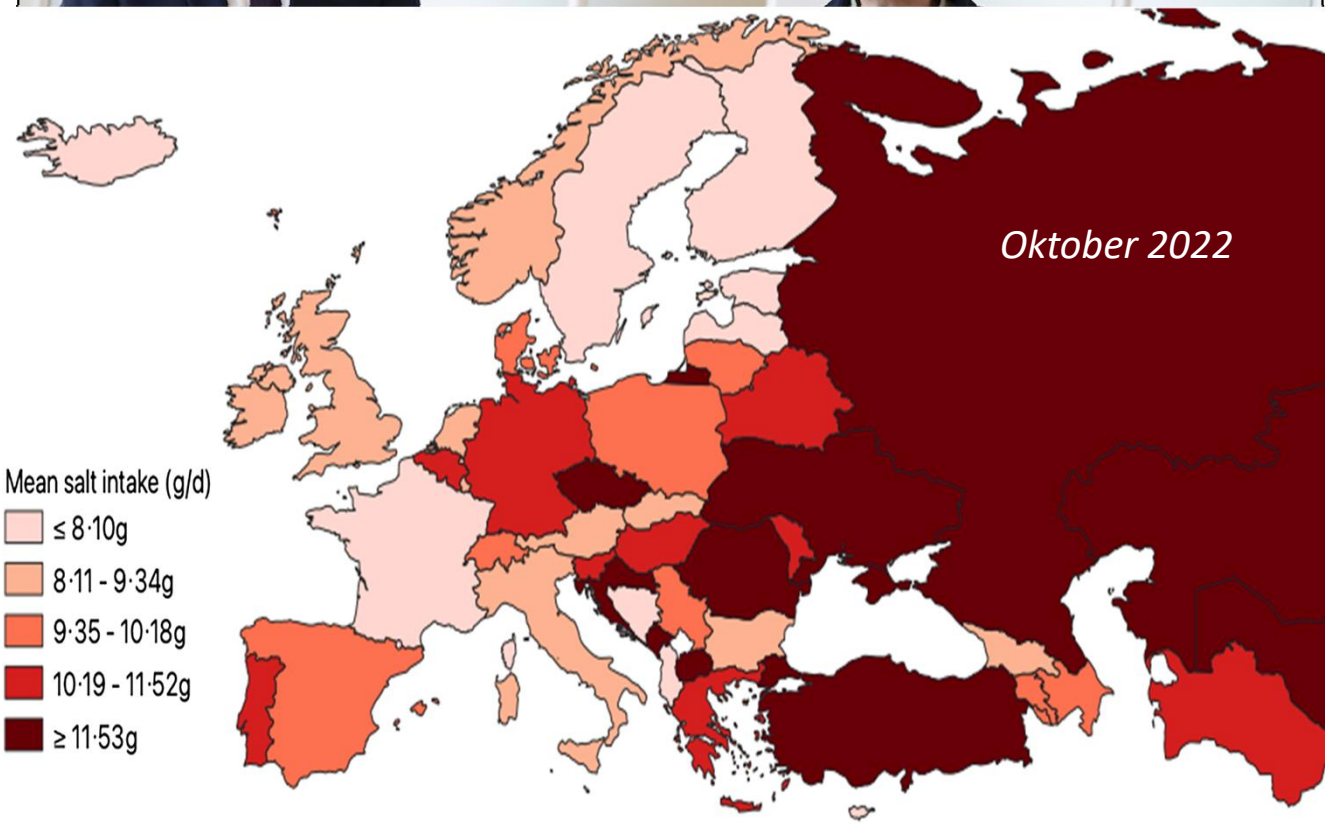
Sechs Lebensmittelkonzerne bieten freiwillig gesündere Lebensmittel an. Verbote, um die Gesundheit ernsthaft zu fördern.

Ein gesünderes Angebot soll ihnen das Abnehmen erleichtern: Fettleibige Jugendliche in einer speziellen Sportstunde für Übergewichtige. Bild: Ronald Frommann (laif)

9.11.2010

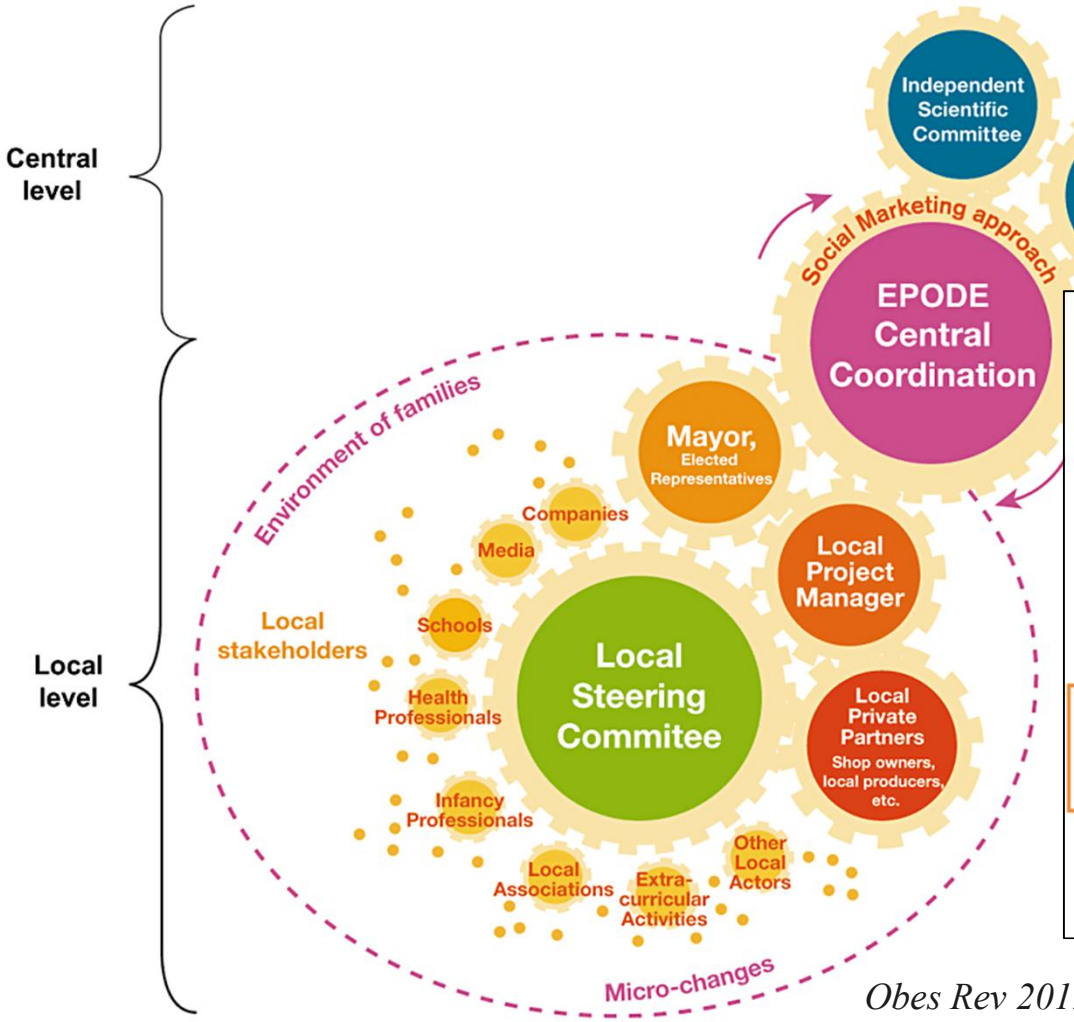


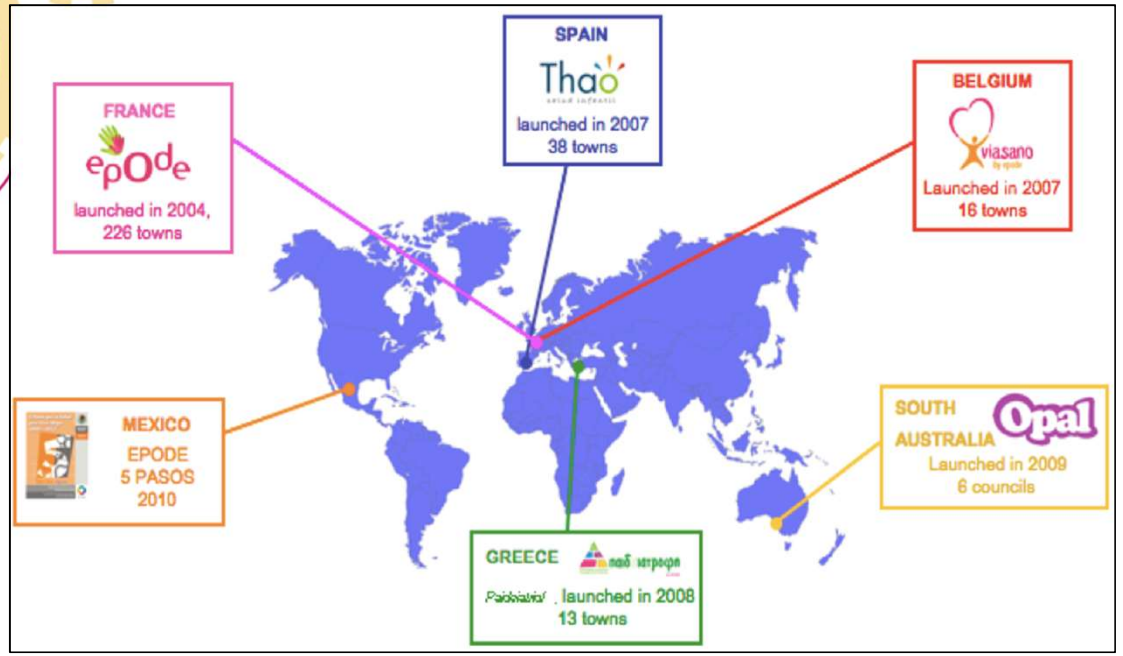
21.8.2025



Oktober 2022

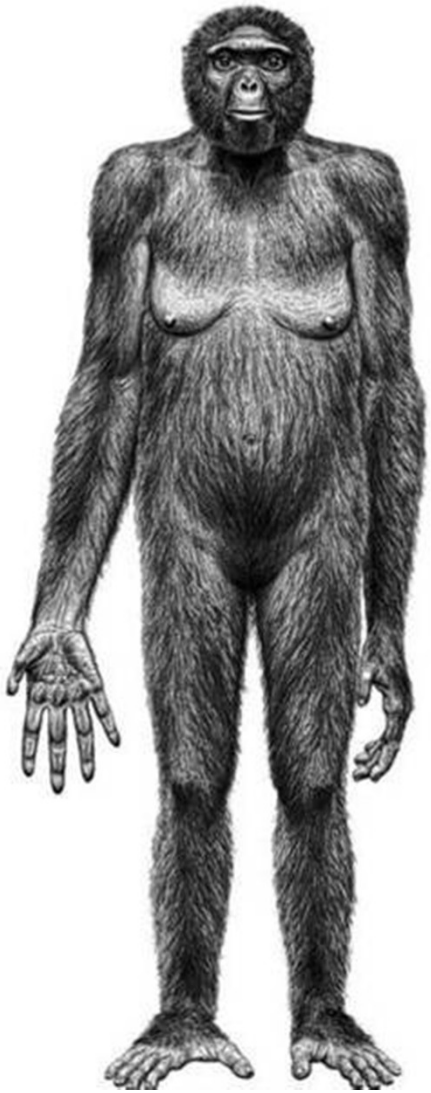
Was würde funktionieren?





