27° Πανελλήνιο Συνέδριο Νεφρολογίας

Astir-Egnatia Palace

20–23 Μαΐου 2026
Αλεξανδρούπολη

Παχυσαρκία και ΧΝΝ: ο ρόλος των GLP-1RA

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ARISTOTLE UNIVERSITY OF THESSALONIKI

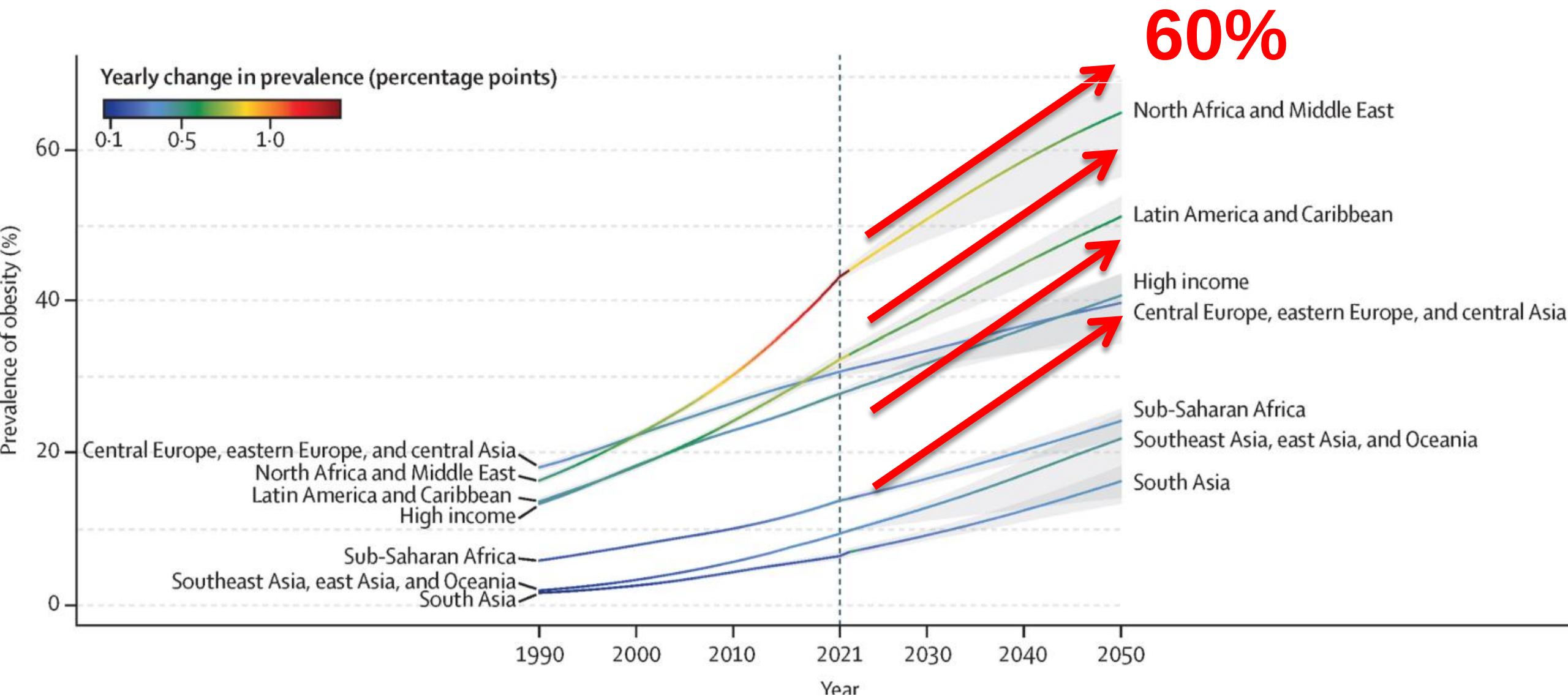
Disclosures

Diabesity WG of ERA Board Member

ΧΝΝ και παχυσαρκία

Επιδημιολογία

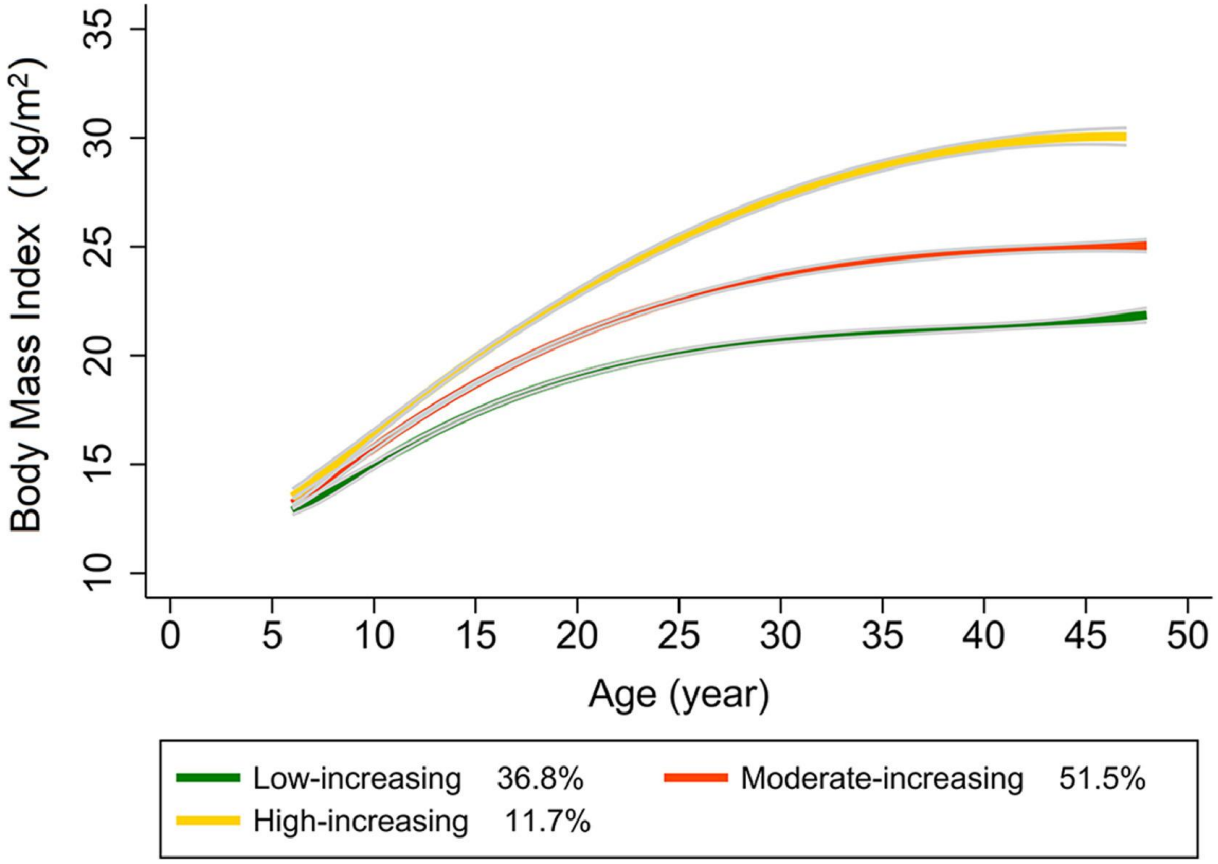
Παχυσαρκία: ένα παγκόσμιο πρόβλημα

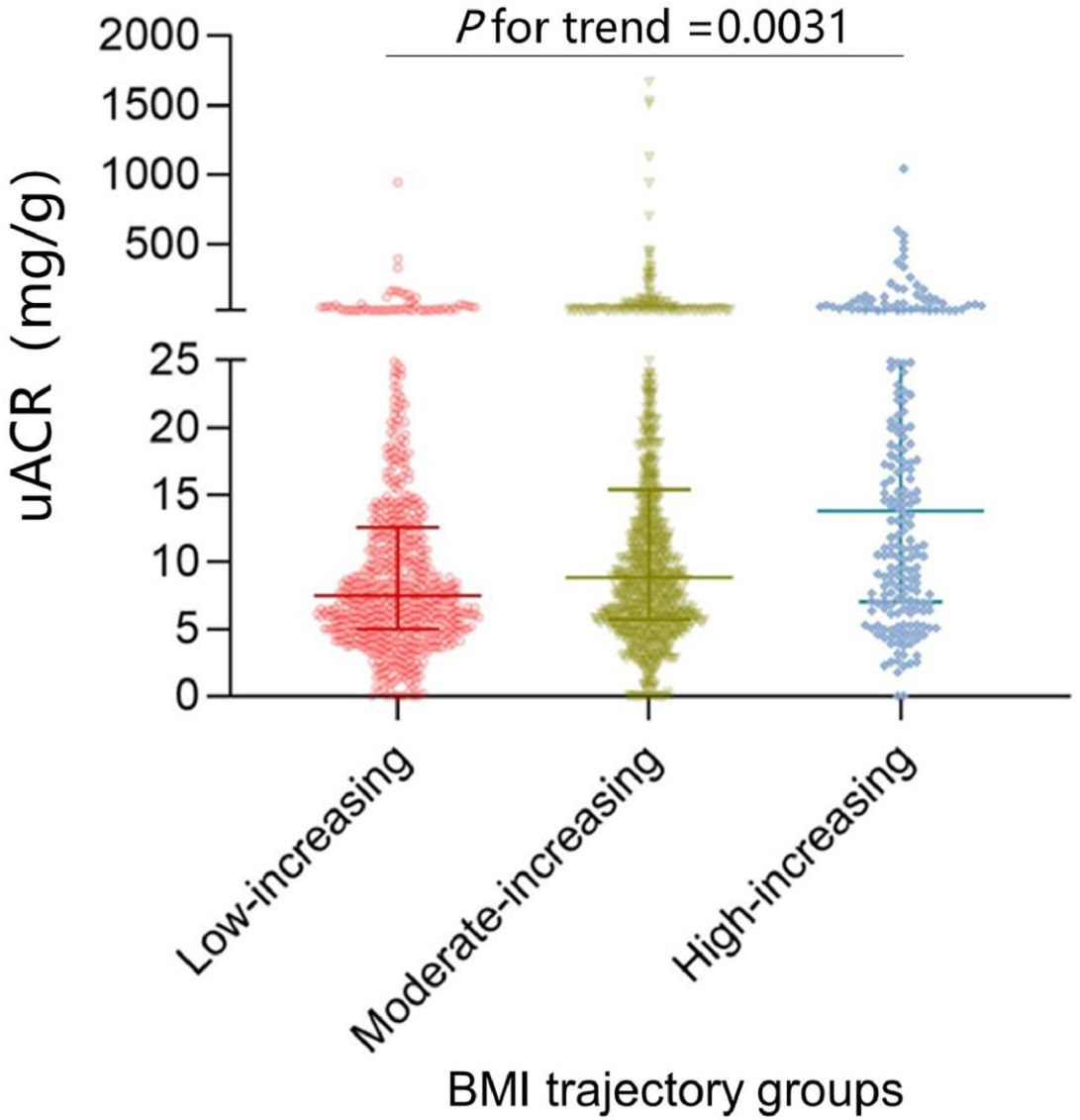


Ng et al. Lancet 2025

Μεταβολές BMI και αλβουμινουρία

N=4623 ηλικίας 6–18 ετών
F-up 30 έτη



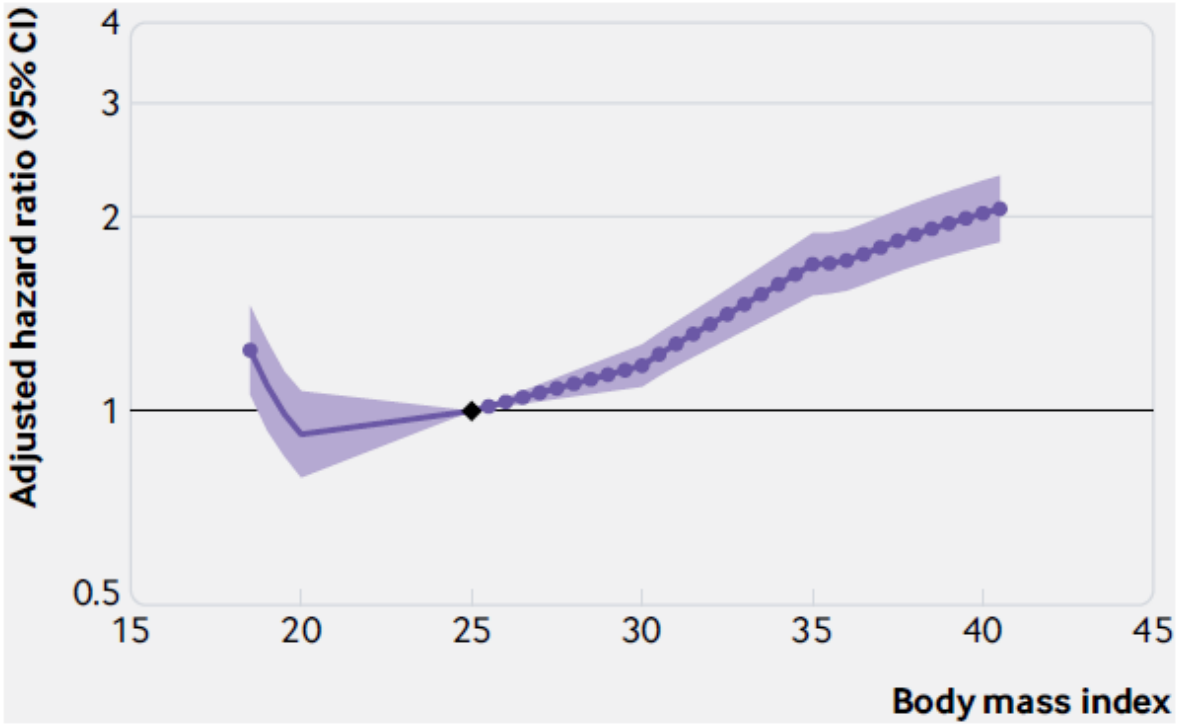


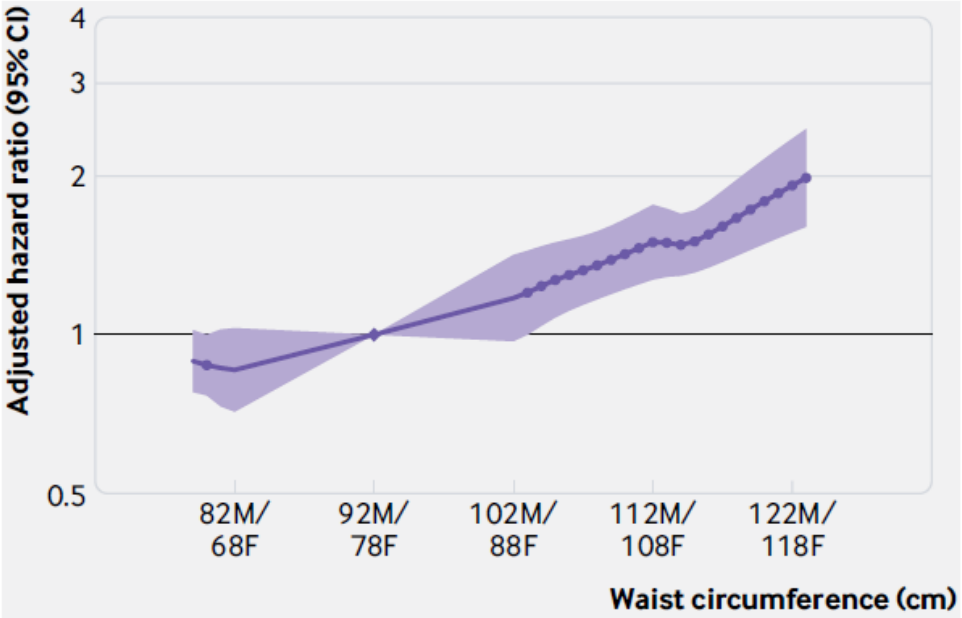
Wang et al. EClinicalMedicine 2022