Obes Rev 2012;13:299–315

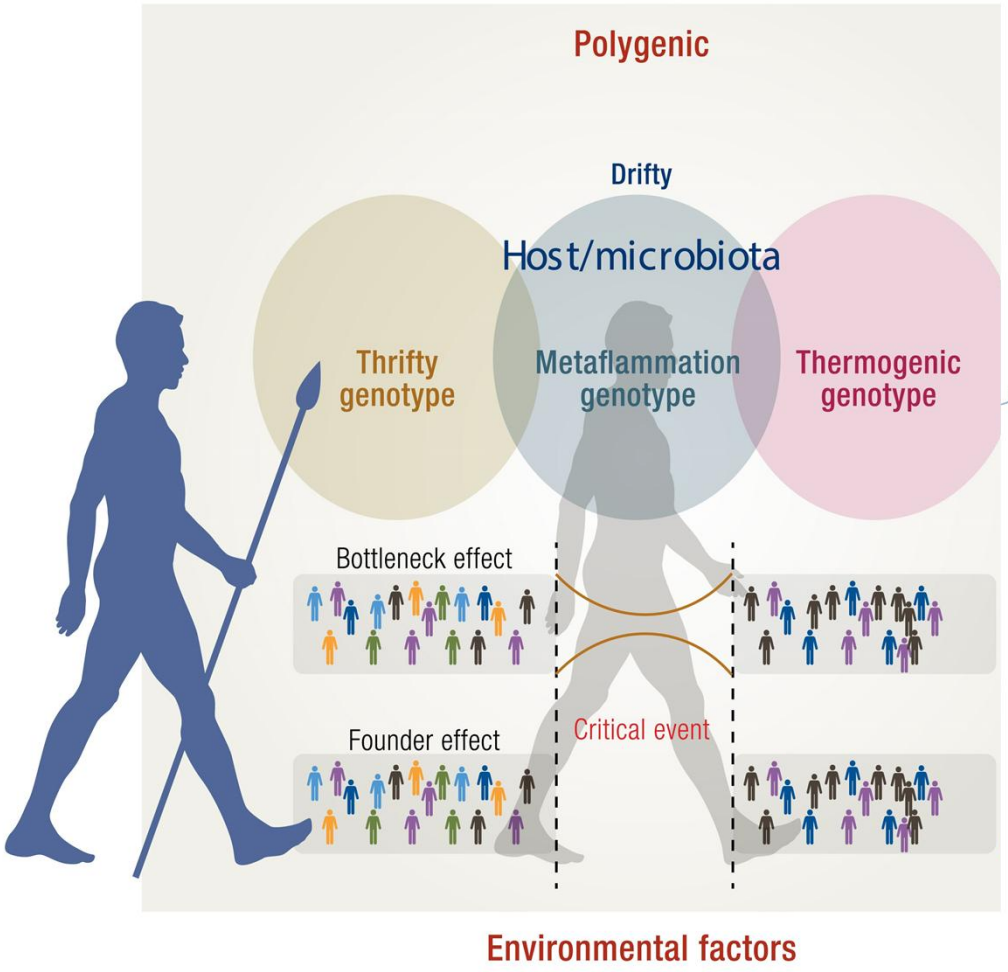
„Ardi“

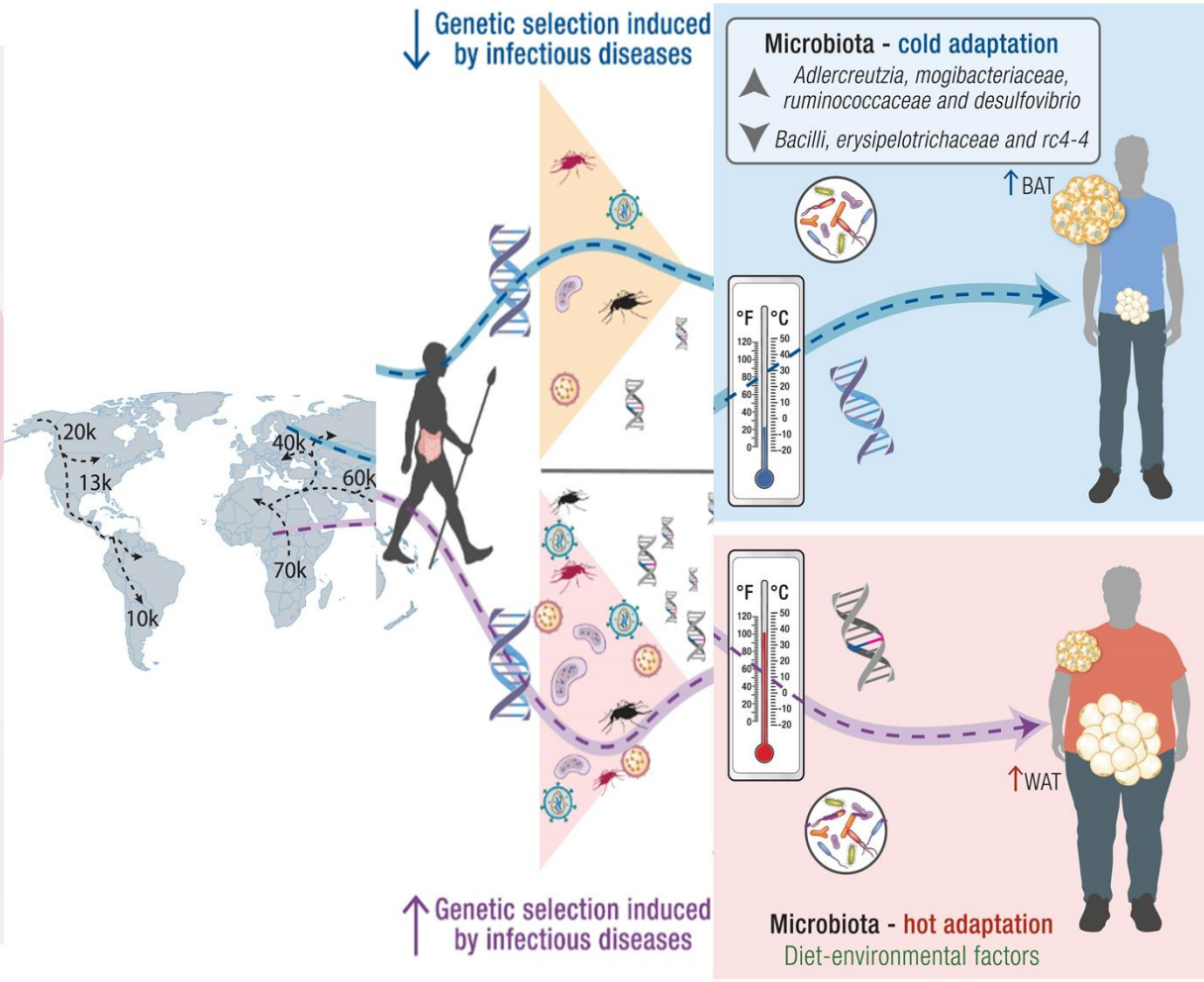


Kontrolle der

X/A-like cells	Ghrelin, nesfatin-1
GIP cells (K cells)	GIP, xenin
S cells	Secretin
I cells (CCK cells)	Cholecystokinin
N cells	Neurotensin
L cells	PYY, GLP-1, GLP-2, oxyntomodulin

Evolution der Adipositas

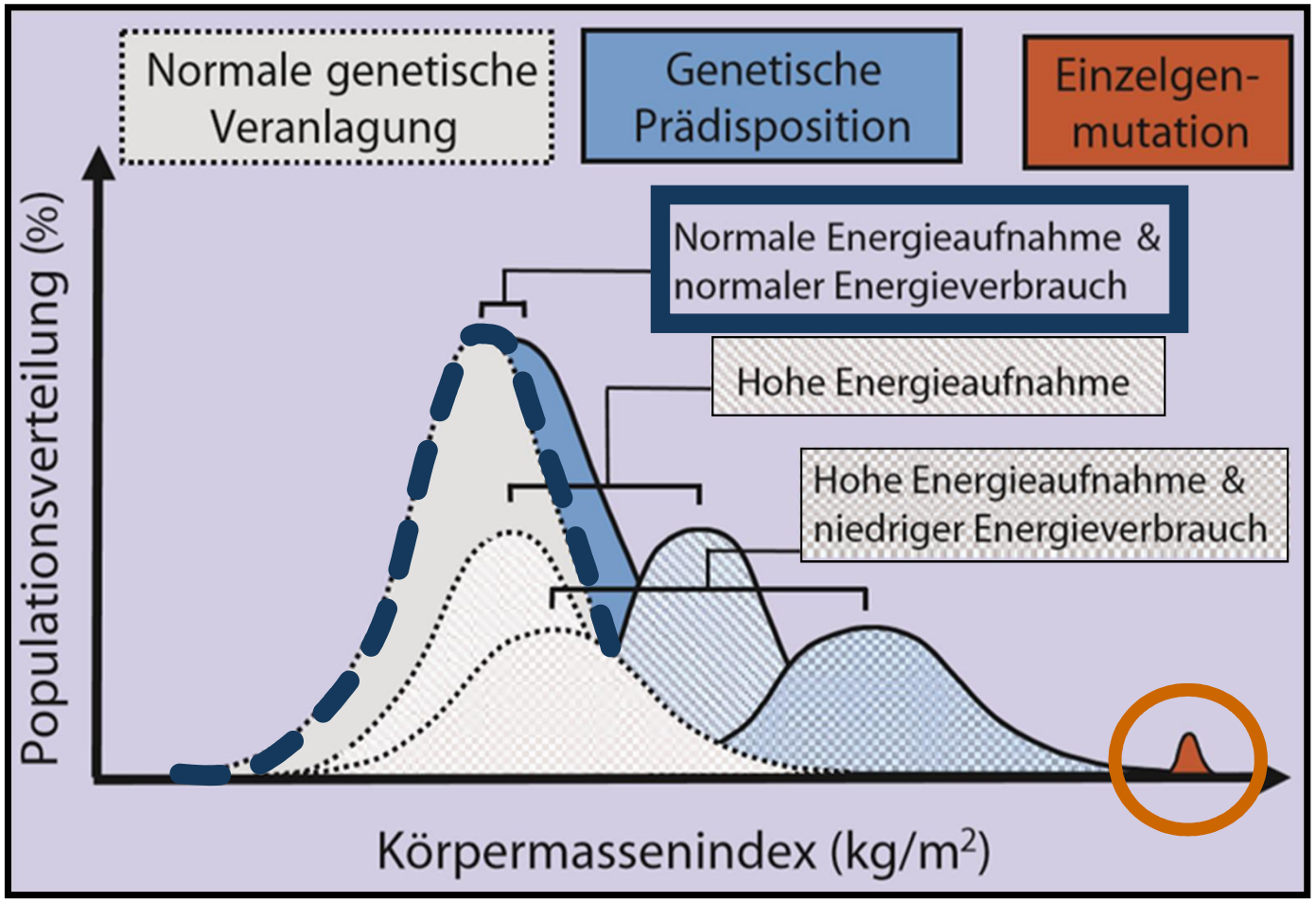


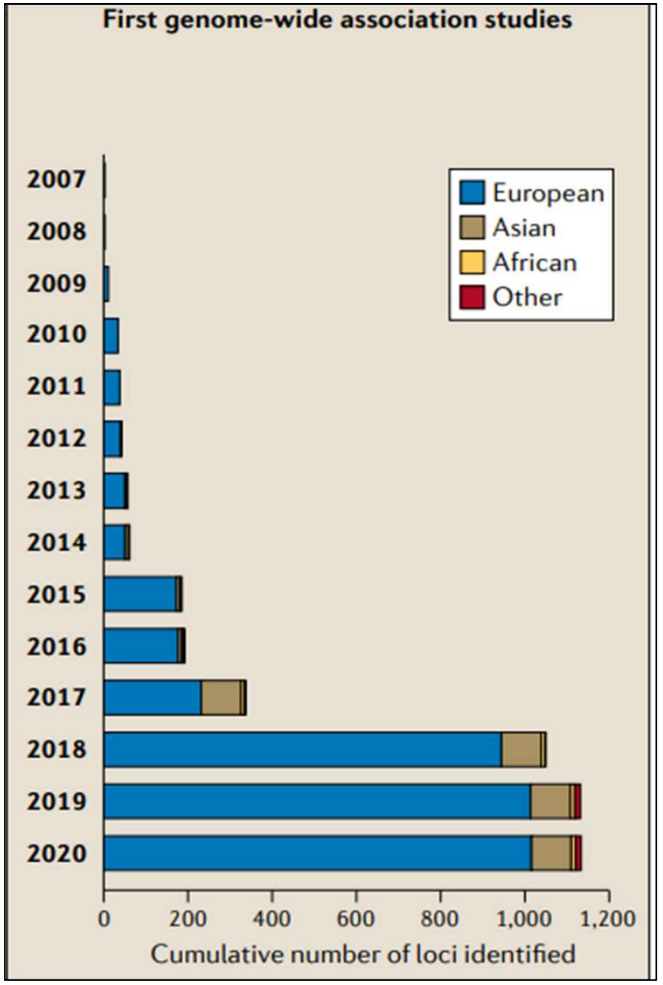


Endocrine Reviews 2025;46:300-316,
https://doi.org/10.1210/endrev/bnae033

Gewichtszunahme und genetische Prädisposition

Hofbauer KG, SMF 2002;40:937-





Nature Rev Gen 2022;23:120-

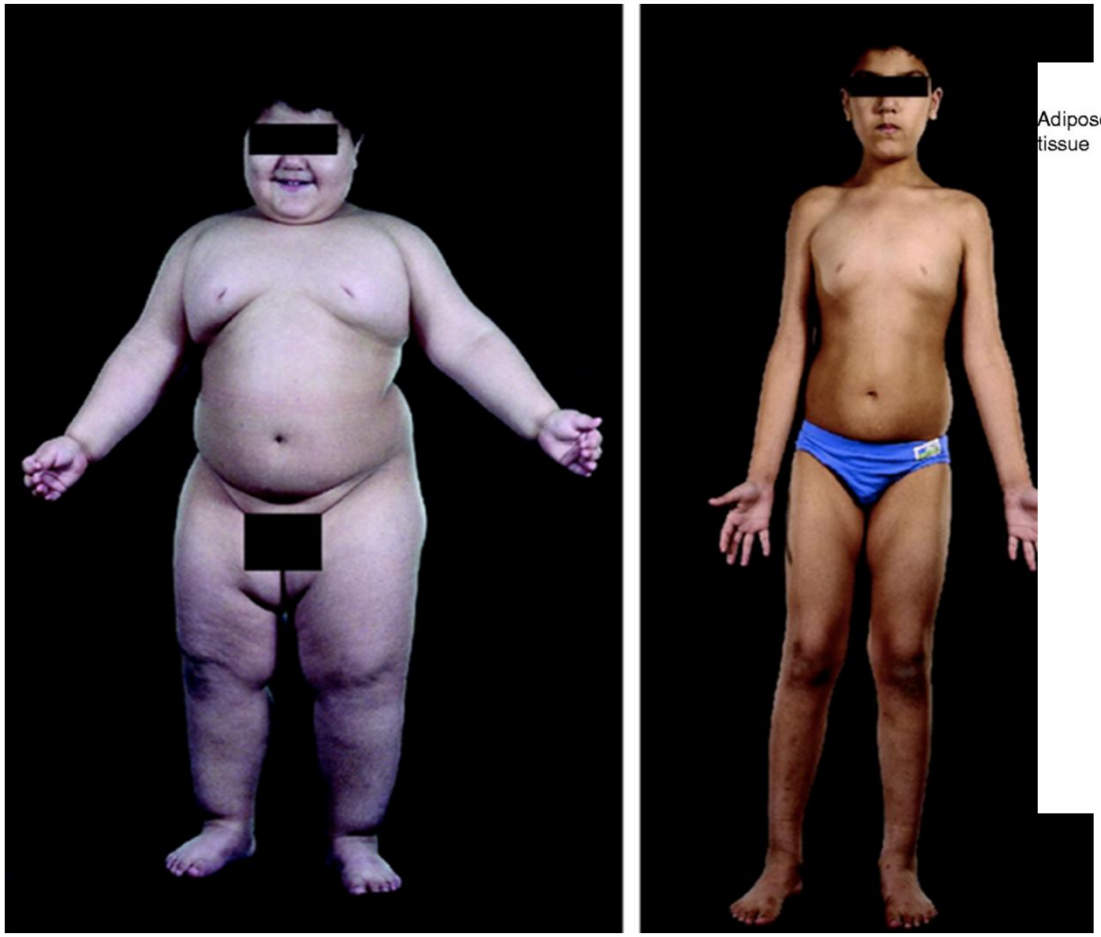
Hormon / Gen	Pathophysiologie	Krankheitsbild
Cushing-Syndrom	Endogen oder exogen bedingter Hypercortisolismus	Zentripetale Fettverteilung, Diabetes, Osteoporose, Striae, Depression, etc.
Hypothyreose/Myxödem	Ablagerung von Glycosaminglykanen	Gewichtszunahme, „puffy face“, Kälteintoleranz, kognitive Störungen
Prader-Willi Syndrom (Angelman-Syndrom)		
Laurence-Moon-Biedl-Bardet		
Proopiomelanocortin (POMC)		
Melanocortin-4 Rezeptor (*MC4R*)		
Leptin		
Pro-protein Convertase Subtilisin/Kexin Typ 1 (*PCSK1*)		
Single-minded homolog 1 (*SIM1*)		

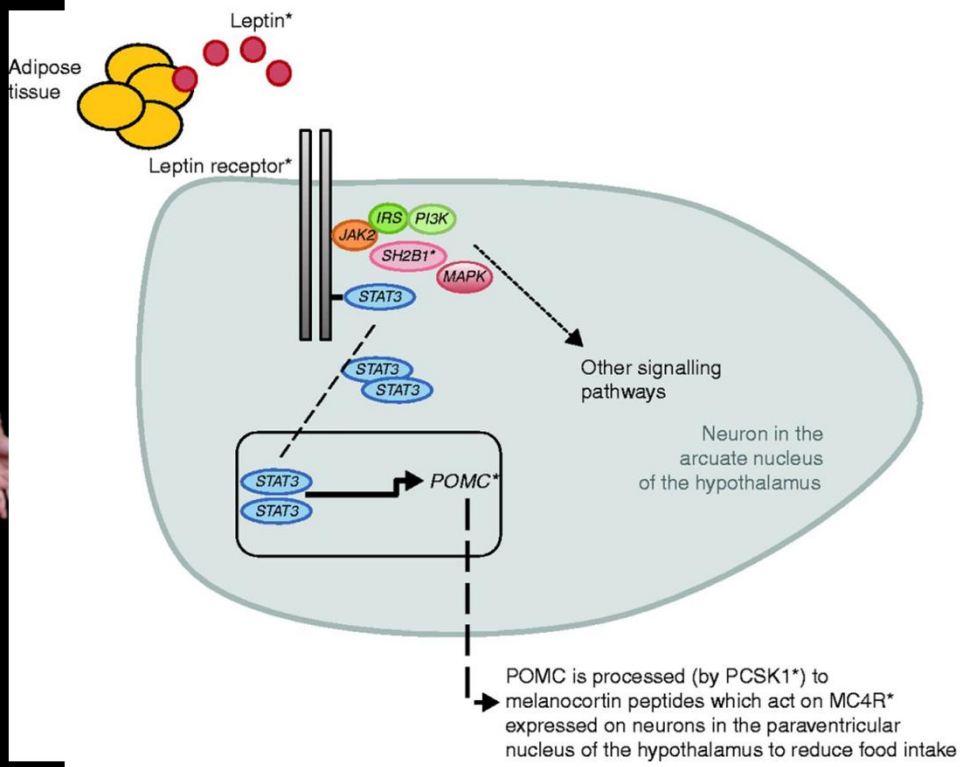
Clin Chem 2018;64:173-

Human disorders of leptin action

I Sadaf Farooqi and Stephen O'Rahilly

MRC Metabolic Diseases Unit, Metabolic Research Laboratories, Wellcome Trust–MRC Institute of Metabolic Science, NIHR Cambridge Biomedical Research Centre, Addenbrooke's Hospital, University of Cambridge, Cambridge, UK

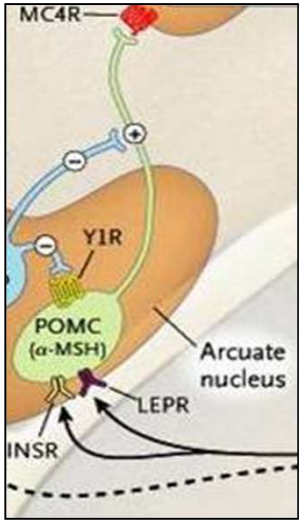


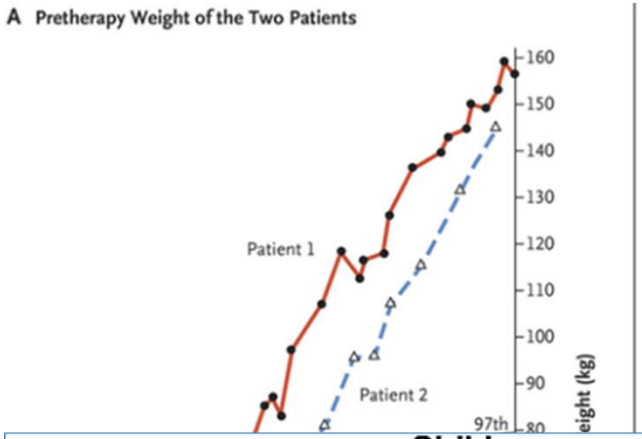


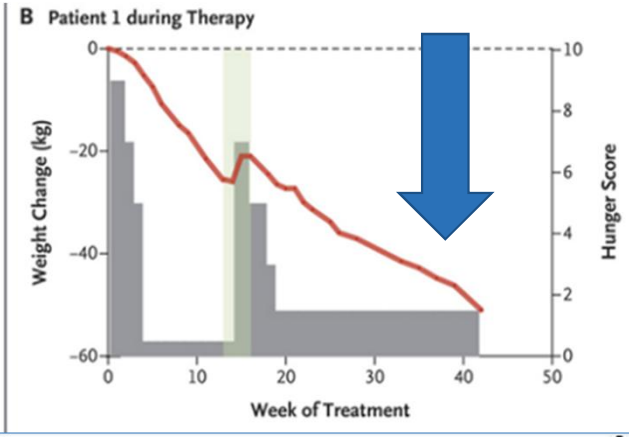
J Endocrinol 2014;223:63-

Proopiomelanocortin Deficiency Treated with a Melanocortin-4 Receptor Agonist

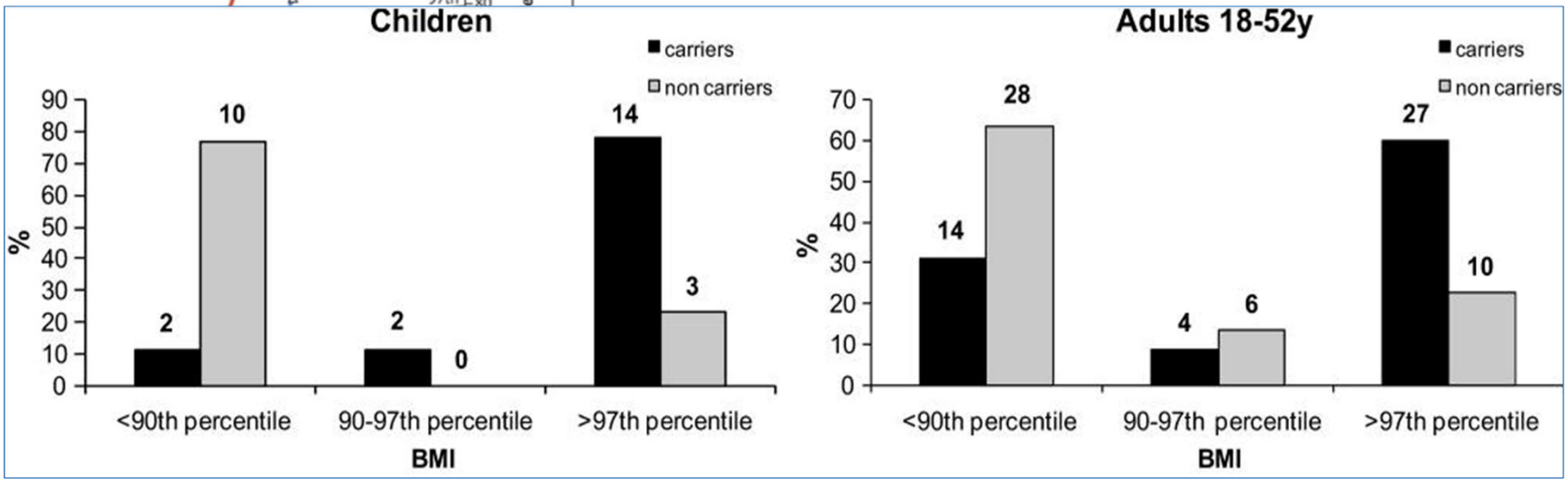
Kühnen P et al, NEJM 2016;375:240-





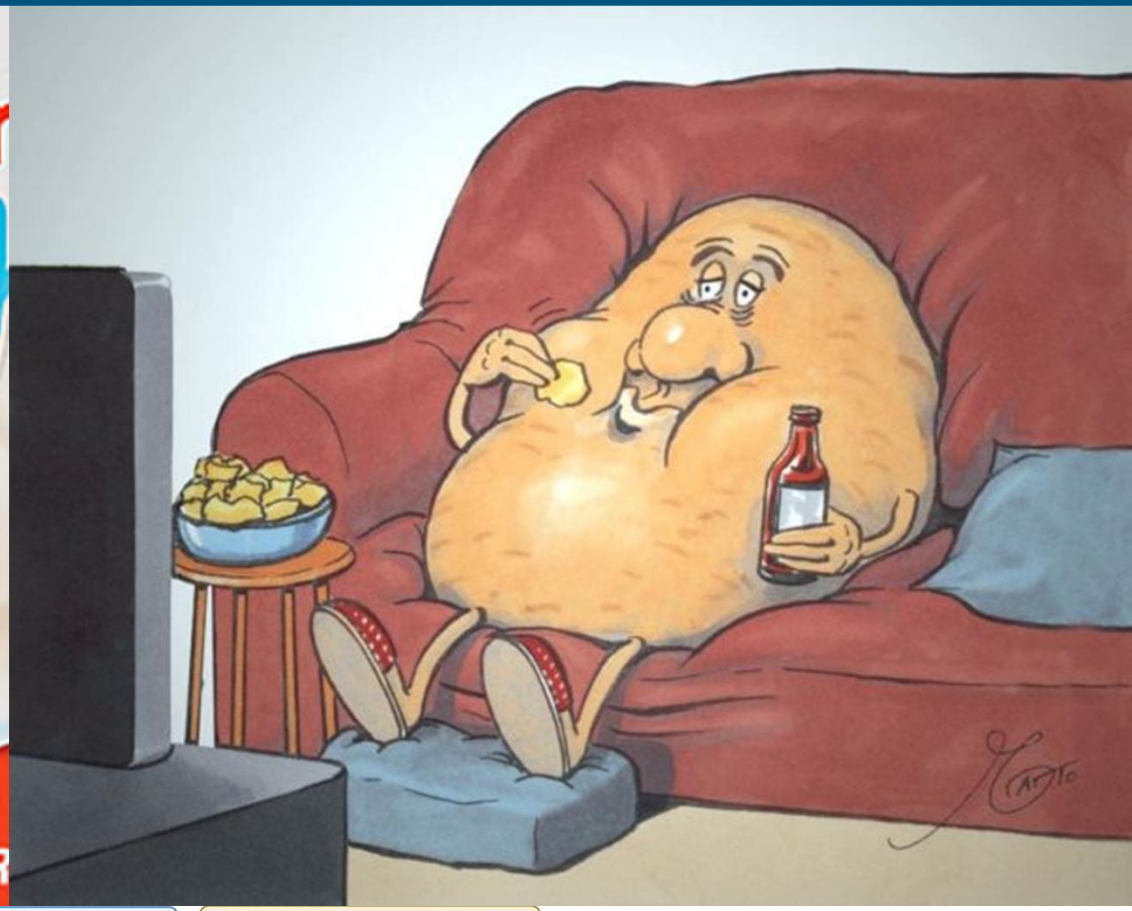


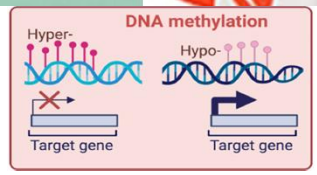
Diabetes 2008;57:2511–2518

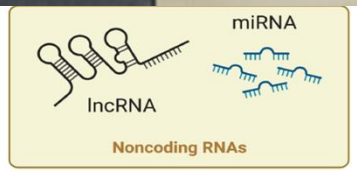


Genetische und epigenetische Faktoren

Endocr Metab Disord. 2023;24(5):775-793. / N Engl J Med 2023;388:2071-2085



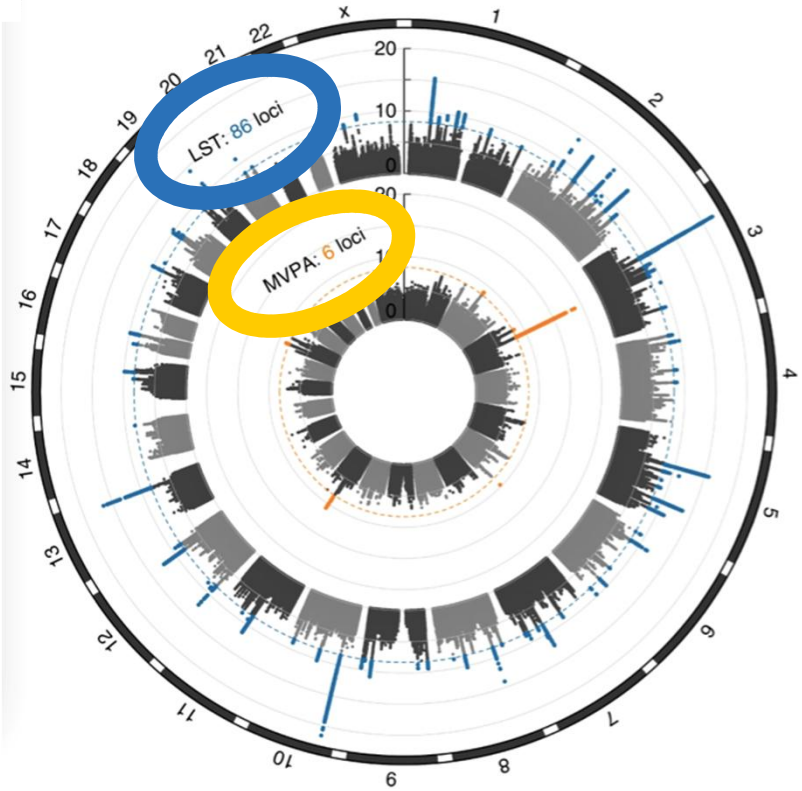


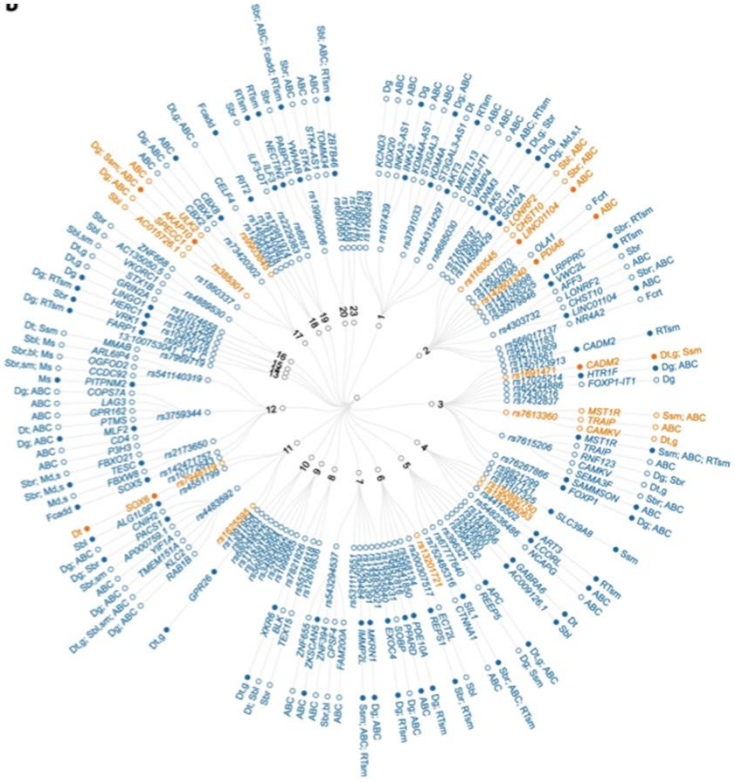


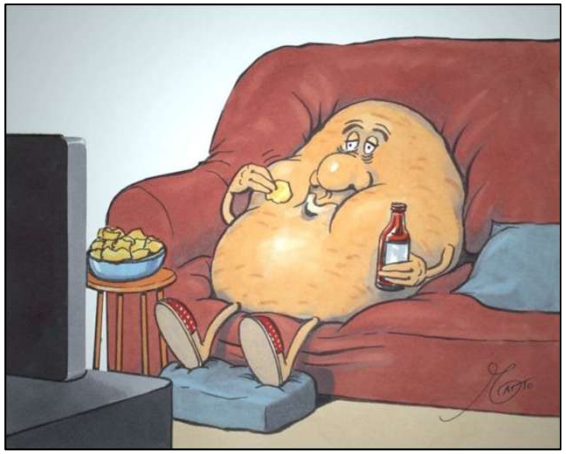
GWAS: Lebensstil – *TV-Zeit vs. Körperliche Aktivität*

Über 700.000 Individuen

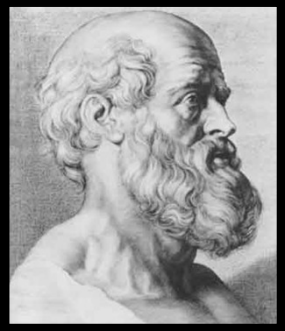
99 Loci assoziiert mit «Leisure Screen-time» *vs.* «Moderate-to-vigorous intensity physical activity»







Nature Genetics 2022:54.1332-



Energiebilanz?