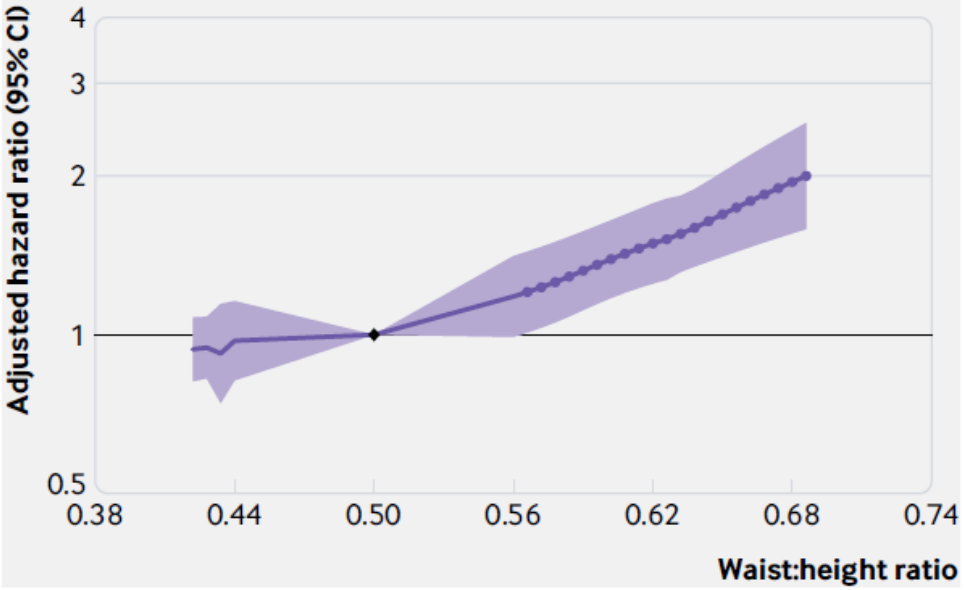
Παχυσαρκία και έκπτωση GFR

N=246,607 συμμετέχοντες

F-up 8 έτη



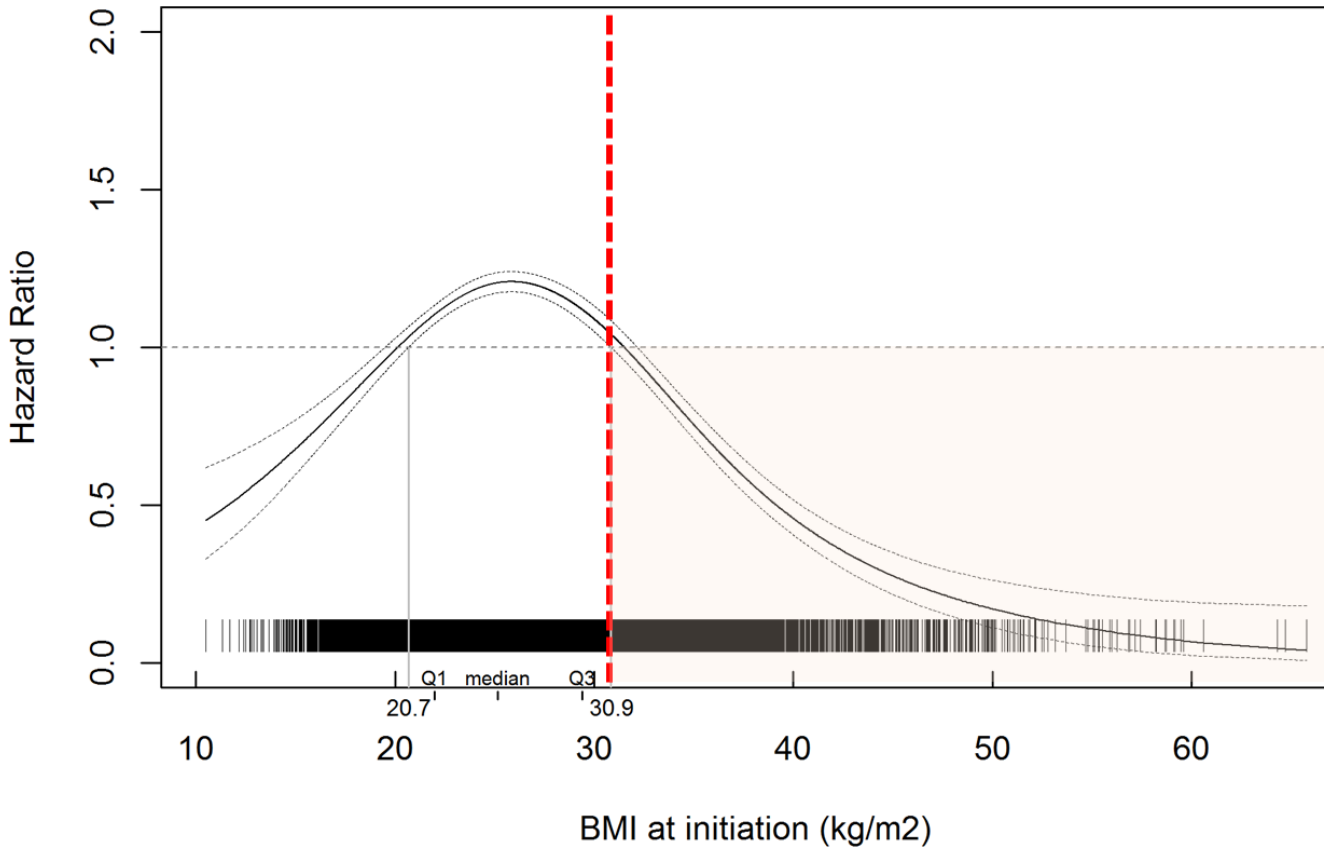




Chang et al. BMJ 2019

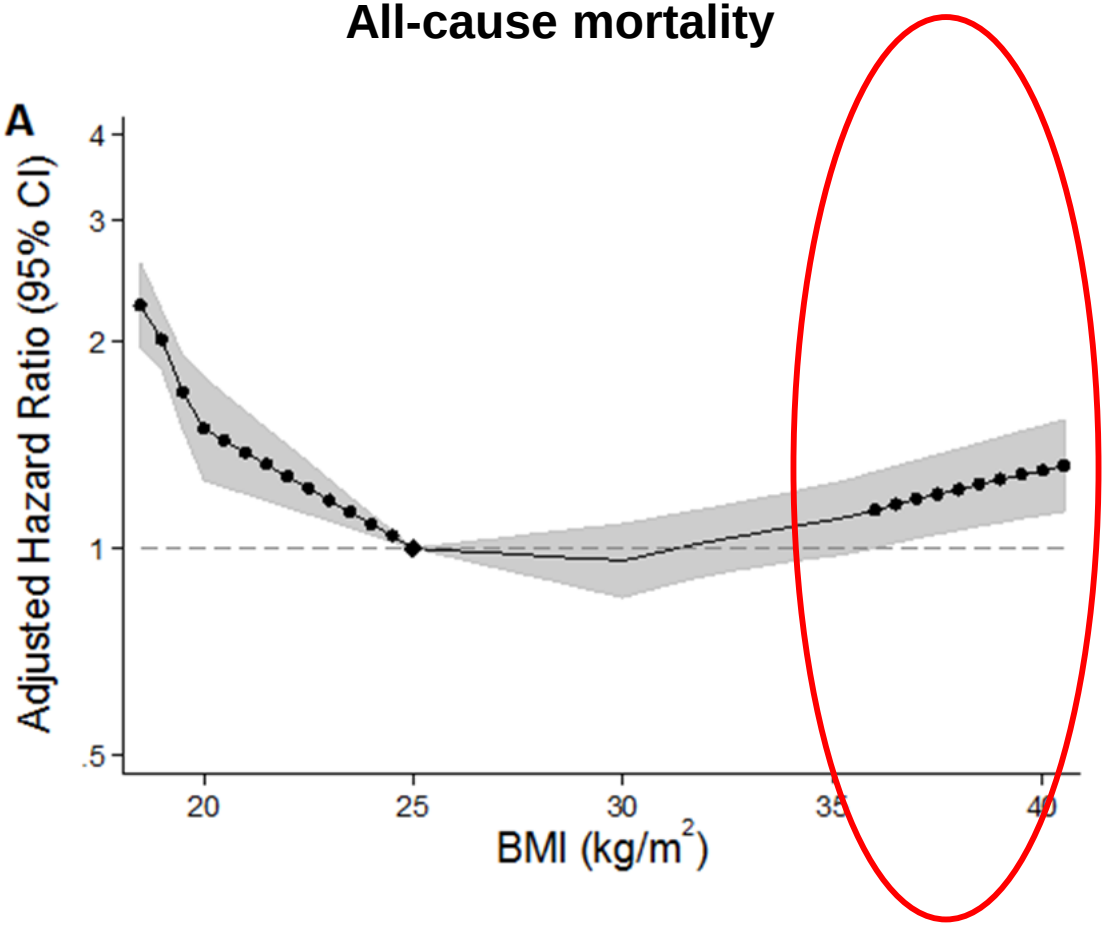
Παχυσαρκία και δυσμενείς εκβάσεις στην ΧΝΝ

Access to transplantation



Lassalle et al. PloS One 2017

All-cause mortality



Chang et al. BMJ 2019


Obesity

ΧΝΝ και παχυσαρκία

Θεραπεία – ο ρόλος των GLP-1RA

κίας

THE SHOWSTOPPER OBESITY DRUGS THAT HAVE STUNNED RESEARCHERS

Drugs that quash hunger have shown striking results in trials and in practice. But can they help all people with obesity — and conquer weight stigma? **By McKenzie Prillaman**