Overeatin

Genetisch

Umwelt-

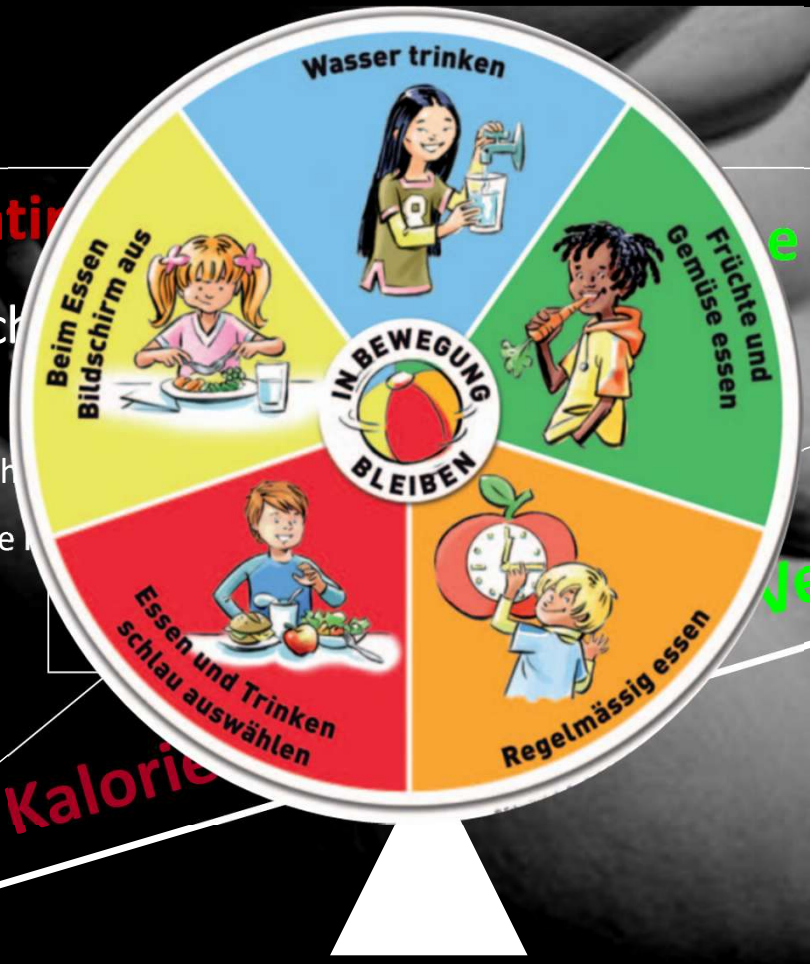
Psychologisch

Metabolische

e Aktivität

Verbrauch

Zuviel Kalorie

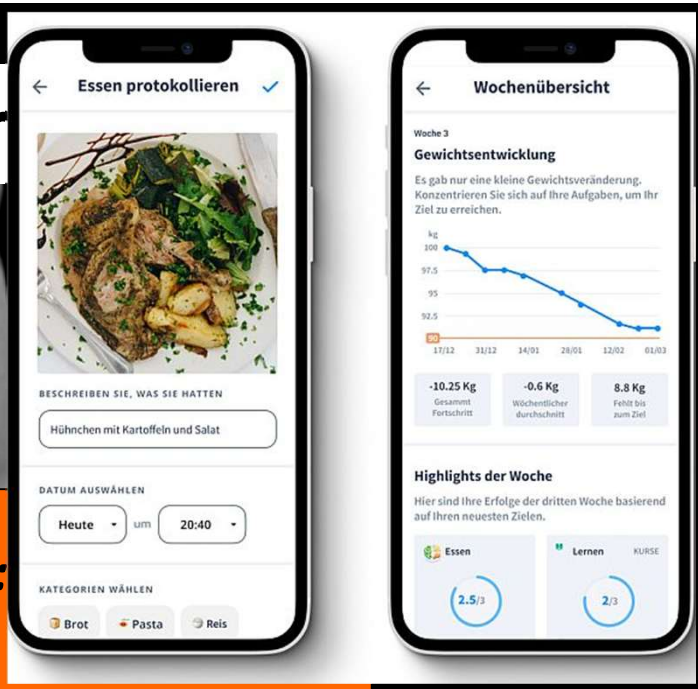


Berechnung des Energieverbr

1. *Basale metabolische Rate (BMR):*

♂ 10 (KG in kg)+6.25 (Grösse in cm)-5 (Alter in

♀ 10 (KG in kg)+6.25 (Grösse in



Essprotokoll:

BMR:

Wenig aktiv: x1.375

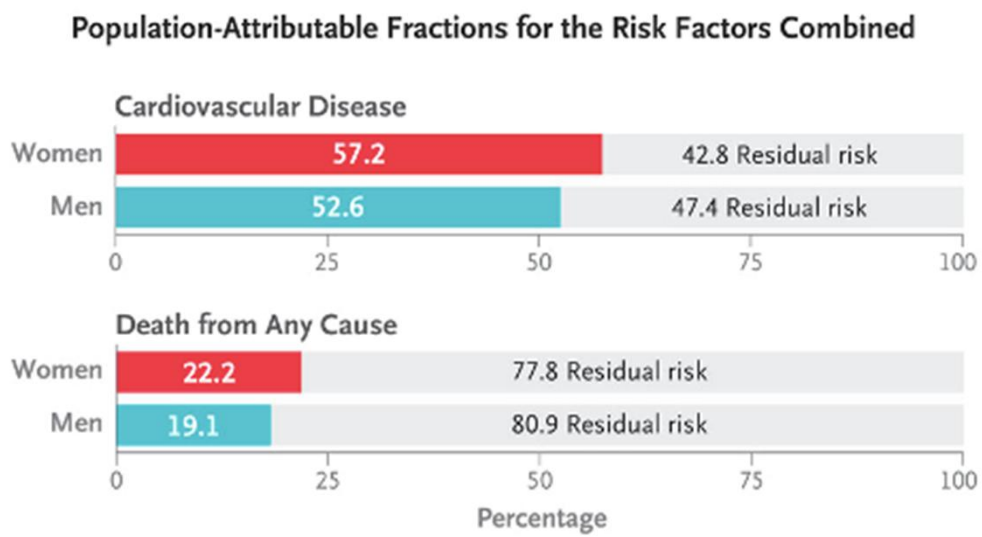
=2165 Kal

2. *Körperliche Aktivität – Faktoren*

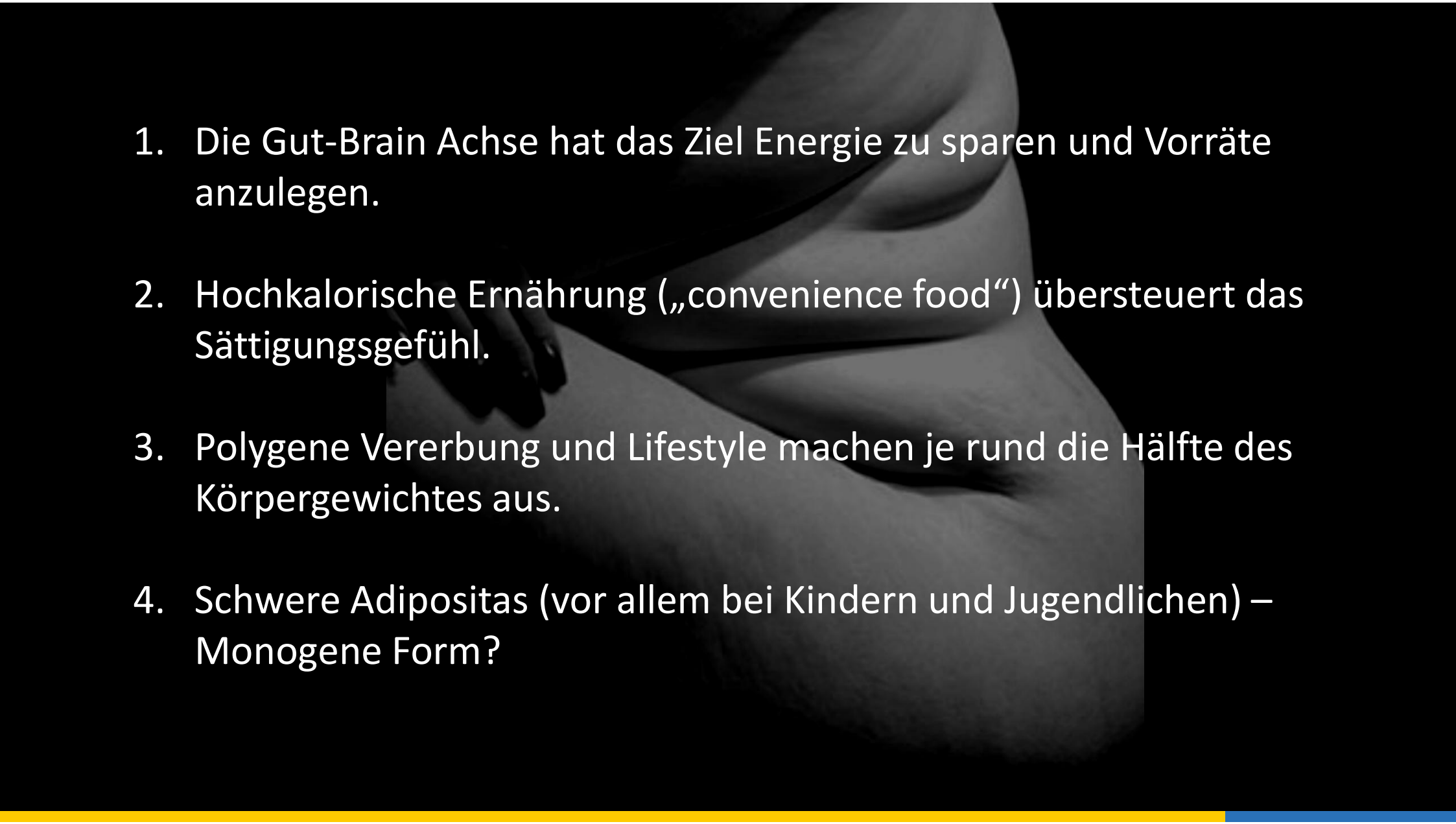
Sesshafter Lebensstil → BMR x 1.2
Wenig aktiv (1-3 d/w) → BMR x 1.375
Mässig aktiv (3-5 d/w)→ BMR x 1.55
Sehr aktiv (6-7 d/w) → BMR x 1.725
Extra aktiv (1-2 x/d) → BMR x 1.9 = **täglicher Kalorienverbrauch**

Harris JA& Benedict FG 1919; NEJM 2004;351;696-

Körperliche Aktivität: Kalorienverbrauch



NEJM 2023;389:1273-



1. Die Gut-Brain Achse hat das Ziel Energie zu sparen und Vorräte anzulegen.

2. Hochkalorische Ernährung („convenience food“) übersteuert das Sättigungsgefühl.

3. Polygene Vererbung und Lifestyle machen je rund die Hälfte des Körpergewichtes aus.

4. Schwere Adipositas (vor allem bei Kindern und Jugendlichen) – Monogene Form?

5. Energiebilanz = Kalorien in – Kalorien out

6. Adipositas verursacht epigenetische Veränderungen, die zusätzlich vererbt werden.

7. Es braucht das politische Commitement – „Selbstverantwortung“ funktioniert nicht.

8. Adipositas und Folgekrankheiten sind ein weltweites und wachsendes Problem.

Pharmakologische Gewichtsabnahme

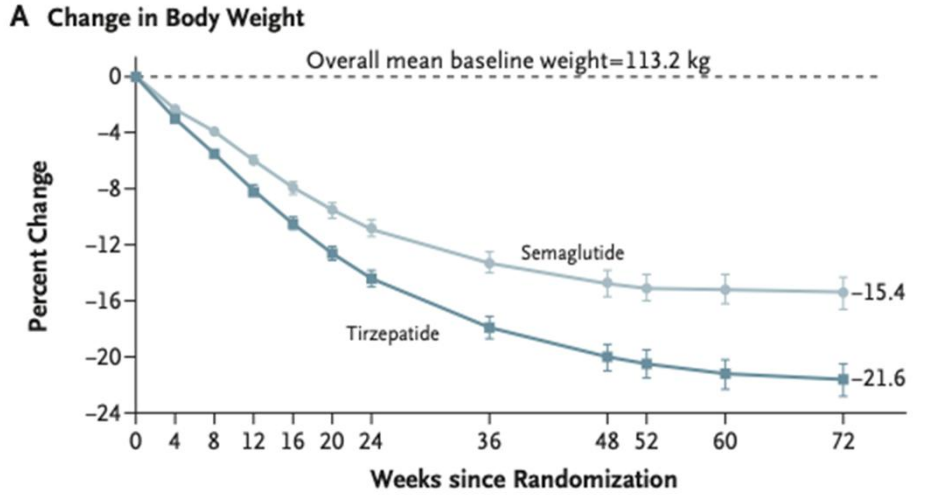
luzerner kantonsspital
LUZERN SURSEE WOLHUSEN

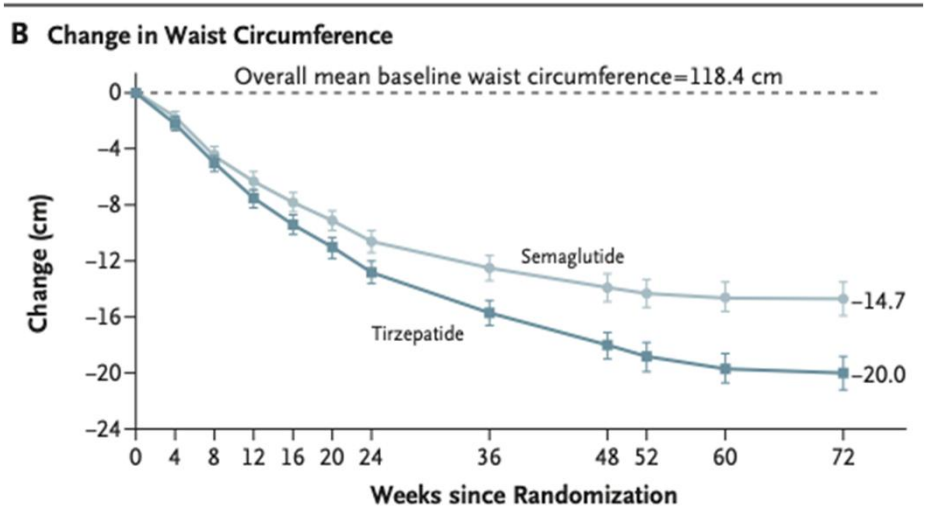
Wirkstoff	Dosierung/ Anwendung	Gewichtsabnahme (kg / % KG)	Tageskosten CHF
Liraglutid GLP-1 Analog	*Victoza® / Saxenda® 0.6 – 3 mg s.c. täglich	-10 kg / -8%	*5.03 / 6.48
Semaglutid GLP-1 Analog	Wegovy® 0.25 – 2.4 mg s.c. wtl.	-16 kg / -15%	5.89
Semaglutid GLP-1 Analog	*Ozempic® 0.25 – 1 mg s.c. wtl.	-6 kg / -7%	3.63
Tirzepatid GLP-1 + GIP	*Mounjaro® 2.5 – 15 mg s.c. wtl.	-22 kg / -21%	12.96 (20.46)
Retatrutid GLP-1 + GIP + GR Agonist	Phase 2 Studie 4 – 12 mg s.c. wtl.	-26 kg / -24%	n.a.
Orforglipron GLP-1 Rez. Agonist	Zulassung CH 2026? 12 – 45 mg p.o. täglich	- 12 kg / -11%	n.a.

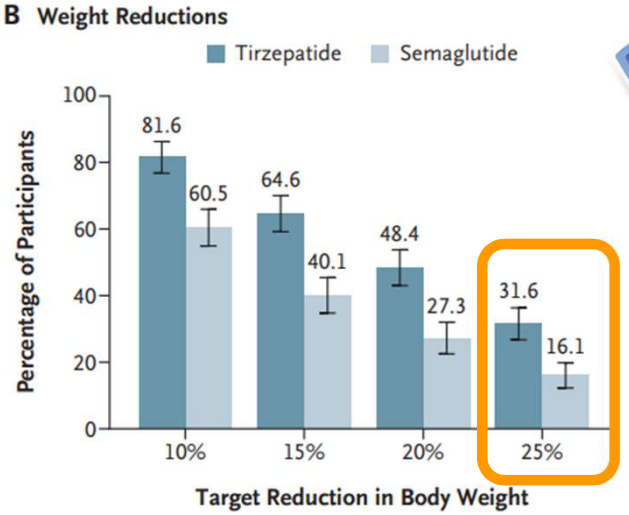
**Zulassung für Diabetes mellitus Typ 2*

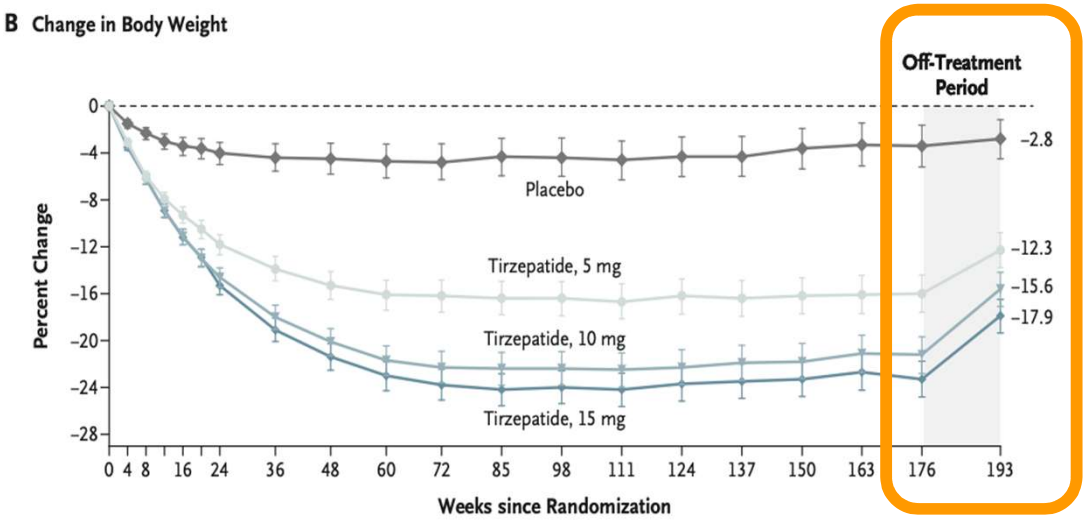
Gewichtsabnahme mit Tirzepatid und Semaglutid

luzerner kantonsspital
LUZERN SURSEE WOLHUSEN





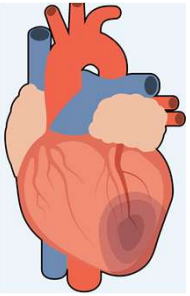




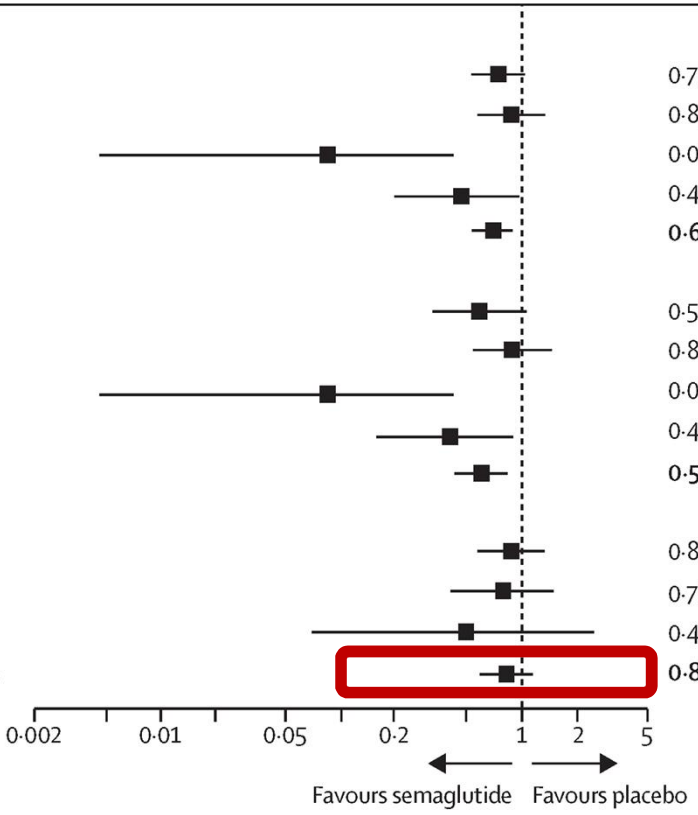
N Engl J Med 2025;393:26-36.

Effekt von GLP-1 und Co. auf Kardiometabolische Erkrankungen?

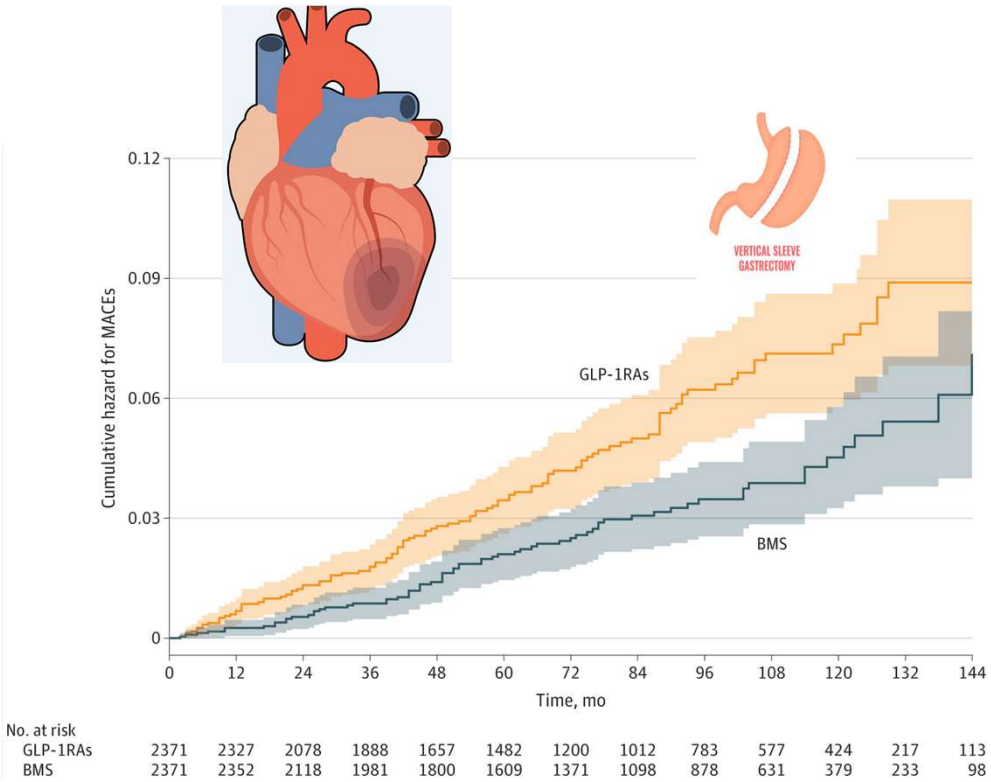
Ja, aber…



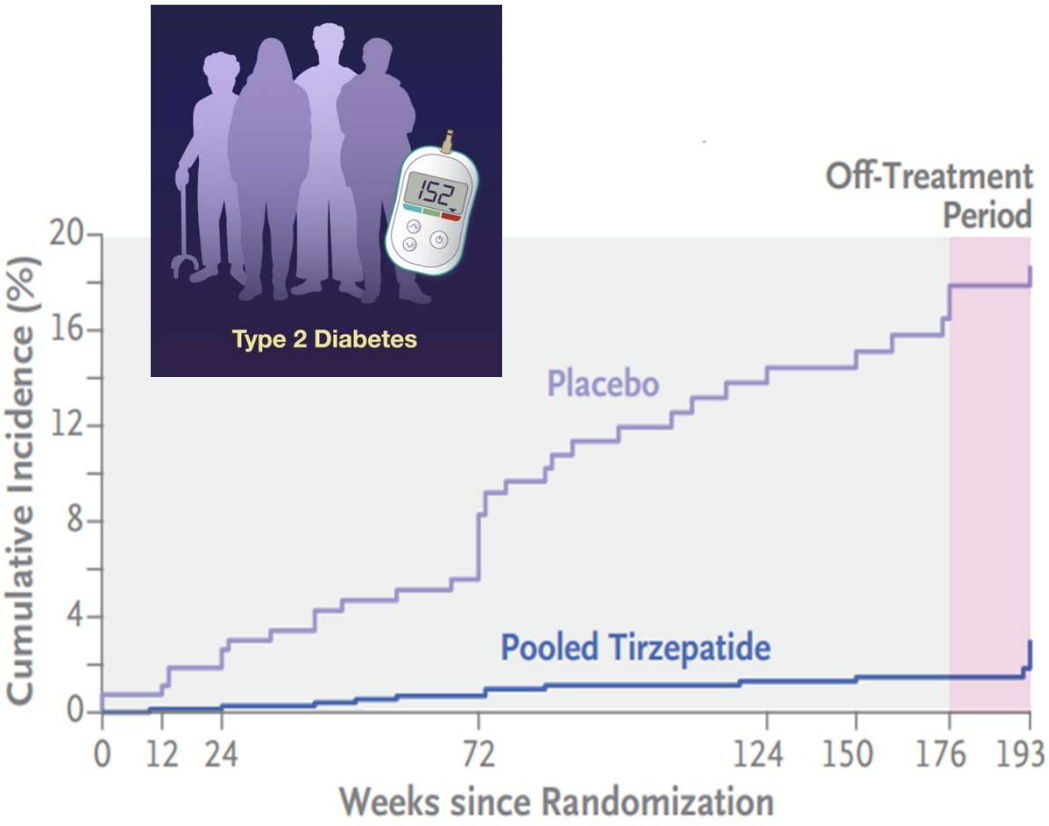
	Number of events/analysed participants		Incidence rate per 100 person-years (semaglutide:placebo)	Hazard ratio (95% CI)	p value
	Semaglutide	Placebo			
Composite of cardiovascular death or worsening heart failure event					0·0045
SELECT	53/1174	66/1099	1·4/1·8	0·75 (0·52–1·07)	
FLOW	40/167	40/158	8·1/9·2	0·87 (0·56–1·36)	
STEP-HFpEF	1/263	12/266	0·3/4·2	0·08 (0·00–0·42)	
STEP-HFpEF DM	9/310	20/306	2·7/6·2	0·46 (0·20–0·98)	
Overall	**103/1914**	**138/1829**	**2·1/3·0**	**0·69 (0·53–0·89)**	
Worsening heart failure event					0·0019
SELECT	17/1174	27/1099	0·4/0·7	0·58 (0·31–1·06)	
FLOW	29/167	29/158	5·9/6·7	0·88 (0·53–1·48)	
STEP-HFpEF	1/263	12/266	0·3/4·2	0·08 (0·00–0·42)	
STEP-HFpEF DM	7/310	18/306	2·1/5·5	0·40 (0·15–0·92)	
Overall	**54/1914**	**86/1829**	**1·1/1·8**	**0·59 (0·41–0·82)**	
Cardiovascular death*					0·25
SELECT	40/1174	43/1099	1·0/1·2	0·87 (0·56–1·34)	
FLOW	17/167	19/158	3·2/4·0	0·78 (0·40–1·51)	
STEP-HFpEF DM	2/310	4/306	0·6/1·2	0·49 (0·07–2·53)	
Overall	**59/1914**	**67/1829**	**1·2/1·4**	**0·82 (0·57–1·16)**	



Präventiver Effekt von GLP-1 und Co. ?

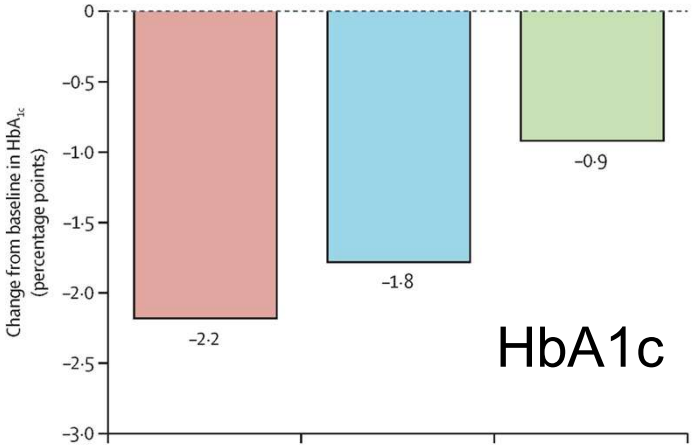


JAMA Network Open. 2024;7(6):e2415392.

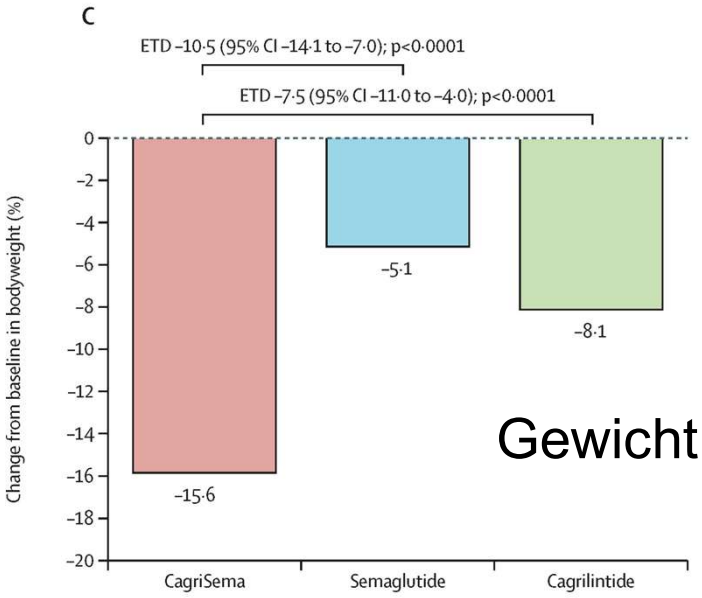


N Engl J Med 2025;392:958-971

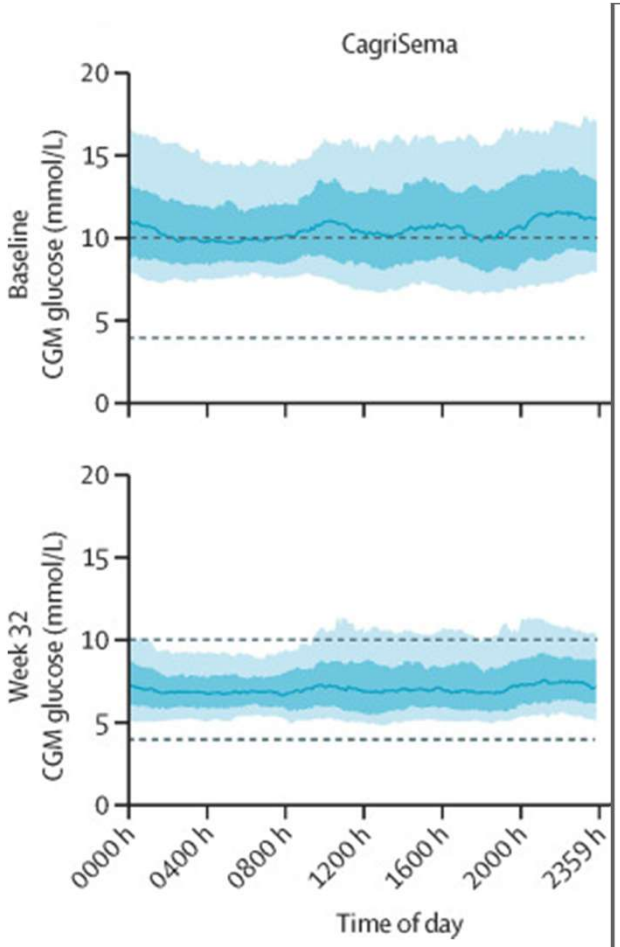
Kombination Cagrilintide (Amylin) mit Semaglutide (GLP-1 Agonist)