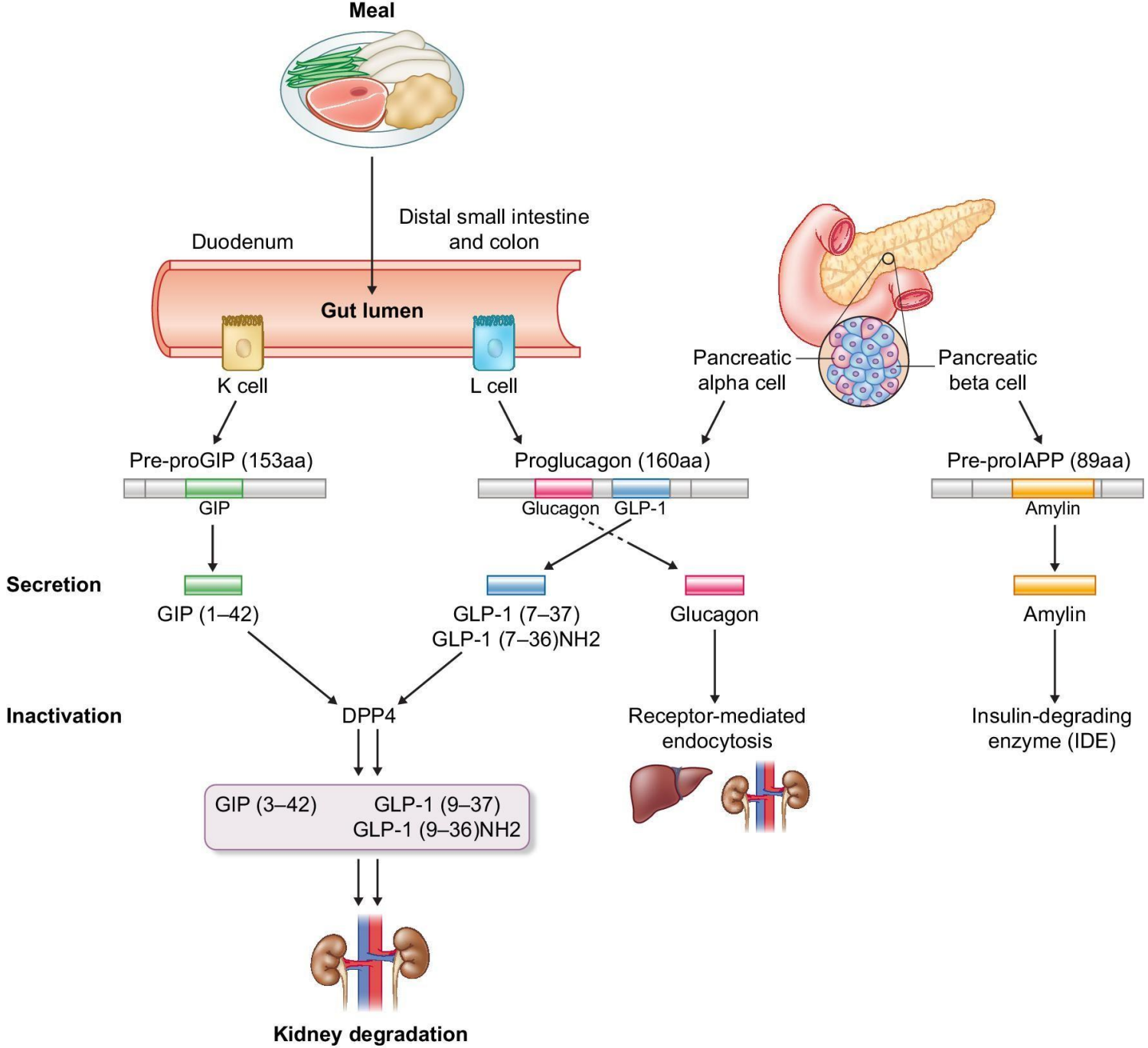
Φαινόμενο ινκρετίνης

GLP-1 RA

GLP-1 / GIP RA

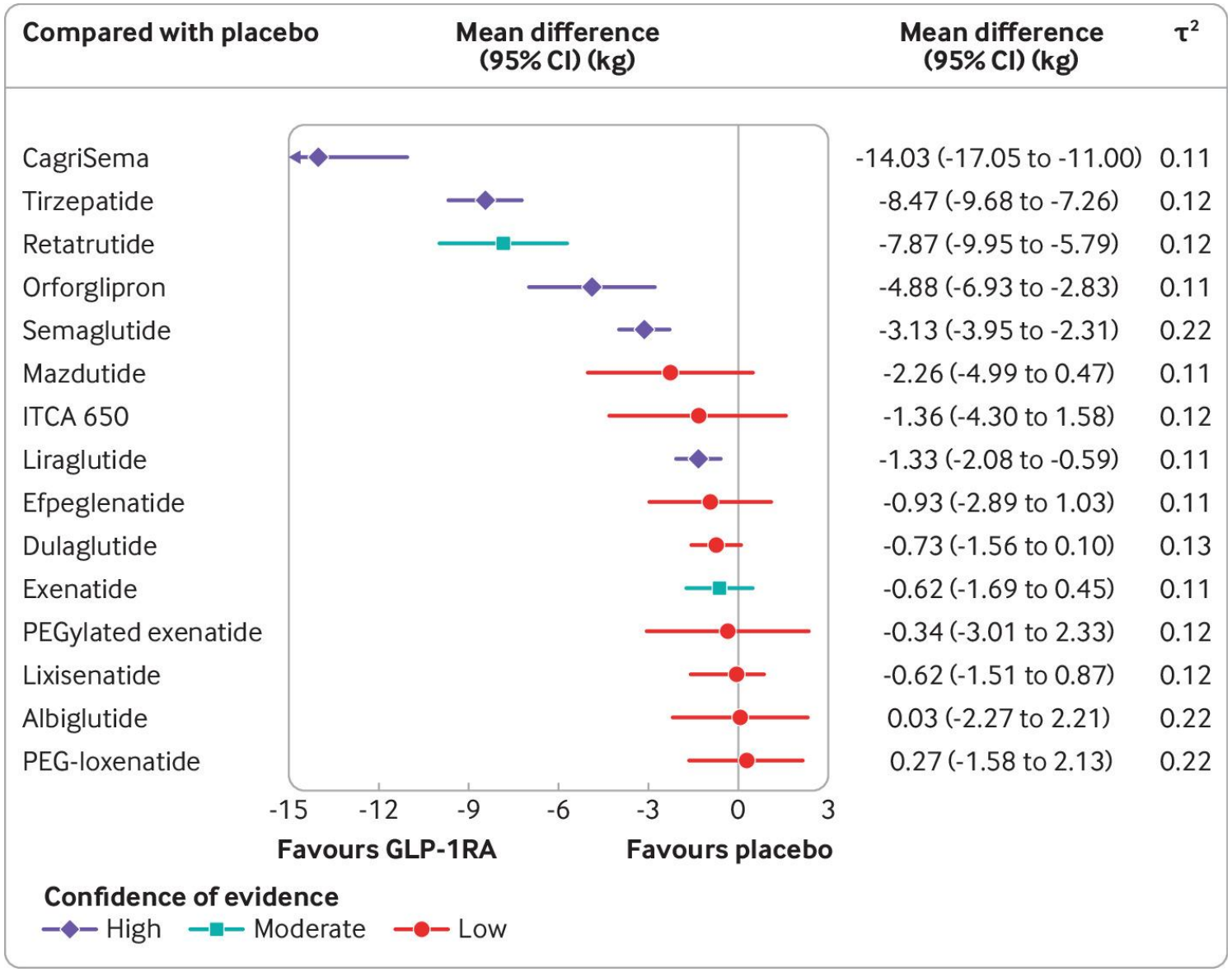
GLP-1 / GIP / Glucagon RA

GLP-1 / Amylin RA

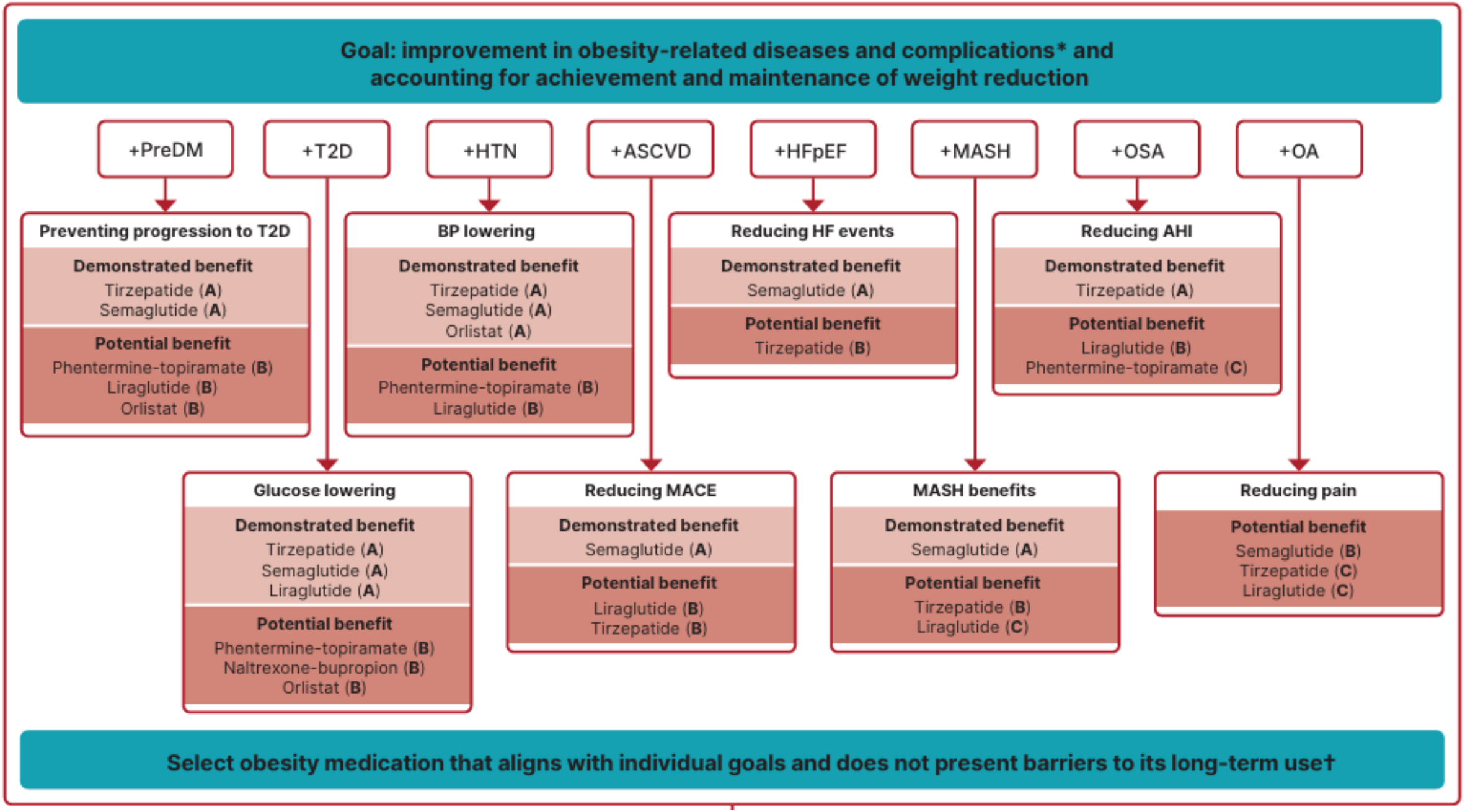


Abasheva et al. Clin Kidney Journal 2024

GLP-1RA και σωματικό βάρος σε ΣΔτ2



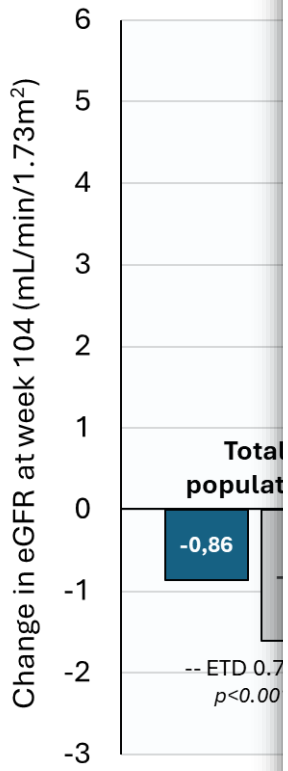
Yao et al. BMJ 2024

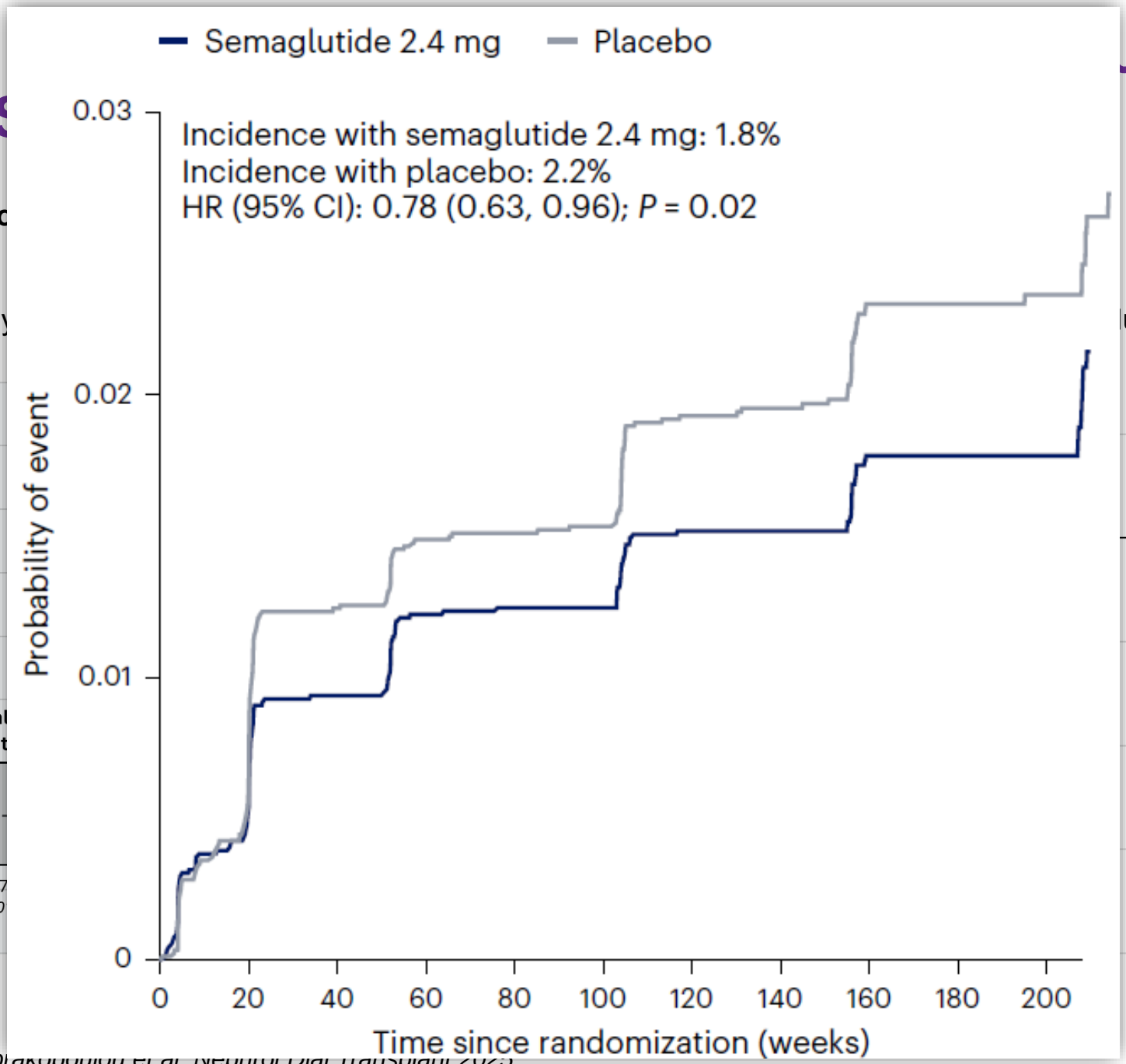


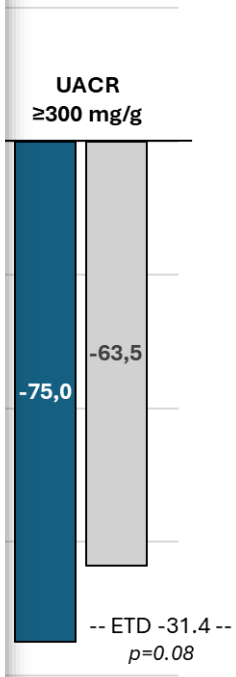
ADA Professional Practice Committee for Obesity;. Diabetes, Obesity, and CardioMetabolic CARE 2026