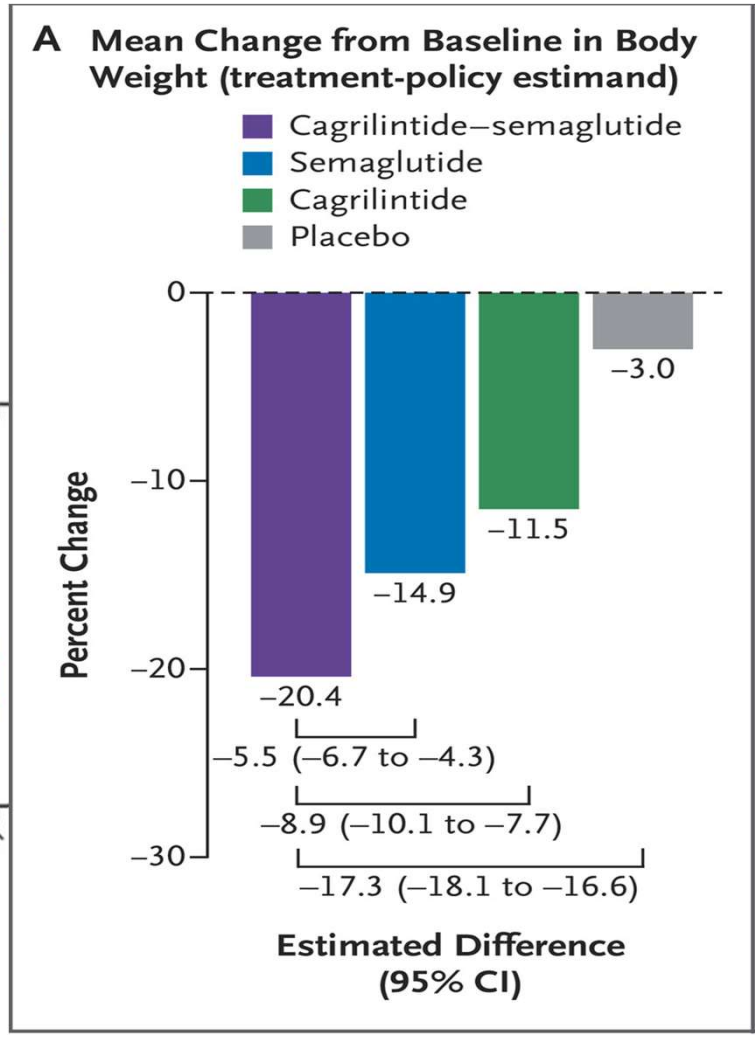
HbA1c



Gewicht



Lancet 2023;402:720-730



NEJM 2025;393:635-647

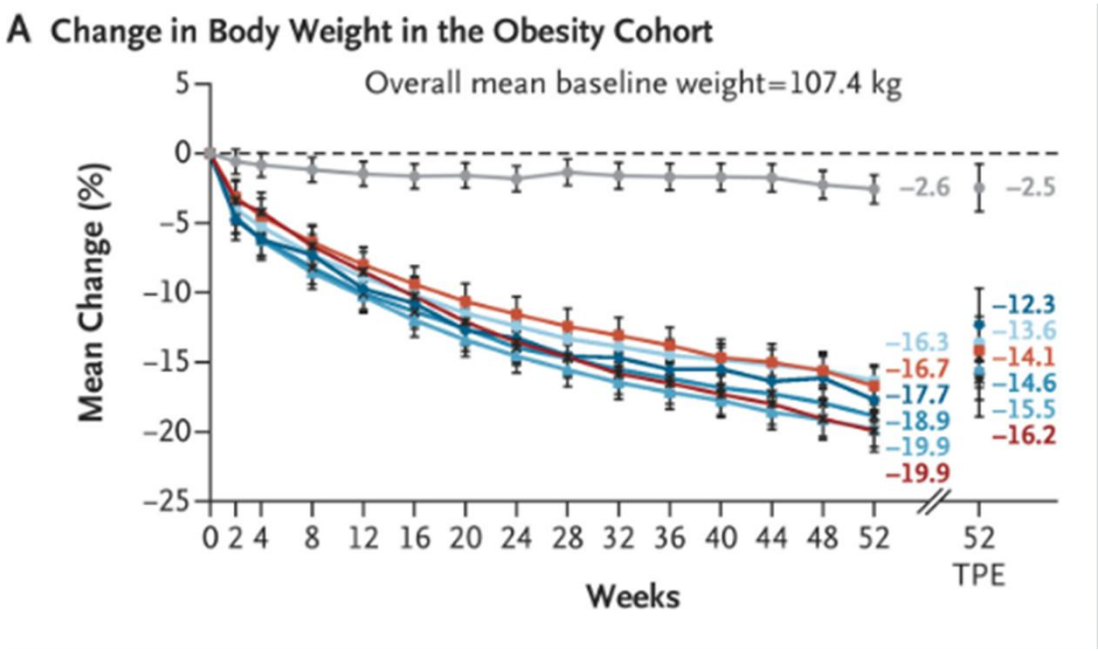
The NEW ENGLAND JOURNAL of MEDICINE

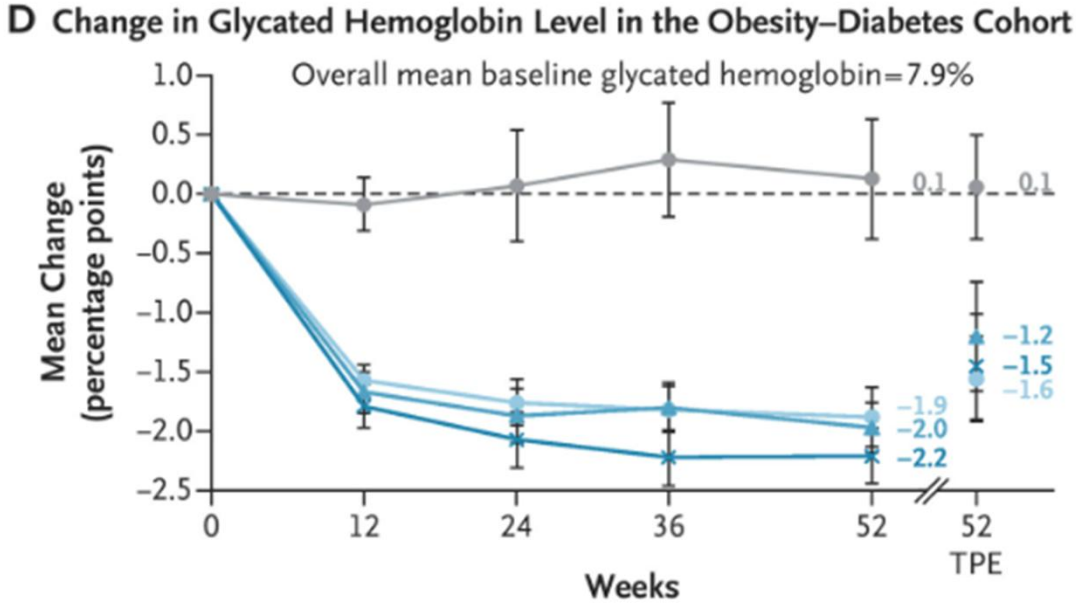
ESTABLISHED IN 1812 SEPTEMBER 4, 2025 VOL. 393 NO. 9

Once-Monthly Maridebart Cafraglutide for the Treatment of Obesity — A Phase 2 Trial

A.M. Jastreboff,[1-3] D.H. Ryan,[4] H.E. Bays,[5] P.R. Ebeling,[6] M.G. Mackowski,[7] N. Philipose,[7] L. Ross,[7] Y. Liu,[7] C.E Burns,[7] S.A. Abbasi,[7] and N. Pannacciulli,[7] for the MariTide Phase 2 Obesity Trial Investigators*

	Maridebart Cafraglutide, No Dose Escalation			
	140 mg Every 4 Wk (N=77)	280 mg Every 4 Wk (N=77)	420 mg Every 4 Wk (N=79)	420 mg Every 8 Wk (N=51)
Overall				
Any adverse event	73 (95)	75 (97)	78 (99)	49 (96)
Serious adverse event	4 (5)	4 (5)	5 (6)	7 (14)
Death†	0	0	0	0
Adverse events leading to discontinuation of trial regimen	11 (14)	11 (14)	17 (22)	15 (29)
GI adverse event leading to discontinuation	10 (13)	9 (12)	13 (16)	14 (27)
Most frequent adverse events§				
Nausea	59 (77)	60 (78)	69 (87)	42 (82)
Vomiting	52 (68)	56 (73)	69 (87)	47 (92)
Constipation	23 (30)	19 (25)	19 (24)	18 (35)
Retching	13 (17)	11 (14)	18 (23)	11 (22)





The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Orforglipron, an Oral Small-Molecule GLP-1 Receptor Agonist for Obesity Treatment

N ENGL J MED 393;18 NEJM.ORG NOVEMBER 6, 2025

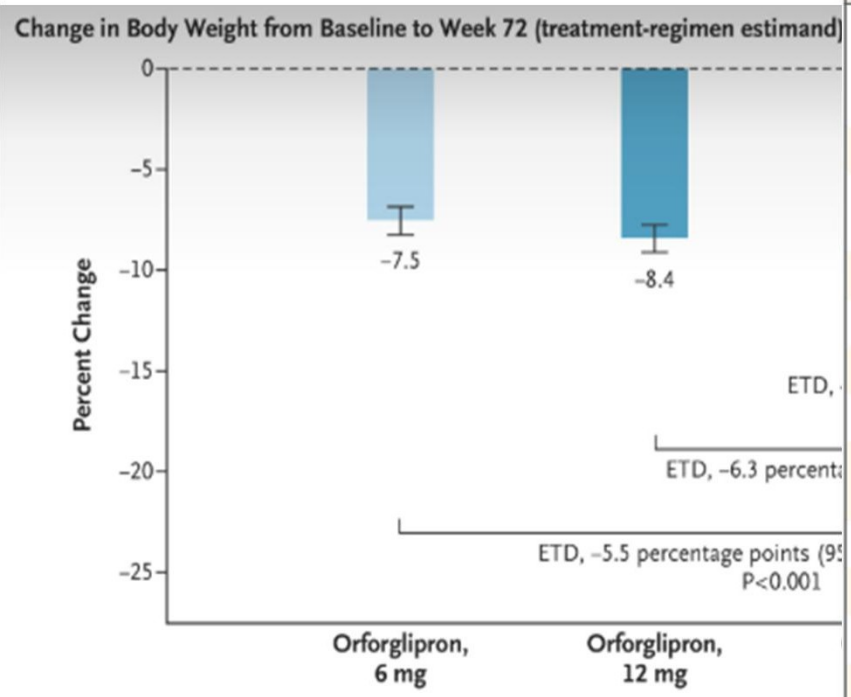


Table 3. Key Secondary and

End Point	
Key secondary end points	
Change in systolic brood p (95% CI) — mm H	
Percent change (95% CI)	
Triglycerides	
Non-HDL cholesterol	
Additional secondary end p	
Change in diastolic blood p (95% CI) — mm H	
Percent change (95% CI)	
Total cholesterol	
LDL cholesterol	
VLDL cholesterol	

mated Treatment erence vs. Placebo (95% CI)

.2 (−5.3 to −3.2)

.5 (−14.5 to −8.3)

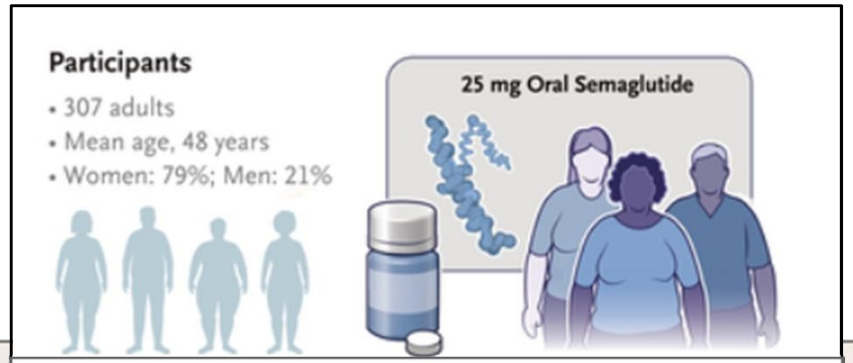
.9 (−6.7 to −3.1)

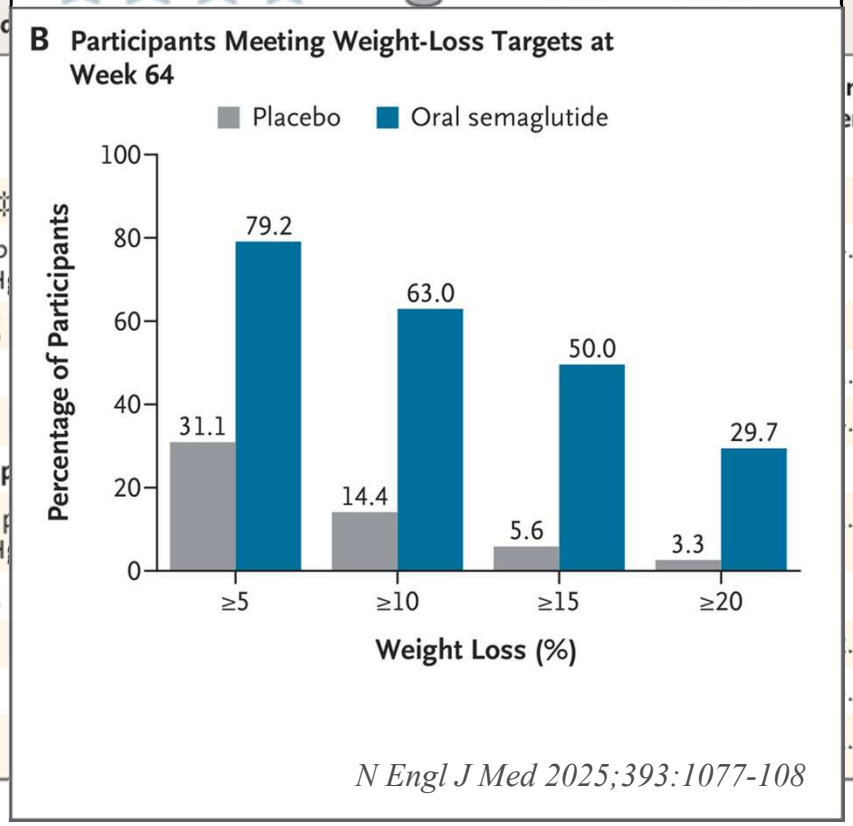
.0 (−1.8 to −0.2)

.1 (−3.7 to −0.6)

.5 (−5.5 to −1.5)

.5 (−14.5 to −8.5)