Semaglutide … της μελέτης S… …πτοανάλυση

N = 17,604 ασθενείς με **παχυσ…**
Median f-up 182 weeks
Semaglutide vs placebo
Pre-specified composite kidney… …luction or macroalbuminuria



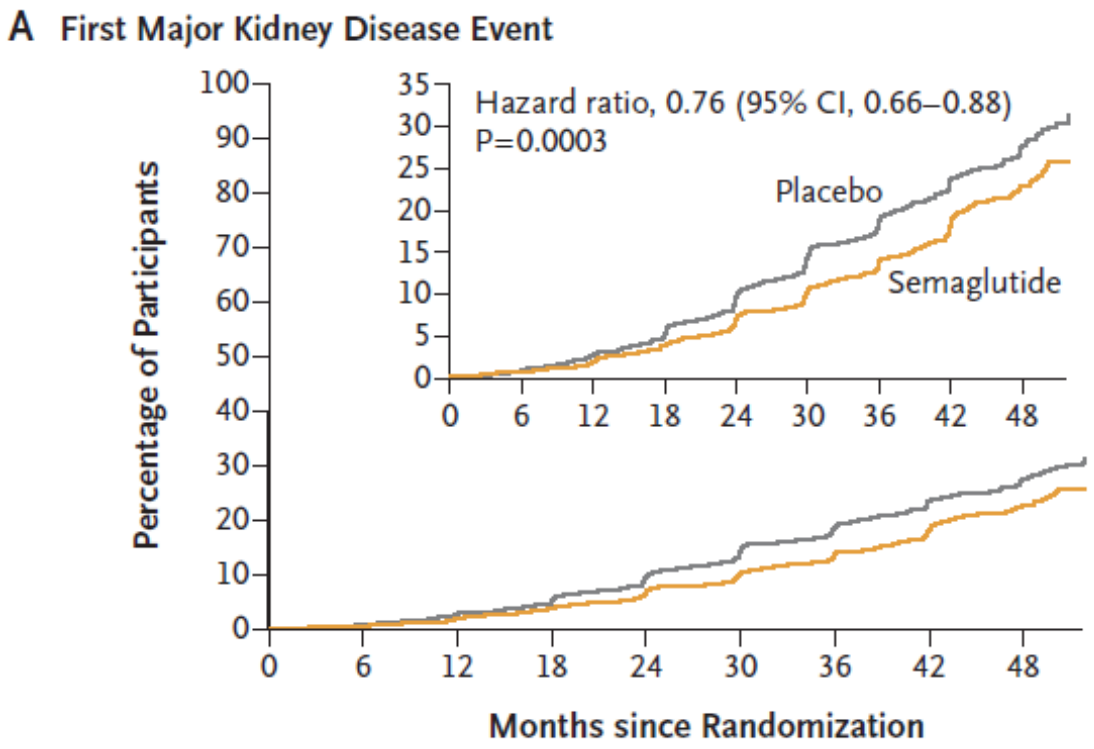


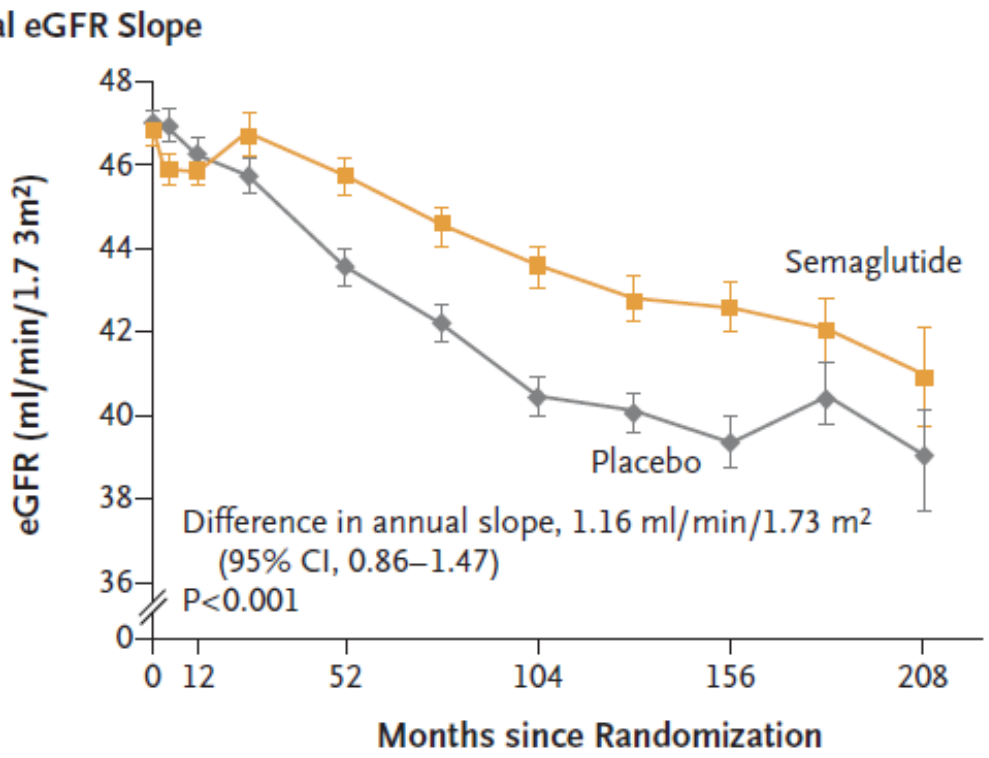


Colhoun et al. Nat Med 2024; Theodorakopoulou et al. Nephrol Dial Transplant 2025

Semaglutide και νεφροπροστασία σε ΧΝΝ με ΣΔτ2: FLOW trial

N = 3533 ασθενείς με **ΧΝΝ και ΣΔτ2**
Semaglutide vs placebo
KIDNEY Primary outcome: composite of the onset of kidney failure, >50% eGFR reduction, death from kidney-related or CV causes





Perkovic et al. N Eng J Med 2024

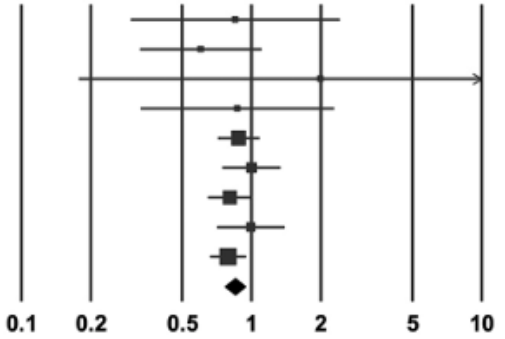
GLP-1RAs και καρδιο- και νεφρο-προστασία στην ΧΝΝ

Σύνθετο νεφρικό τελικό σημείο

N=17,996 με ΧΝΝ (με και χωρίς ΣΔ)

Σύνθετο καρδιαγγειακό τελικό σημείο

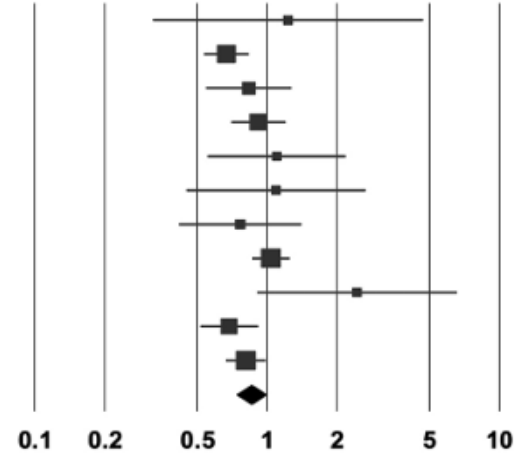
Study	GLP-1RA n/N	Placebo n/N	Odds Ratio (95% CI)	Weight (%)
LIRA-RENAL (2016)	7/140	8/137	0.85 (0.30, 2.41)	0.89
AWARD-7 (2018)	26/382	21/194	0.60 (0.33, 1.10)	2.66
PIONEER 5 (2019)	2/163	1/161	1.99 (0.18, 22.14)	0.17
PIONEER 6 (2019)	8/418	9/409	0.87 (0.33, 2.27)	1.05
REWIND (2019)	219/1081	251/1118	0.88 (0.72, 1.08)	23.22
EXSCEL (2020)	97/1557	101/1620	1.00 (0.75, 1.33)	11.70
SUSTAIN-6+LEADER[a]	175/1571	201/1492	0.81 (0.65, 1.00)	20.71
SELECT (2023)	75/970	73/938	0.99 (0.71, 1.39)	8.61
FLOW (2024)	290/1400	351/1413	0.79 (0.66, 0.94)	30.99
Overall			**0.85 (0.77, 0.94)**	



Random effect model
Heterogeneity: df(Q):8, P value:0.001, Tau-squared <0.001, I^2<0.01%

Favor GLP-1RA **Favor Control**

Study	GLP-1RA n/N	Placebo n/N	Odds Ratio (95% CI)	Weight (%)
LIRA-RENAL (2016)	5/140	4/137	1.23 (0.32, 4.69)	1.10
LEADER (2016)	172/1116	223/1042	0.67 (0.54, 0.83)	16.06
SUSTAIN-6 (2016)	45/469	53/470	0.84 (0.55, 1.27)	8.02
HARMONY (2018)	116/1098	128/1124	0.92 (0.70, 1.20)	13.64
AWARD-7 (2018)	28/382	13/194	1.10 (0.56, 2.18)	3.76
PIONEER 5 (2019)	11/163	10/161	1.09 (0.45, 2.65)	2.37
PIONEER 6 (2019)	20/434	25/422	0.77 (0.42, 1.40)	4.61
EXSCEL (2020)	280/1557	282/1620	1.04 (0.87, 1.25)	18.22
FREEDOM-CVO (2022)	13/196	6/212	2.44 (0.91, 6.55)	1.94
SELECT (2023)	94/963	127/935	0.69 (0.52, 0.91)	12.84
FLOW (2024)[a]	212/1767	254/1766	0.81 (0.67, 0.99)	17.44
Overall			**0.86 (0.74, 0.99)**	



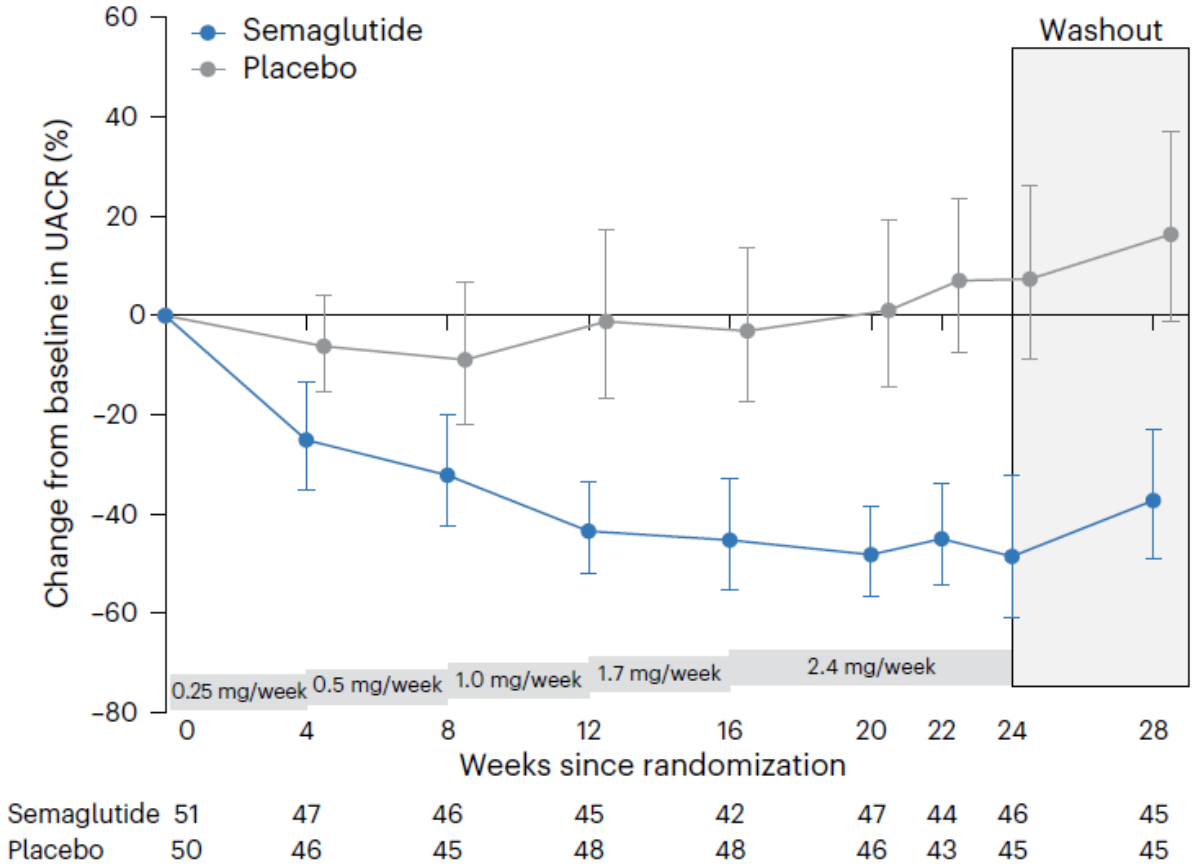
Random effect model
Heterogeneity: df(Q):10, P value =0.03, Tau-squared:0.021, I^2=40.3%

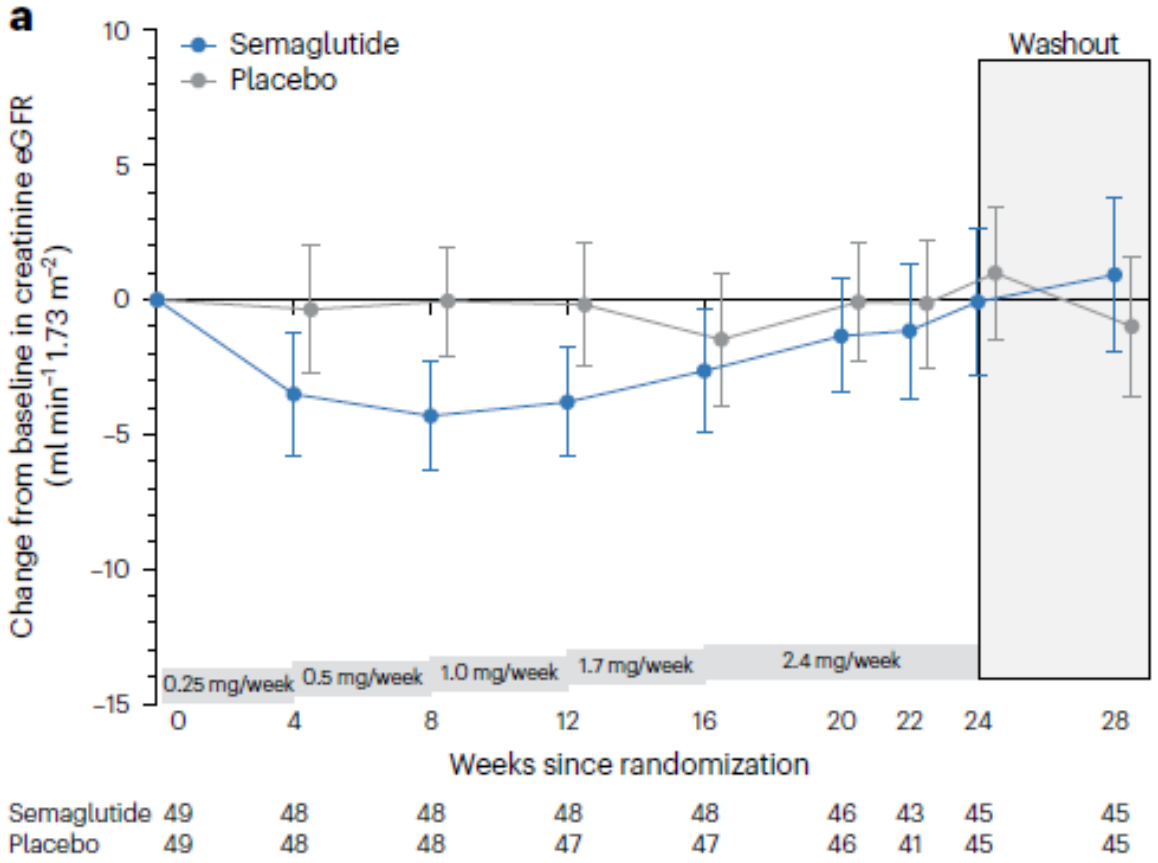
Favor GLP-1RA **Favor Control**

Chen et al. Am J Kidney Dis 2025

Semaglutide σε ΧΝΝ/παχυσαρκία χωρίς ΣΔ: SMART trial

N = 101 ασθενείς με ΧΝΝ και παχυσαρκία, χωρίς ΣΔτ2
6 μήνες
Semaglutide vs placebo

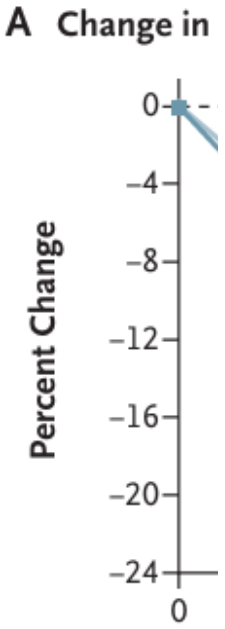




Apperloo et al. Nat Med 2025

Tirzepatide versus semaglutide

The NEW ENGLAND JOURNAL of MEDICINE



ORIGINAL ARTICLE

Tirzepatide as Compared with Semaglutide for the Treatment of Obesity

Louis J. Aronne, M.D.,[1] Deborah Bade Horn, D.O.,[2] Carel W. le Roux, M.D., Ph.D.,[3,4] Wayne Ho, M.D.,[5,6] Beverly L. Falcon, Ph.D.,[7] Elisa Gomez Valderas, M.Sc.,[7] Sagar Das, M.Sc.,[7] Clare J. Lee, M.D., M.H.S.,[7] Leonard C. Glass, M.D.,[7] Cagri Senyucel, M.D., Ph.D.,[7] and Julia P. Dunn, M.D.,[7] for the SURMOUNT-5 Trial Investigators*

JAMA Cardiology

RCT: Cardiorenal Outcomes With Tirzepatide Compared With Dulaglutide in Patients With Diabetes and Cardiovascular Disease

POPULATION

9348 Male, 3817 Female

Adult patients with type 2 diabetes and established atherosclerotic cardiovascular disease

Mean (SD) age, 64.1 (8.8) y

SETTINGS / LOCATIONS

640 Sites internationally

INTERVENTION

13299 Participants randomized; **13165** analyzed

6648 Tirzepatide
Starting dose subcutaneous 2.5 mg every wk, escalated every 4 wk to a maximum of 15 mg every wk, as tolerated

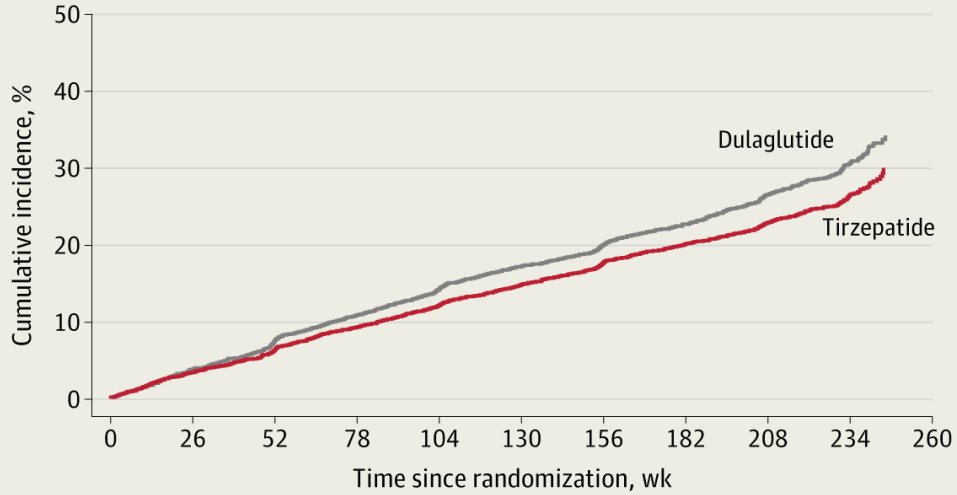
6651 Dulaglutide
1.5 mg Subcutaneous every wk

PRIMARY OUTCOME

First occurrence of a composite of cardiorenal adverse outcomes: all-cause mortality, myocardial infarction, stroke, coronary revascularization, hospitalization for heart failure, or a composite of adverse kidney outcomes

FINDINGS

The 6-component primary end point occurred more frequently in patients treated with dulaglutide compared with those treated with tirzepatide

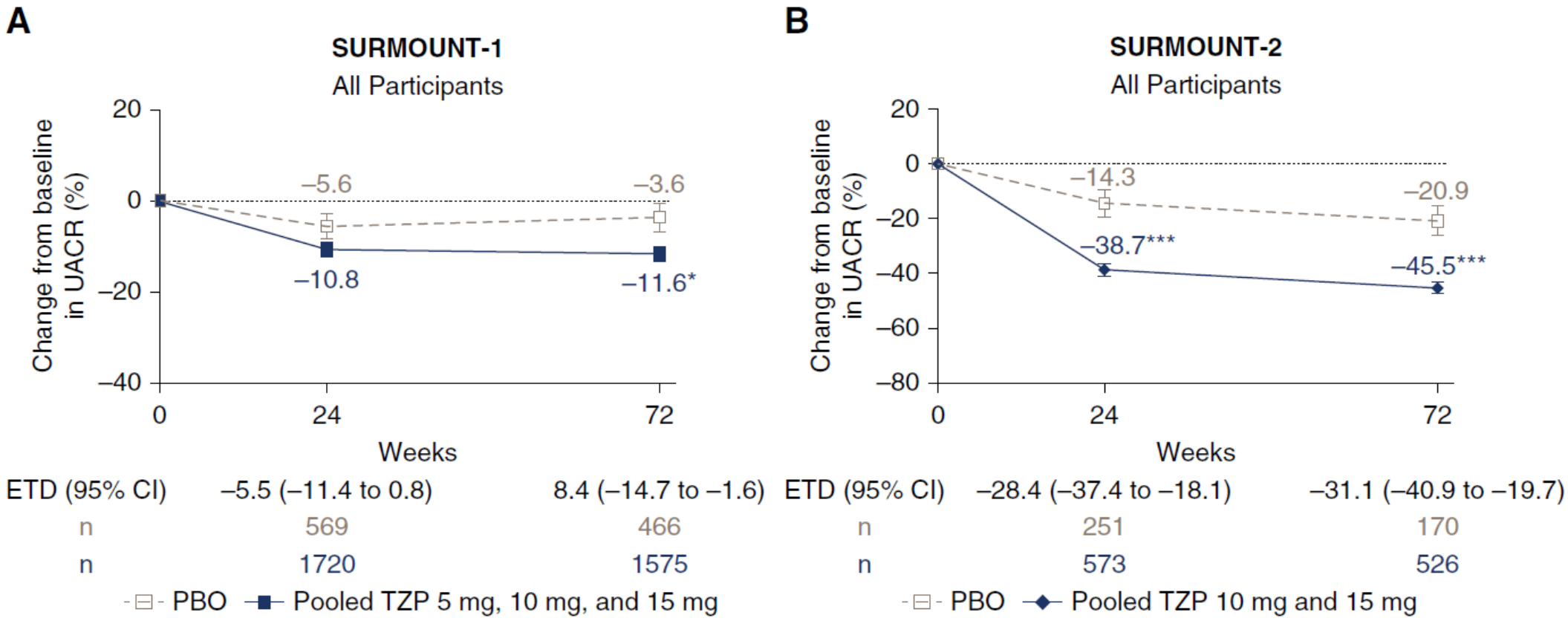


Proportion with a cardiorenal event in the 6-component primary end point:
Tirzepatide: 23.7%
Dulaglutide: 27.4%
Hazard ratio, 0.84; 95% CI, 0.79-0.90; *P* <.001.

Nissen SE, Wolski K, D'Alessio D, et al. Cardiorenal outcomes with tirzepatide compared with dulaglutide in patients with diabetes and cardiovascular disease: a randomized clinical trial. *JAMA Cardiol*. Published online March 28, 2026. doi:10.1001/jamacardio.2026.0767

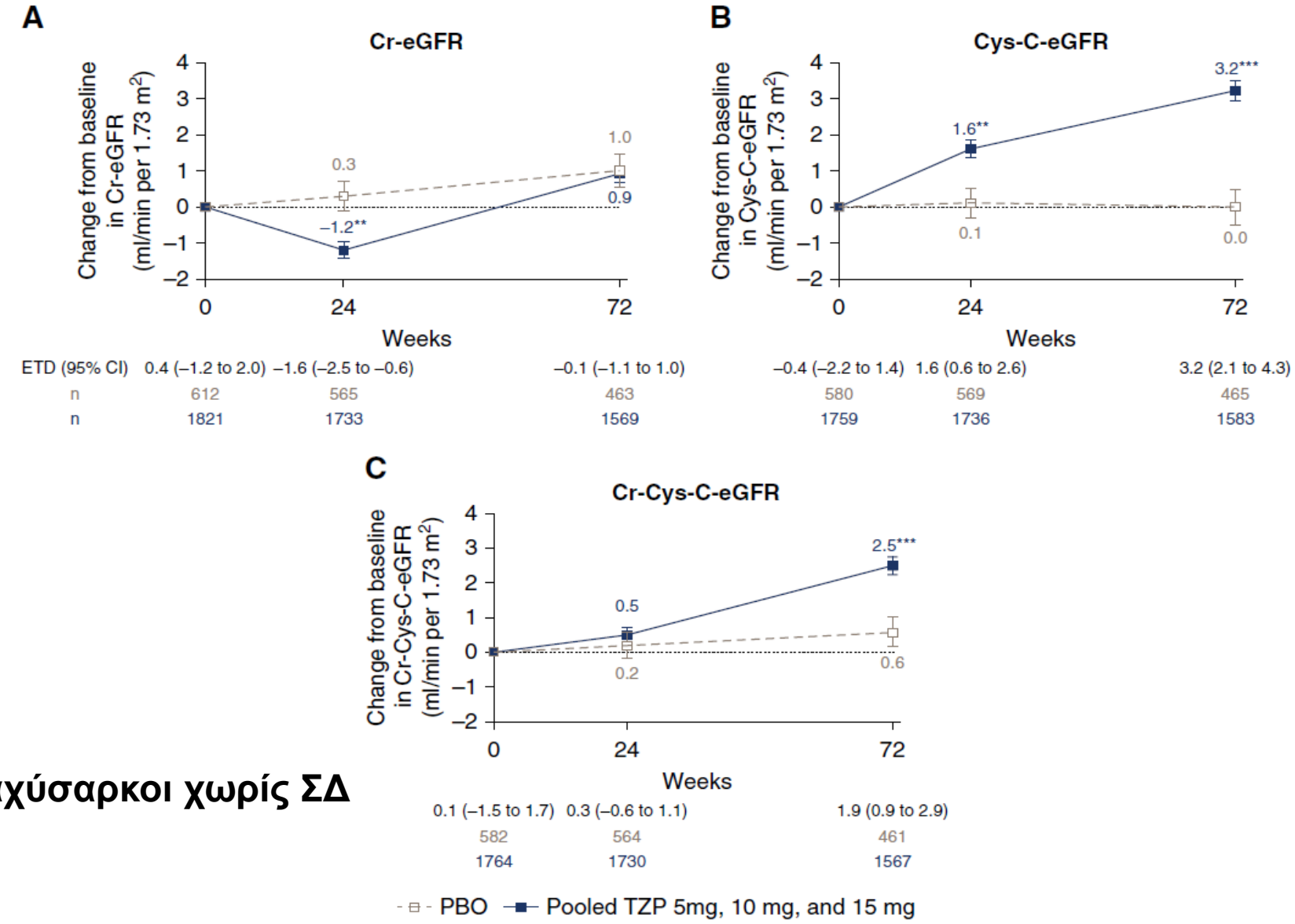
Tirzepatide και αλβουμινουρία

Post-hoc analysis
72-weeks
SURMOUNT-1: N=2539 **παχύσαρκοι χωρίς ΣΔ**
SURMOUNT-2: N=938 **ασθενείς με ΣΔ**