N Engl J Med 2025;393:1077-108

The NEW ENGLAND JOURNAL of MEDICINE

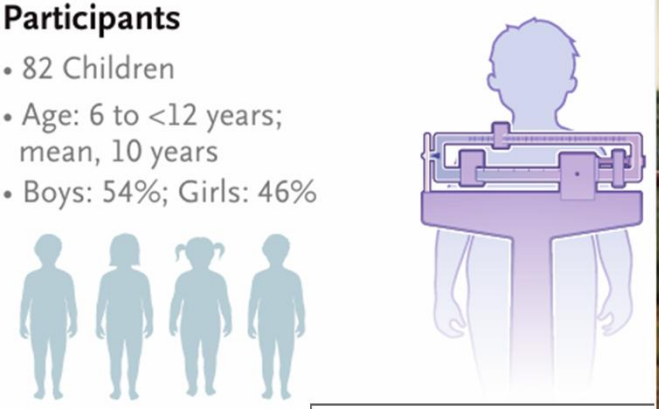
ORIGINAL ARTICLE

Liraglutide for Children 6 to <12 Years of Age with Obesity — A Randomized Trial

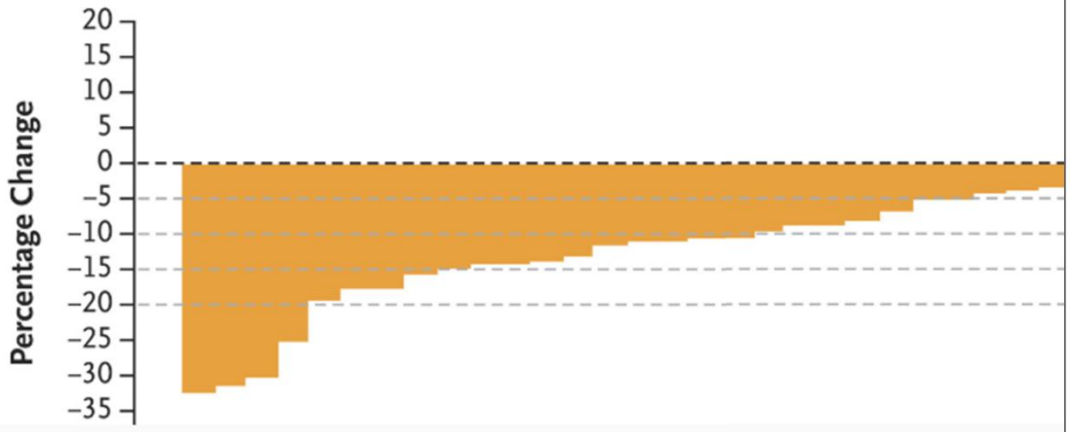
N Engl J Med 2025;392:555-65

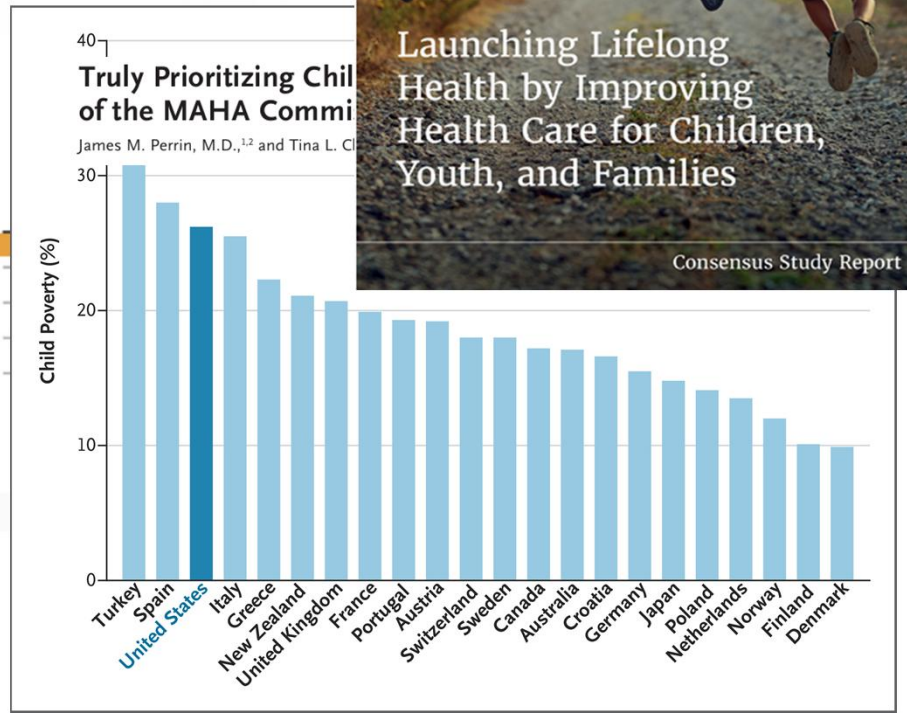
Participants

- 82 Children
- Age: 6 to <12 years; mean, 10 years
- Boys: 54%; Girls: 46%



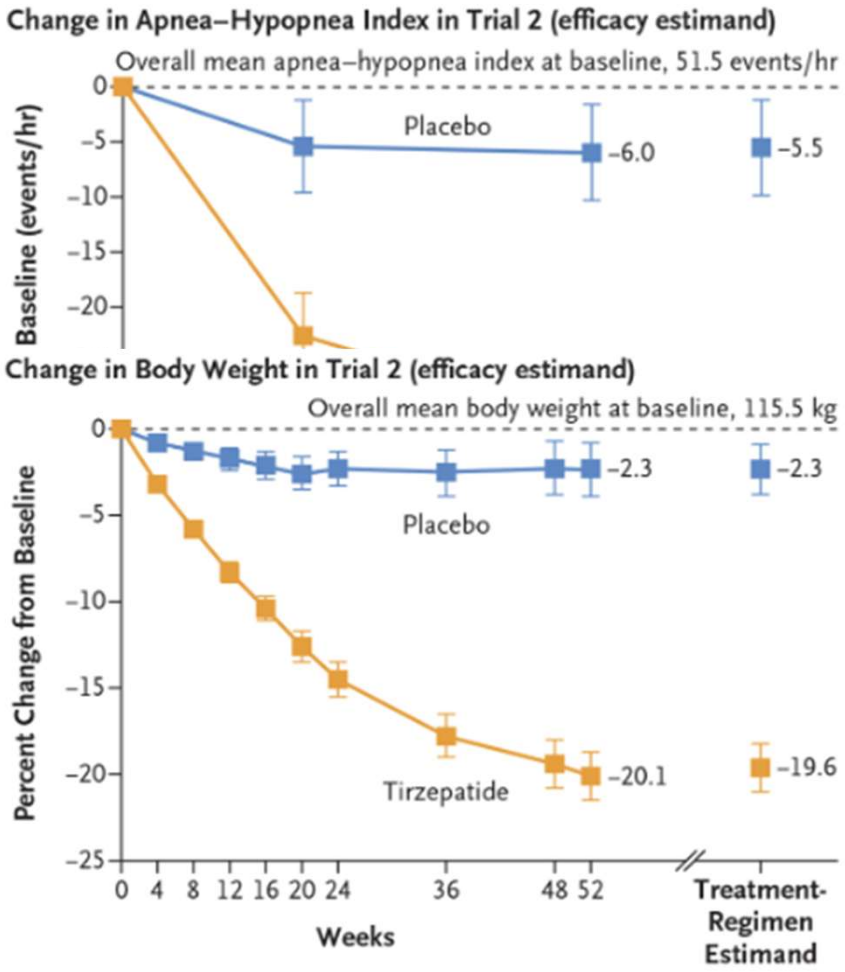
Change in BMI from Baseline in the Liraglutide Group



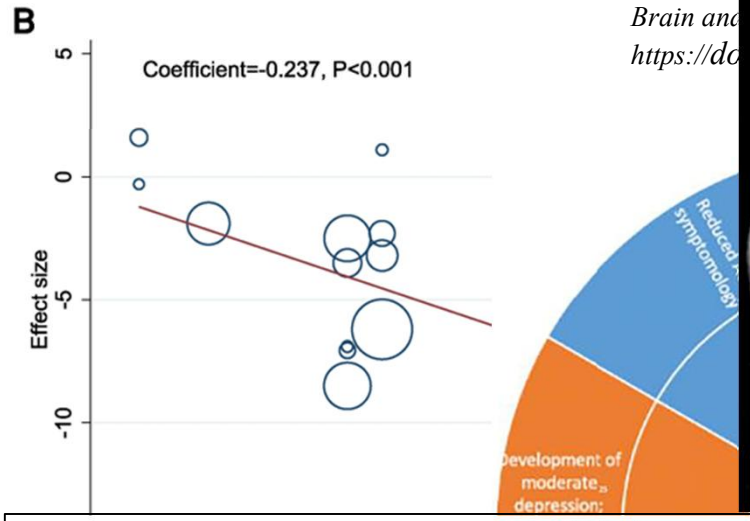


Effekte von GLP-1 Agonisten auf…

OSAS (COPD)