Heerspink et al. J Am Soc Nephrol 2025

Tirzepatide και eGFR μεταβολές σε παχύσαρκους χωρίς ΣΔ



SURMOUNT-1: N=2539 **παχύσαρκοι χωρίς ΣΔ**

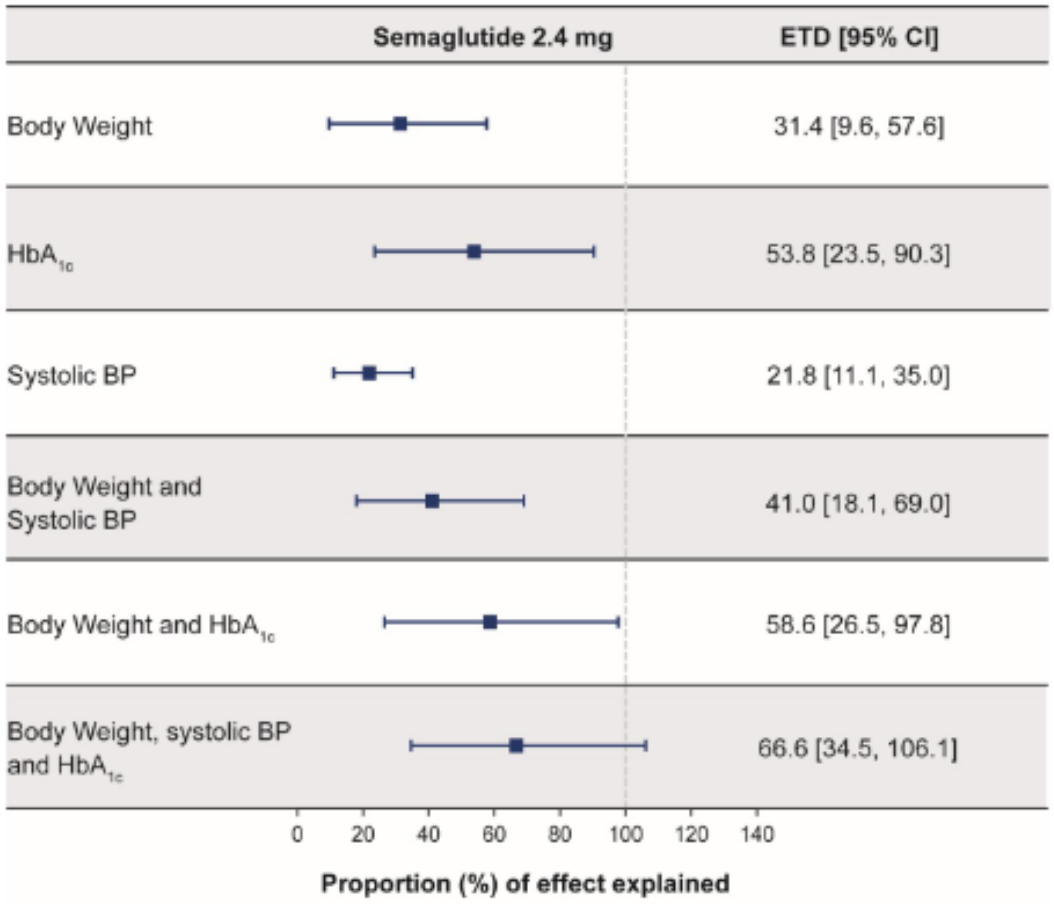
Heerspink et al. J Am Soc Nephrol 2025

GLP-1RA και νεφροπροστασία

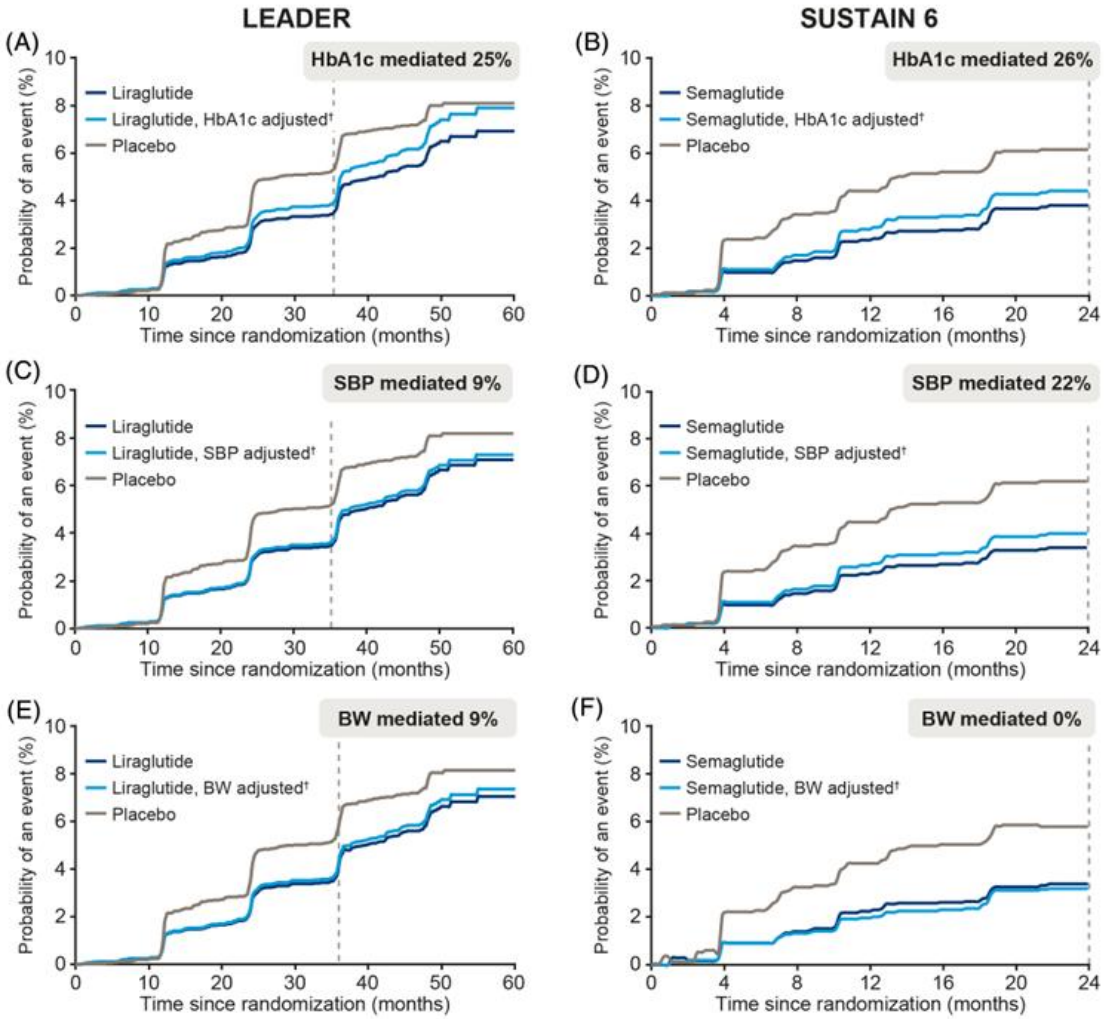
Μηχανισμοί

GLP-1RAs and kidney protection: mediation analyses

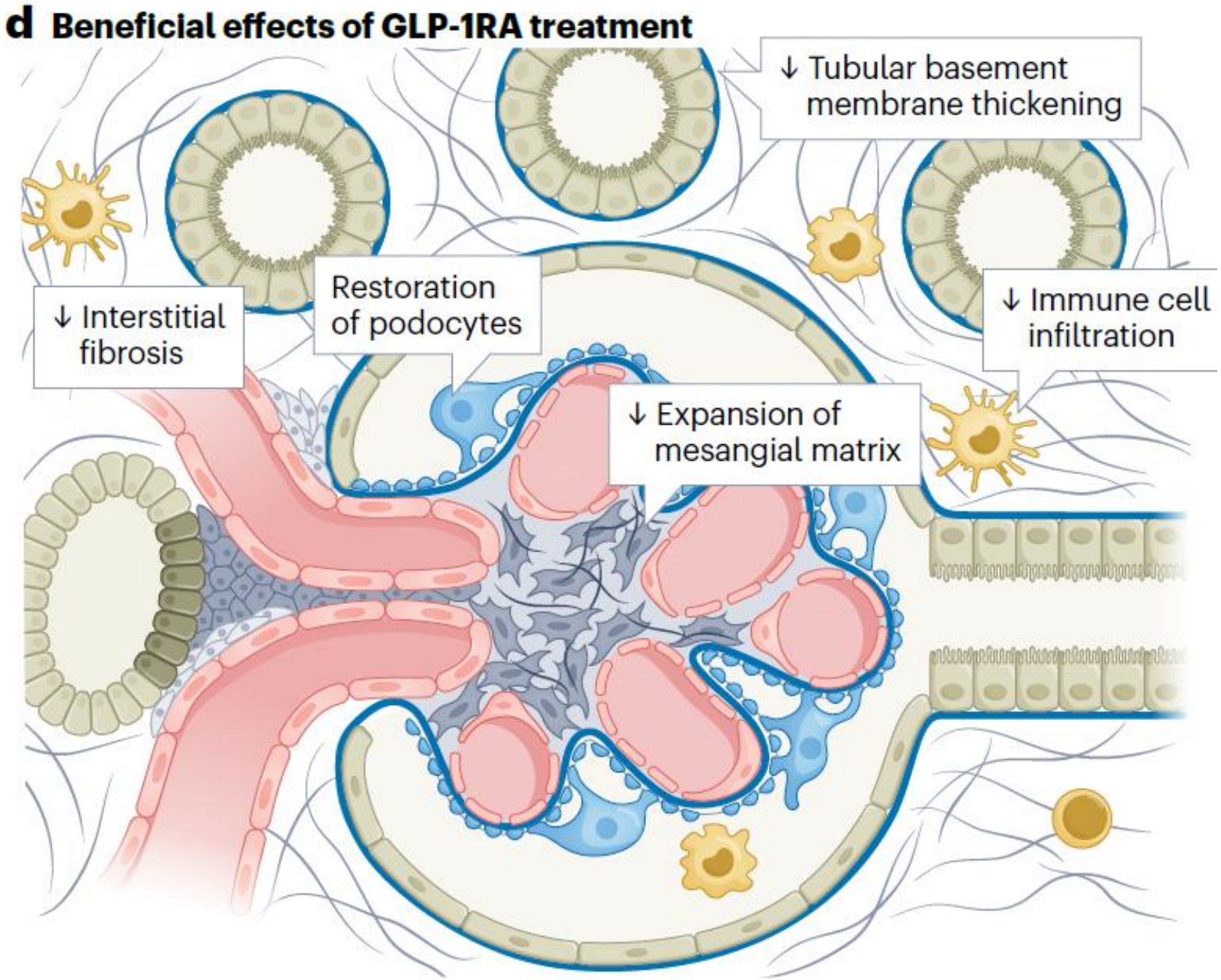
Post-hoc analysis of STEP 1-3 trials (n=3,379 patients)
UACR and eGFR
68 weeks



Heerspink et al Diabetes Care 2023

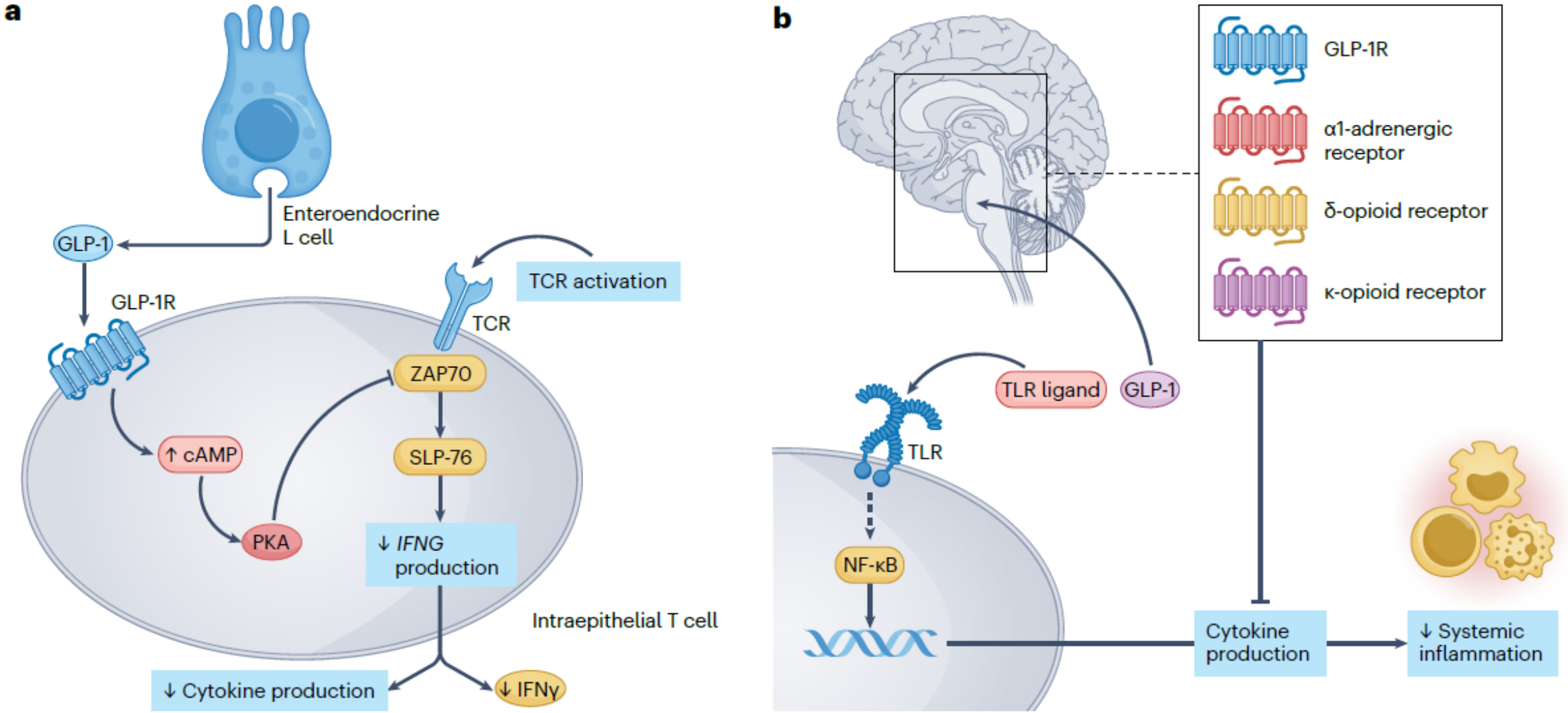


Mann et al. Diabetes Obes Metabol 2021



Alicic et al. Nat Rev Nephrol 2026

GLP-1RAs και φλεγμονή



Alicic et al. Nat Rev Nephrol 2026

ΧΝΝ, παχυσαρκία και GLP-1RA

ΧΝΝ τελικού σταδίου

GLP-1 Receptor Agonist Outcomes, Safety, and BMI Change in a National Cohort of Dialysis Patients