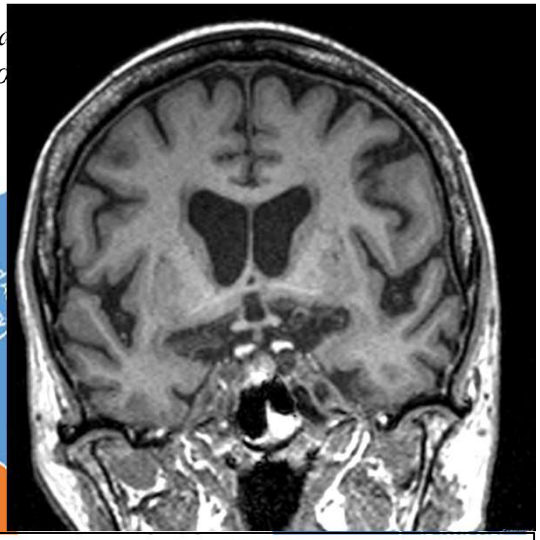


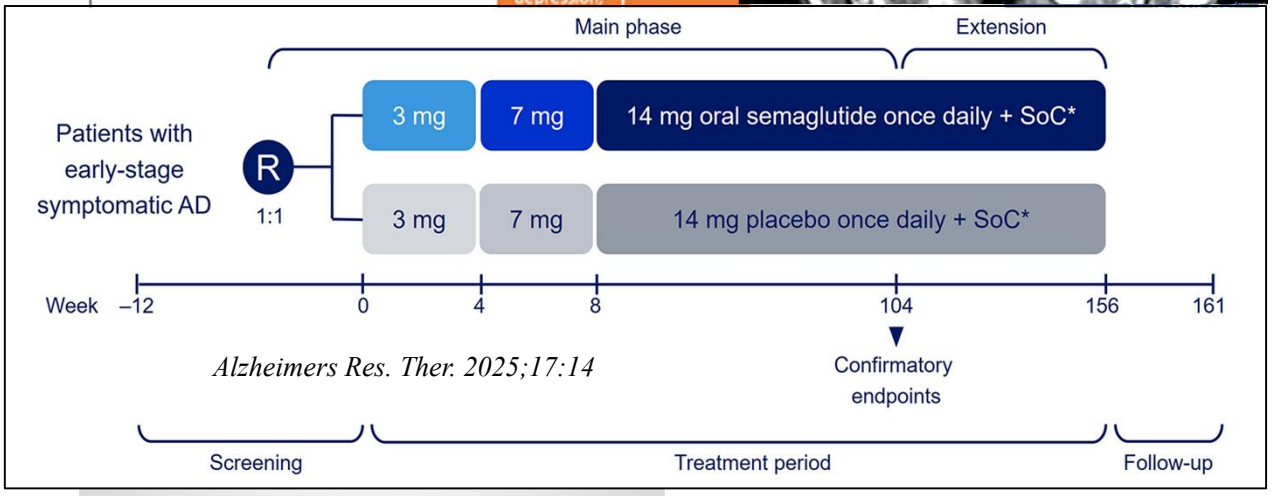
Steatohepatitis



Neuropsychiatrische Diagnosen…

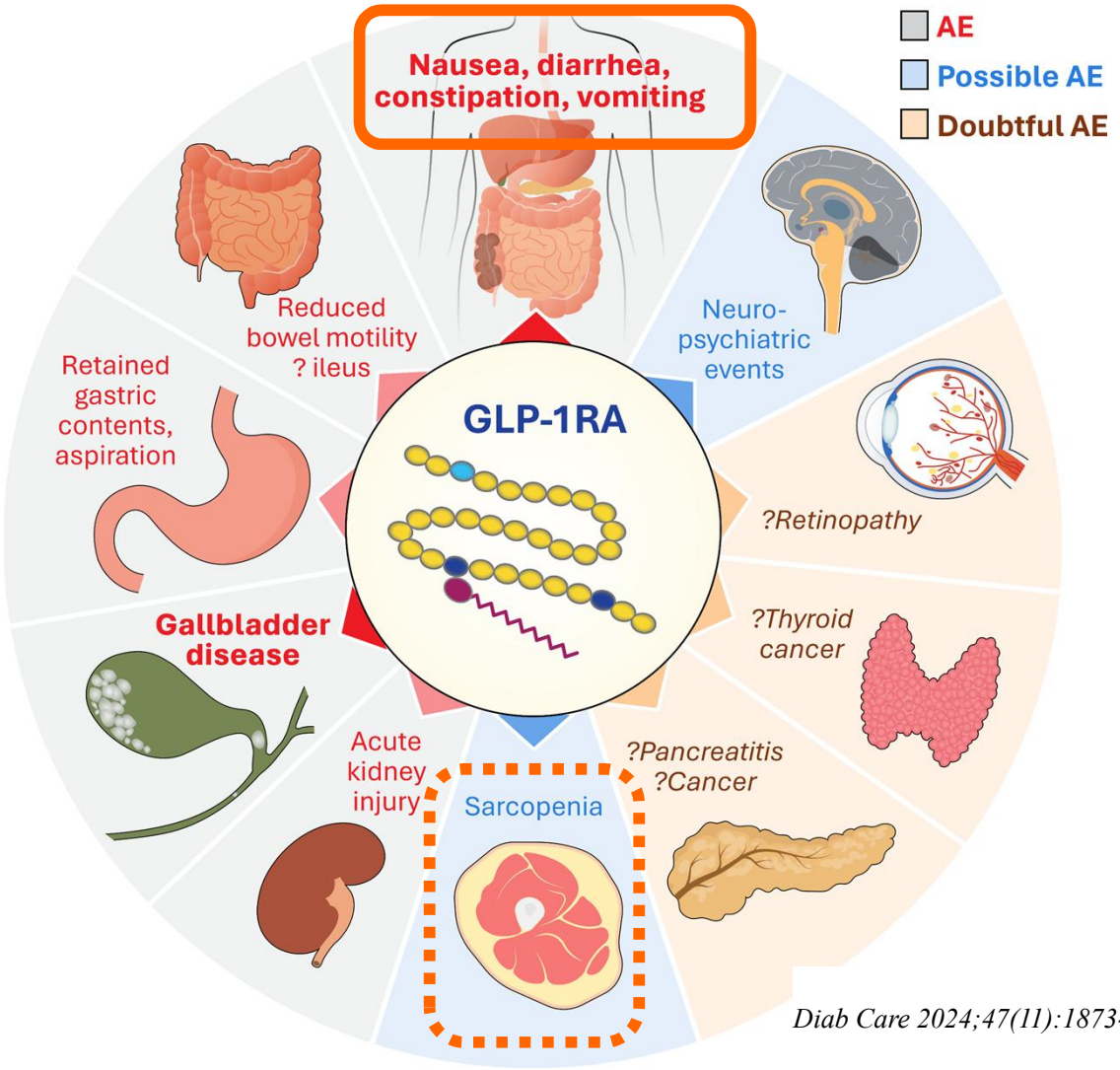
Brain and
https://do





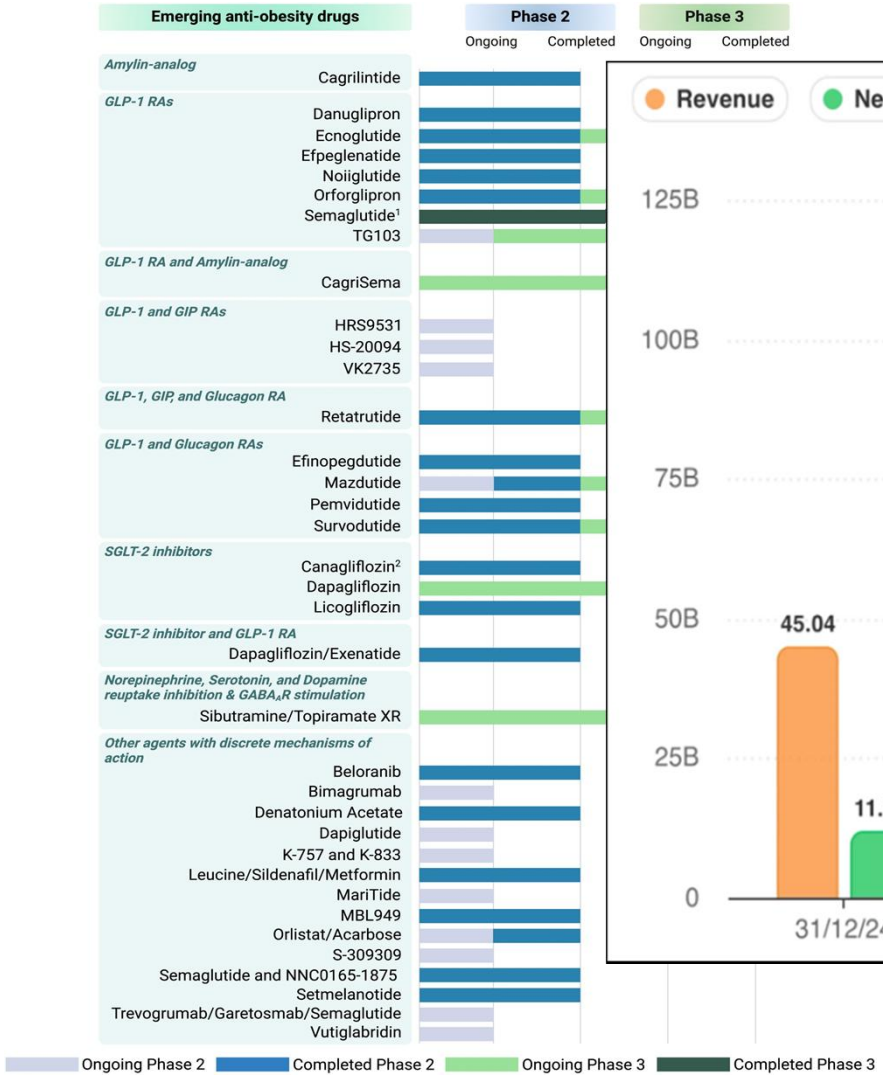
Alzheimers Res. Ther. 2025;17:14

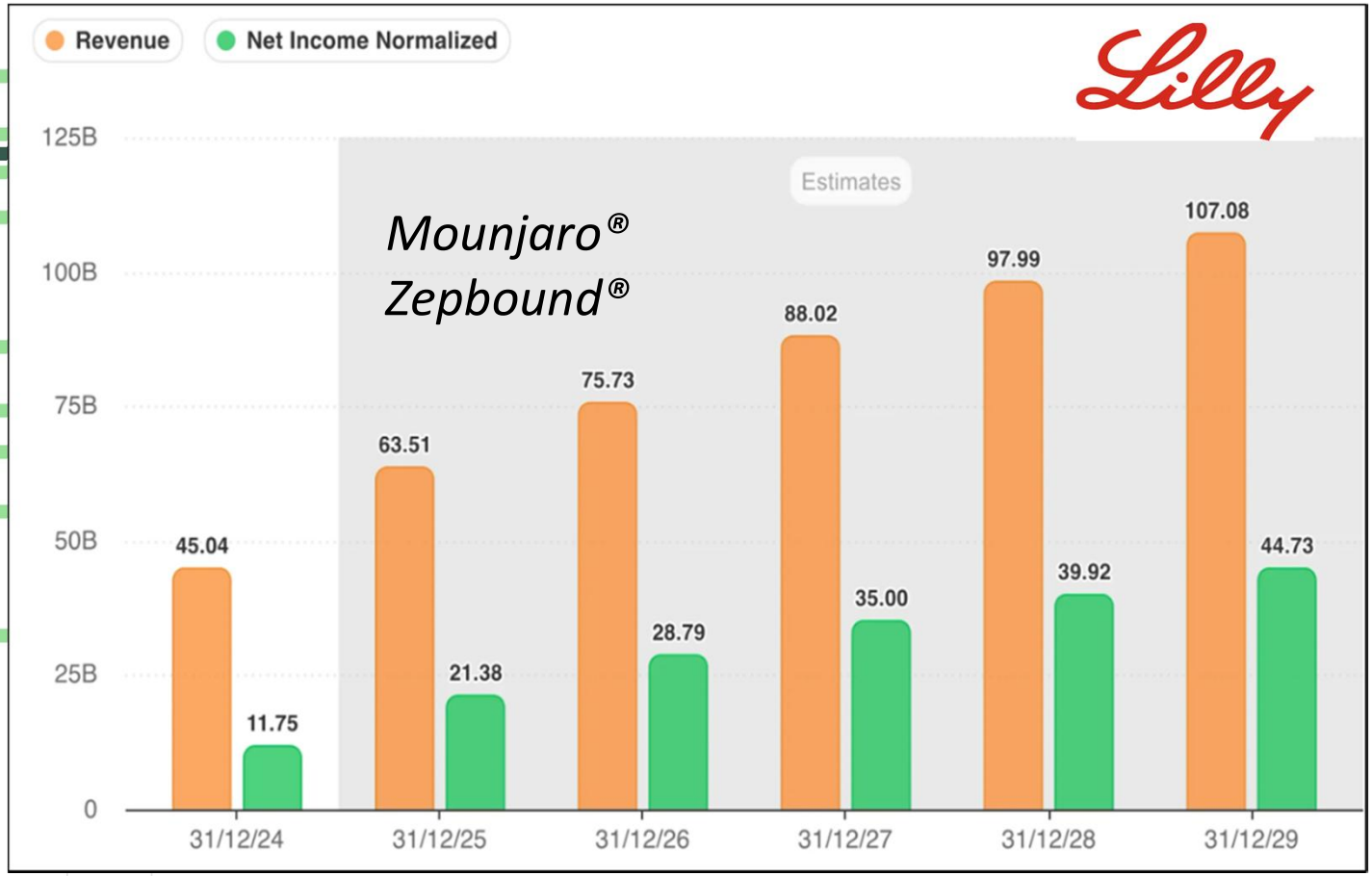
Nebenwirkungen…



Diab Care 2024;47(11):1873-1888

Zukünftige anti-Adipositas Pharmakotherapien





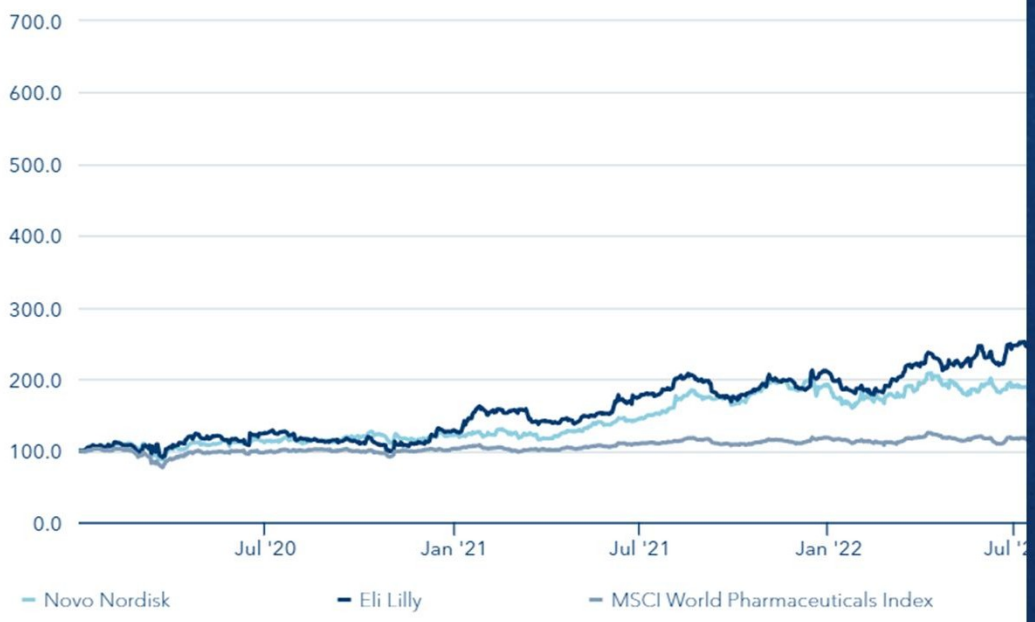
Pharmacolog Review 2025;77:100002. doi: 10.1124/pharmrev.123.001045

VPBANK Privatkunden Intermediäre

Hinter der Schlagzeile

Das riesige Potenzial von Abnehmspritzen

Die zwei Wegbereiter hängen den Rest der Branche ab (rebasiert)



Quellen: Bloomberg, VP Bank

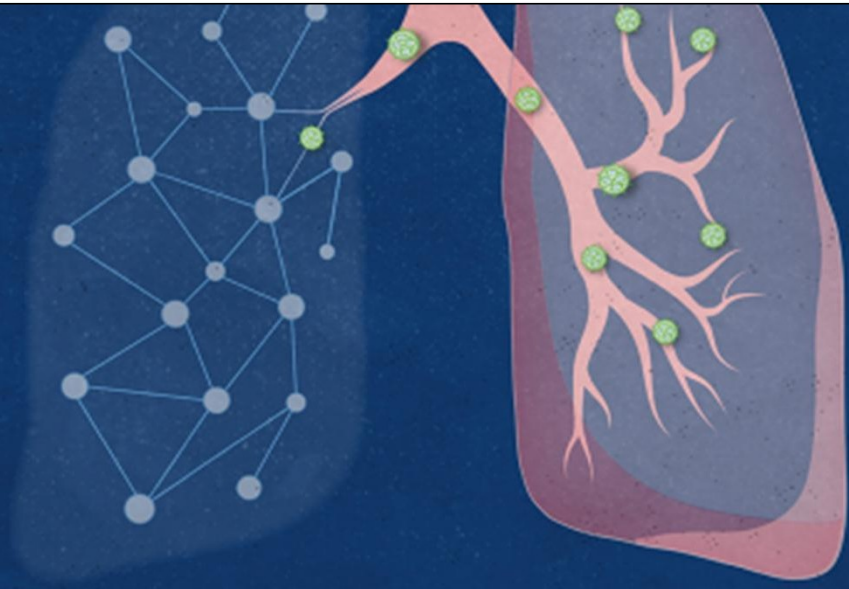
www.nature.com/nbt / November 2025 Vol. 43 No. 11

nature biotechnology

Editorial

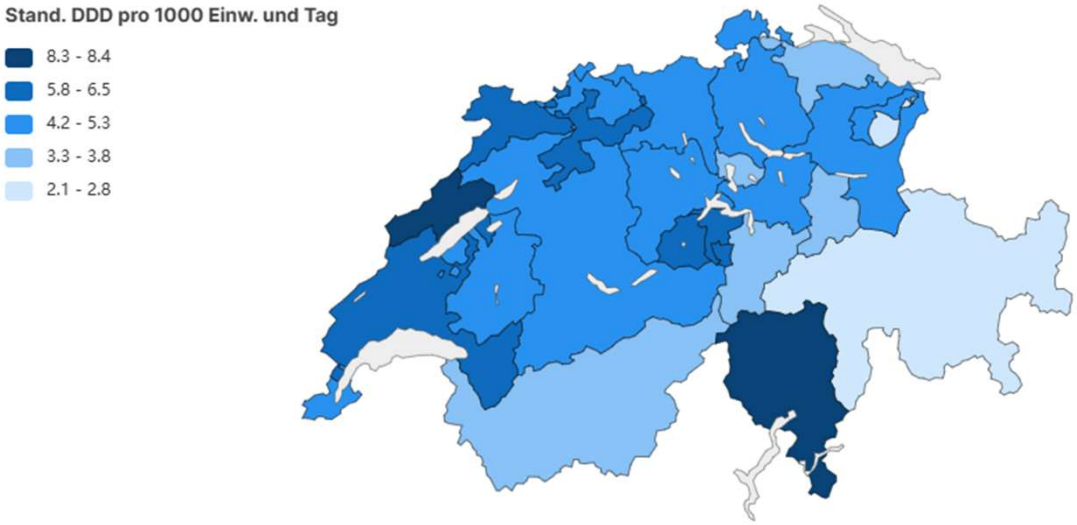
https://doi.org/10.1038/s41587-025-02932-1

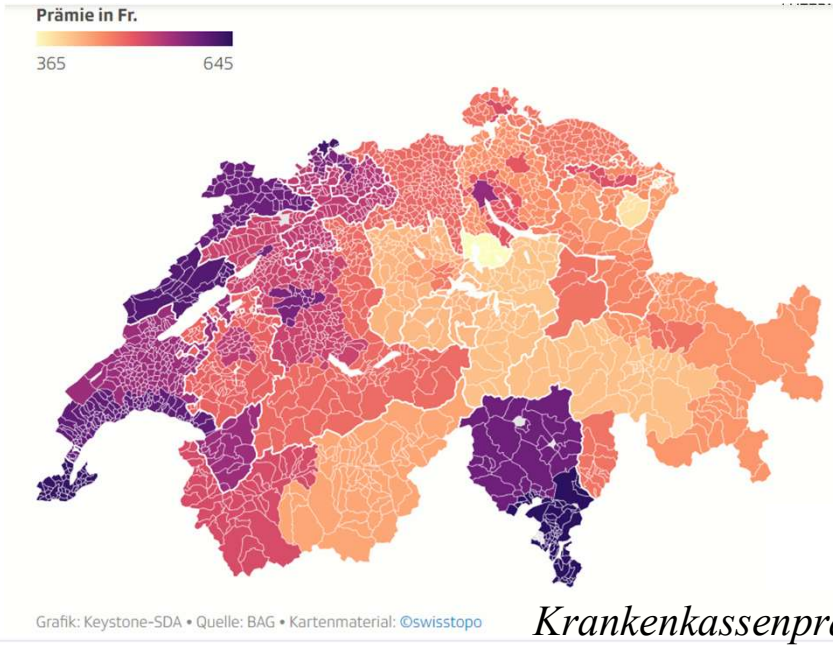
Are GLP-1s the first longevity drugs?



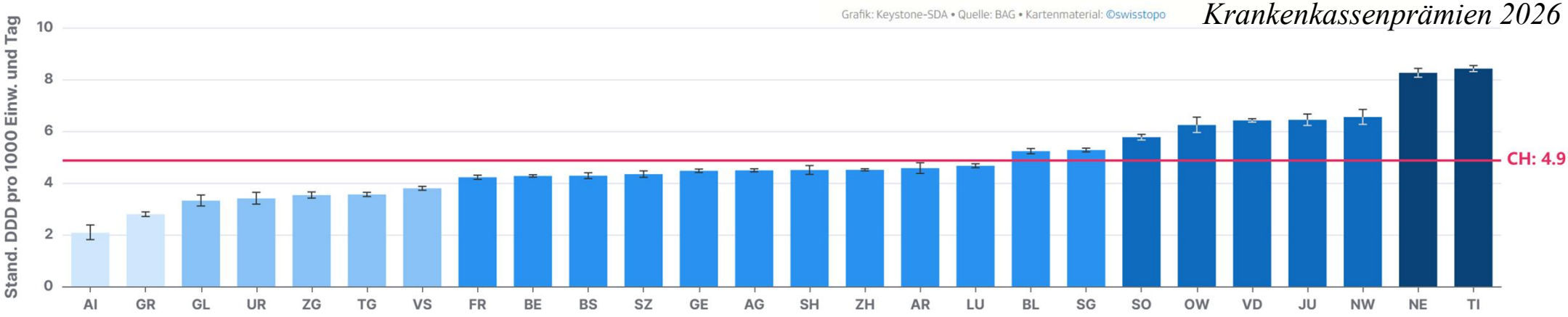
Verschreibung von GLP-1 Agonisten und Co.

luzerner kantonsspital
SURSEE WOLHUSEN

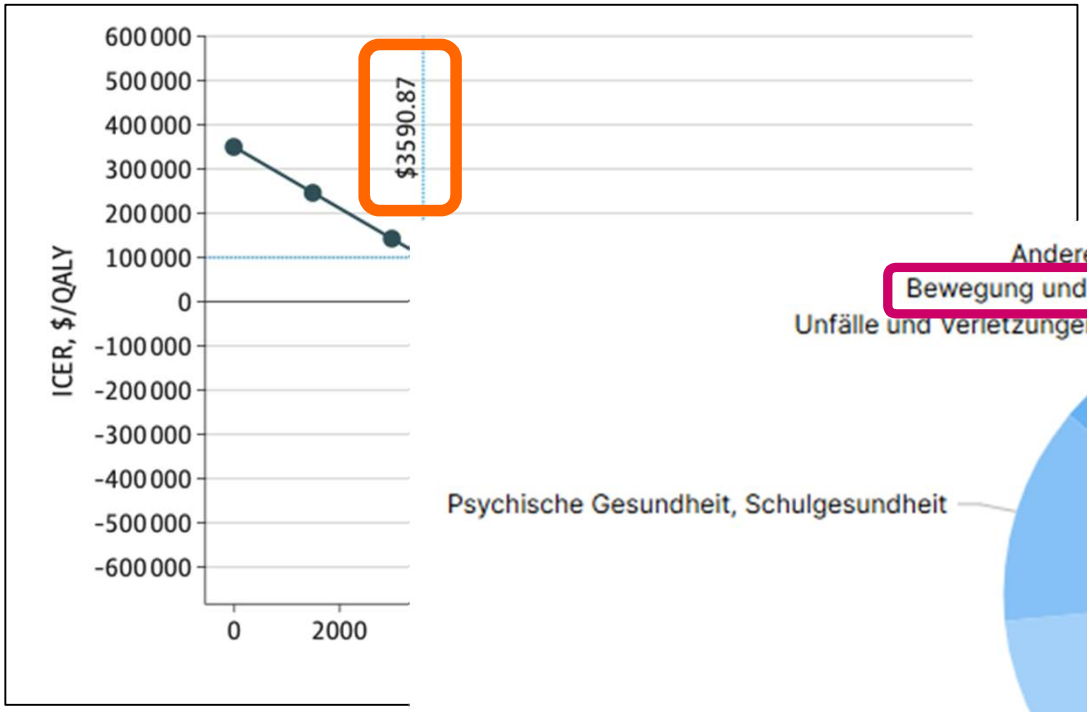




Krankenkassenprämien 2026



Kosten(effizienz) GLP-1 Agonisten und Co.



1. Die pharmakologische Gewichtsabnahme ist vergleichbar mit der bariatrischen Chirurgie.

2. Ebenso der Effekt auf Metabolische und sekundäre Erkrankungen (Diabetes, Herz-Kreislauf Erkrankungen, OSAS etc.)

3. Nebenwirkungen…

4. Kosteneffizienz im Vergleich zur bariatrisch

5. Gesundheitskosten!

6. **Prävention! → Bewegung! Zucker! Salz! …**

Der Wein ist in wunderbarer Weise für den Menschen geeignet, vorausgesetzt, dass er, bei guter und schlechter Gesundheit, sinnvoll und in rechtem Masse genossen wird.