CJASN
Clinical Journal of the American Society of Nephrology
Clinical Research

Methods

Observational national cohort study 2013-2021

151,649 incident dialysis patients with type 2 diabetes

Exposure: **GLP-1 receptor agonist (RA)** use

Results

GLP-1 RA Users

−4.03 kg *P*<0.001

−1.47 kg/m² *P*<0.001

219.0 cases/1,000 person-years *P*<0.001

Nonusers

−1.47 kg

−0.61 kg/m²

279.5 cases/1,000 person-years

Weight Change | BMI Change | Mortality Incidence

GLP-1 RA use was associated with

23% lower risk of mortality

aHR: 0.77
95% CI: 0.70–0.85 *P*<0.001

66% higher chance of waitlisting

aHR: 1.66
95% CI: 1.28–2.13 *P*<0.001

aHR: adjusted Hazard Ratio, BMI: body mass index, CI: confidence interval, GLP-1: Glucagon-like peptide-1.

Conclusions: GLP-1 receptor agonist use in dialysis patients with type 2 diabetes was associated with weight loss, lower mortality, and higher transplant waitlisting, providing the strongest real-world evidence to date for their use in this group.

Babak J. Orandi, Yusi Chen, Yiting Li, et al. ***GLP-1 Receptor Agonist Outcomes, Safety, and BMI Change in a National Cohort of Dialysis Patients.*** CJASN D0I:10.2215/CJN.0000000750. **Visual Abstract by: Alejandro Garcia-Rivera, MD**

GLP-1RAs σε MTX νεφρού με διαβήτη

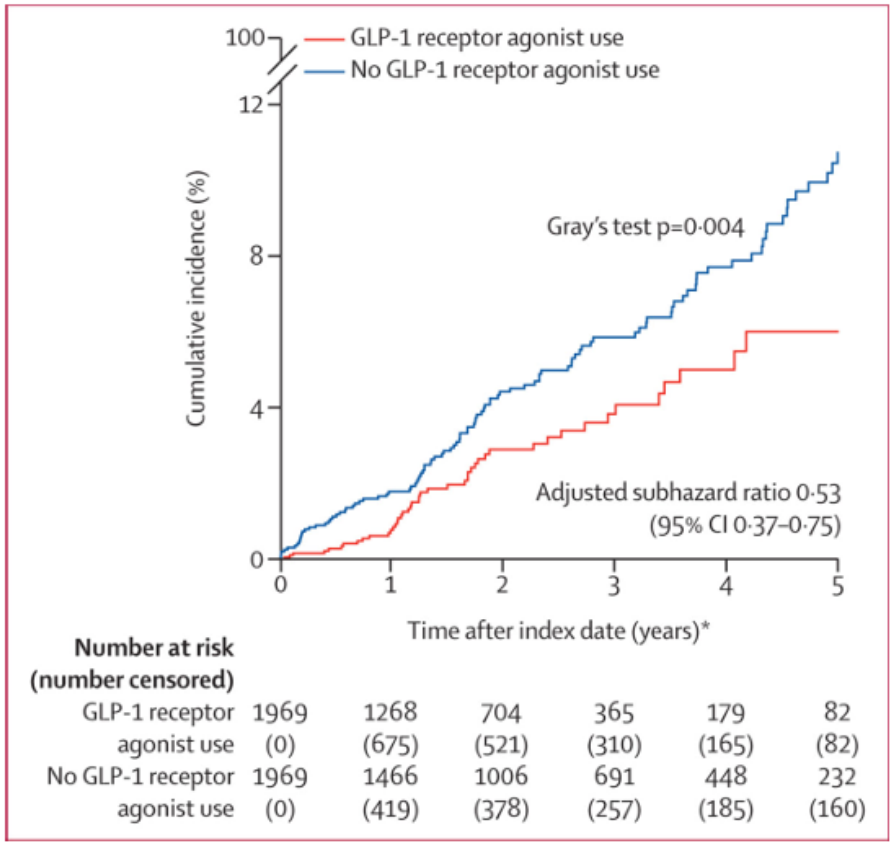
USA-based retrospective cohort study

18,016 KTRs with diabetes

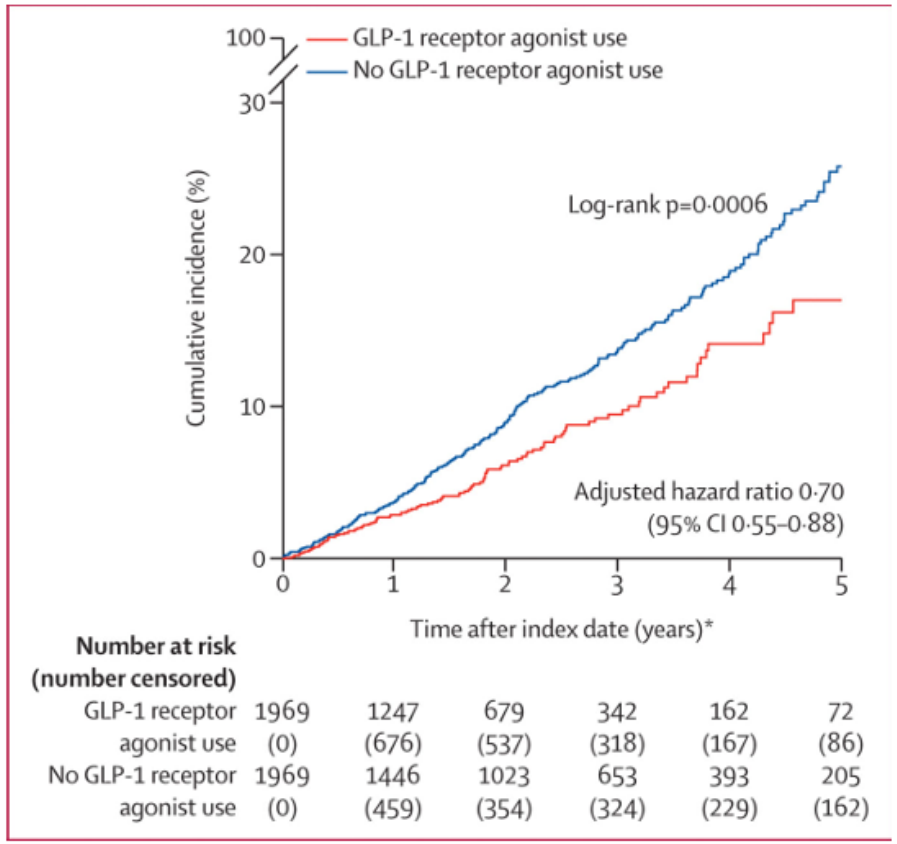
Exposure: post-transplant GLP-1RA use

Outcome: graft loss, mortality

Graft loss



Death

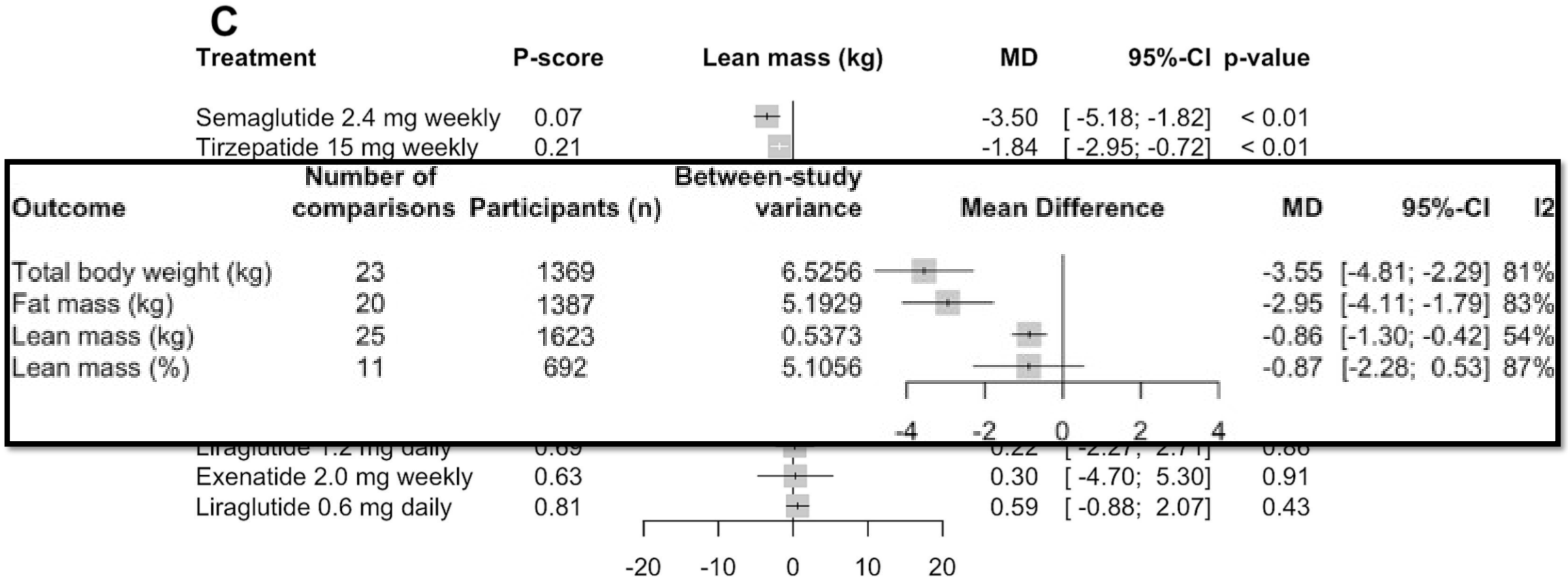


Orandi et al. Lancet Diabetes Endocrinol 2025

ΧΝΝ, παχυσαρκία και GLP-1RA

Προβληματισμοί

GLP1-RA effects on body composition

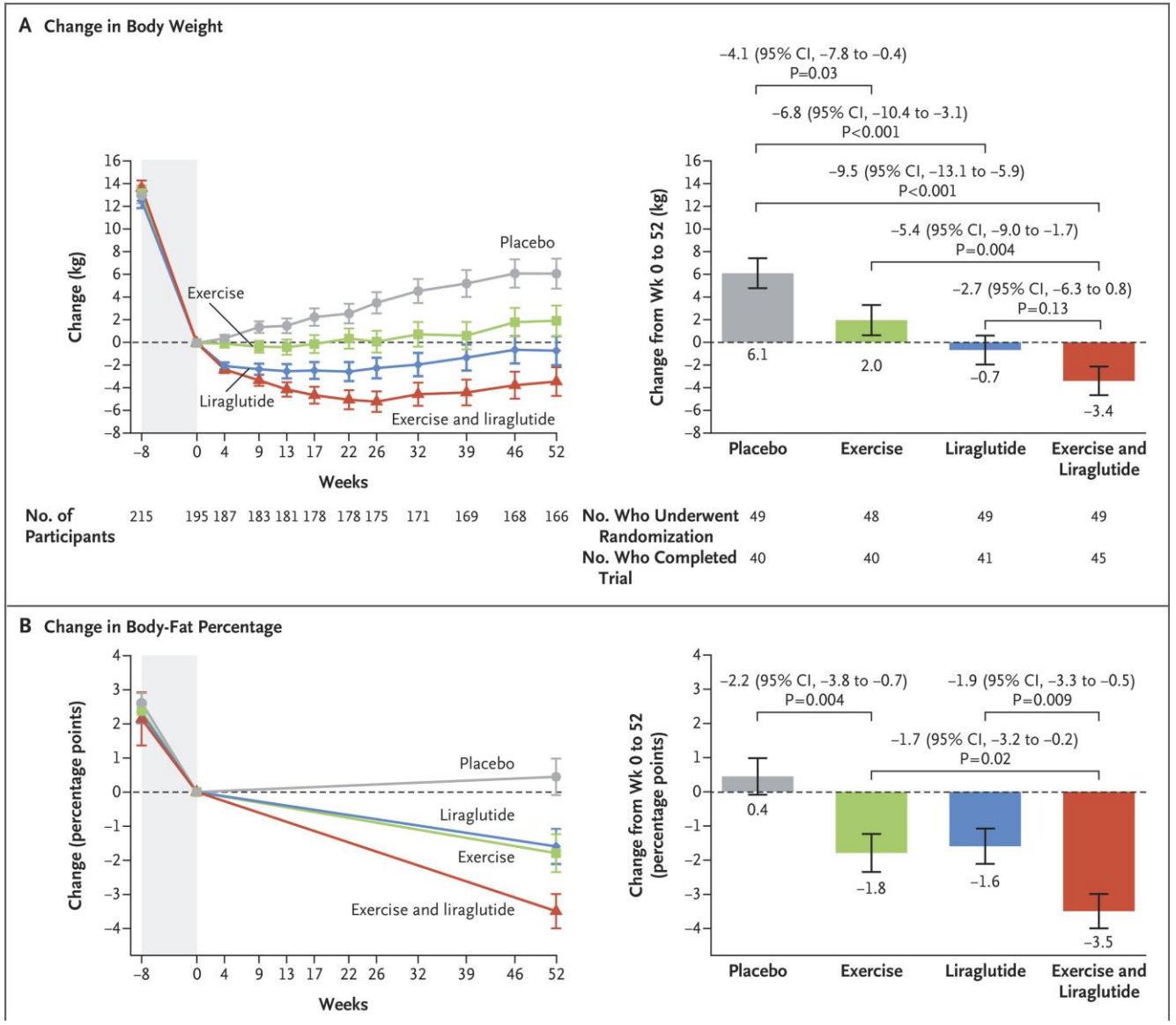


Karakasis et al. Metabolism 2025

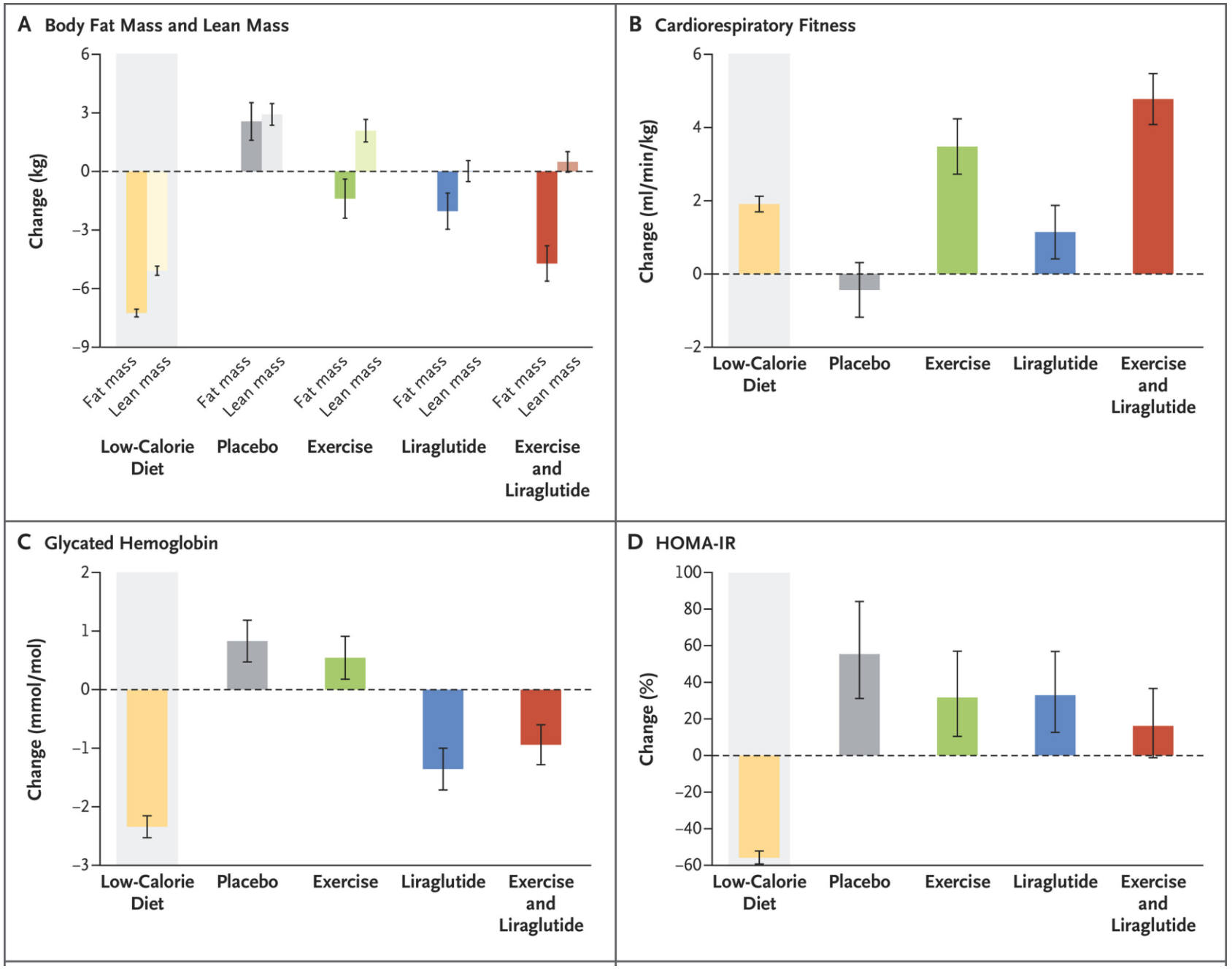
Combination of exercise and GLP-1RA improves body composition

Randomized, head-to-head, placebo-controlled trial
N=195 παχύσαρκοι (BMI 32-43) χωρίς ΣΔ

- Run-in 8-week low-calorie diet, then 1 year to
  - moderate to-vigorous–intensity exercise program plus placebo (**exercise group**)
  - treatment with liraglutide (3.0 mg per day) plus usual activity (**liraglutide group**)
  - exercise program plus liraglutide therapy (**combination group**)
  - placebo plus usual activity **(placebo group**).
- End points: change in body weight (primary end point) and the change in body-fat percentage (secondary end point) Prespecified metabolic health-related end points and safety were also assessed



Lundgren et al. N Engl J Med. 2021



Lundgren et al. N Engl J Med. 2021

GLP-1RAs: ασφάλεια και ΓΕΣ συμπτώματα

FLOW trial

- **SAEs** were reported in fewer participants in semaglutide vs placebo group (49.6% vs 53.8%)
- AEs leading to **permanent discontinuation** were more common in semaglutide vs placebo (13.2% vs 11.9%), mainly due to **GI symptoms** (4.5% vs 1.1%)

SELECT trial (pts with eGFR<60 ml/min/1.73m2)

- **SAEs** were 21% less common in semaglutide vs placebo (fatal events and AKI were halved (4.9% versus 9.8% and 3.5% versus 6.7%, respectively)
- AE leading to **permanent discontinuation** were more common in semaglutide vs placebo (22.0% versus 13.8% in placebo and 15.9% on semaglutide with preserved kidney function). **GI symptoms** 10% vs 2%

Perkovic et al. N Eng J Med 2024; Colhoun et al. Nat Med 2024

GLP-1RAs: ασφάλεια και ΓΕΣ συμπτώματα

Category of SOC	eGFR subgroup (mL/min/1.73 m²); N=6,461					
	≥60		≥45–<60		<45*	
	Semaglutide	Placebo	Semaglutide	Placebo	Semaglutide	Placebo
Number of participants	**2,382**	**2,380**	**490**	**478**	**360**	**371**
Total SAEs	590 (24.8)	682 (28.7)	169 (34.5)	164 (34.3)	130 (36.1)	150 (40.4)
Cardiac disorders	201 (8.4)	233 (9.8)	53 (10.8)	59 (12.3)	47 (13.1)	52 (14.0)
Renal and urinary disorders	48 (2.0)	52 (2.2)	23 (4.7)	14 (2.9)	31 (8.6)	43 (11.6)
Infections and infestations	128 (5.4)	150 (6.3)	42 (8.6)	45 (9.4)	33 (9.2)	31 (8.4)
Nervous system disorders	76 (3.2)	92 (3.9)	22 (4.5)	25 (5.2)	21 (5.8)	27 (7.3)
Respiratory, thorax and mediastinal disorders	45 (1.9)	46 (1.9)	15 (3.1)	9 (1.9)	18 (5.0)	15 (4.0)
GI disorders	66 (2.8)	48 (2.0)	22 (4.5)	12 (2.5)	15 (4.2)	14 (3.8)
Metabolic and nutrition disorders	39 (1.6)	41 (1.7)	14 (2.9)	13 (2.7)	12 (3.3)	17 (4.6)
Neoplasms†	71 (3.0)	73 (3.1)	17 (3.5)	14 (2.9)	10 (2.8)	17 (4.6)
Vascular disorders	35 (1.5)	44 (1.8)	10 (2.0)	8 (1.7)	14 (3.9)	10 (2.7)
Musculoskeletal and connective tissue disorders	36 (1.5)	42 (1.8)	13 (2.7)	21 (4.4)	5 (1.4)	9 (2.4)
Hepatobiliary disorders	21 (0.9)	24 (1.0)	7 (1.4)	9 (1.9)	2 (0.6)	7 (1.9)
Blood and lymphatic system disorders	11 (0.5)	7 (0.3)	7 (1.4)	2 (0.4)	6 (1.7)	3 (0.8)

**Participants with eGFR <30 mL/min/1.73 m² from SUSTAIN 6 were included for the analysis in the eGFR <45 mL/min/1.73 m² with the following numbers (%): 139 (19.0). †Benign, malignant and unspecified (including cysts and polyps) neoplasms. SUSTAIN 6 is coded according to MedDRA version 18.0. PIONEER 6 is coded according to MedDRA version 20.1. Data are presented as numbers and proportions (%) of participants with experience of serious adverse events categorised by SOCs. eGFR, estimated glomerular filtration rate; GI, gastrointestinal; MedDRA, Medical Dictionary for Regulatory Activities; N, total number of participants in pooled population with eGFR values at baseline; SOC, system organ class.*

Rossing et al. Cardiovasc Diabetol 2023

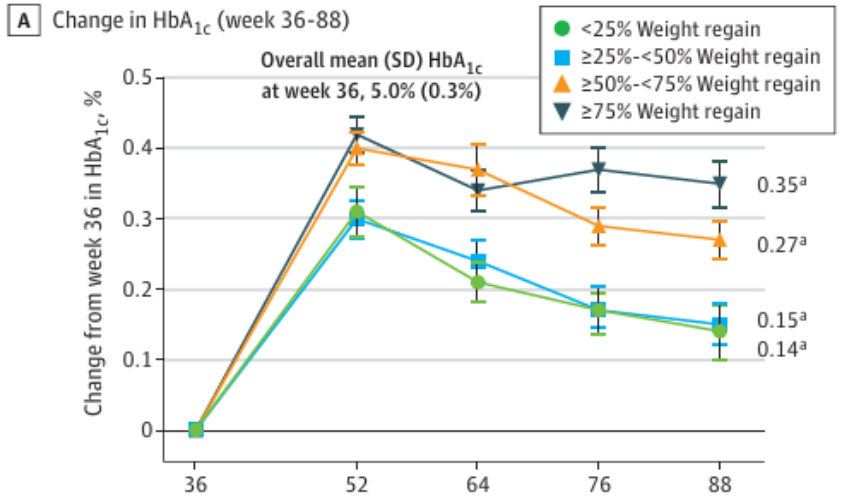
JAMA Internal Medicine | Original Investigation

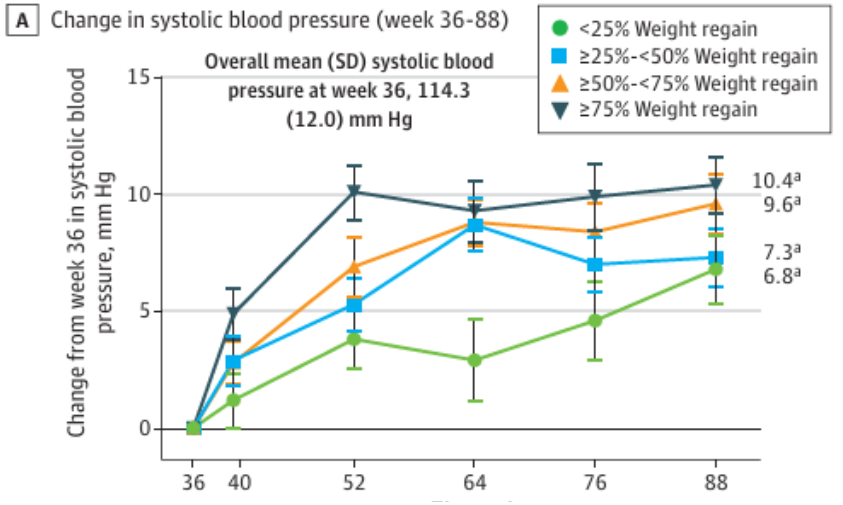
Cardiometabolic Parameter Change by Weight Regain on Tirzepatide Withdrawal in Adults With Obesity

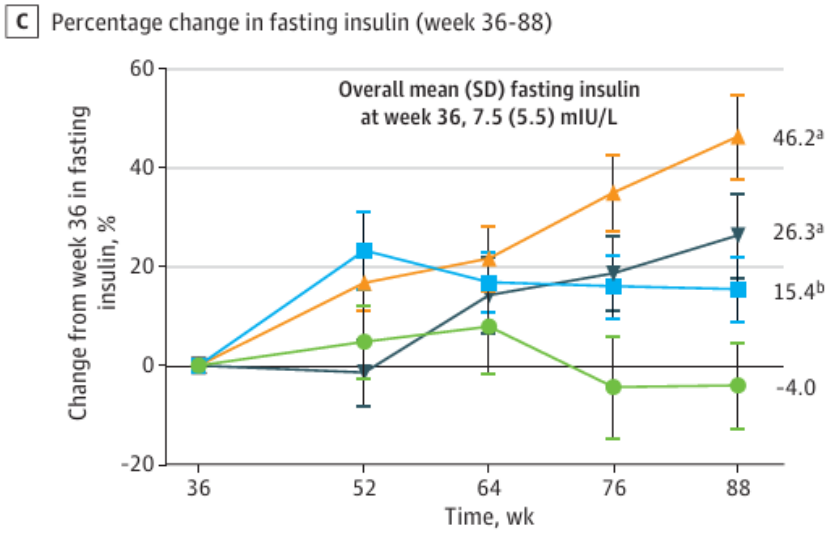
A Post Hoc Analysis of the SURMOUNT-4 Trial

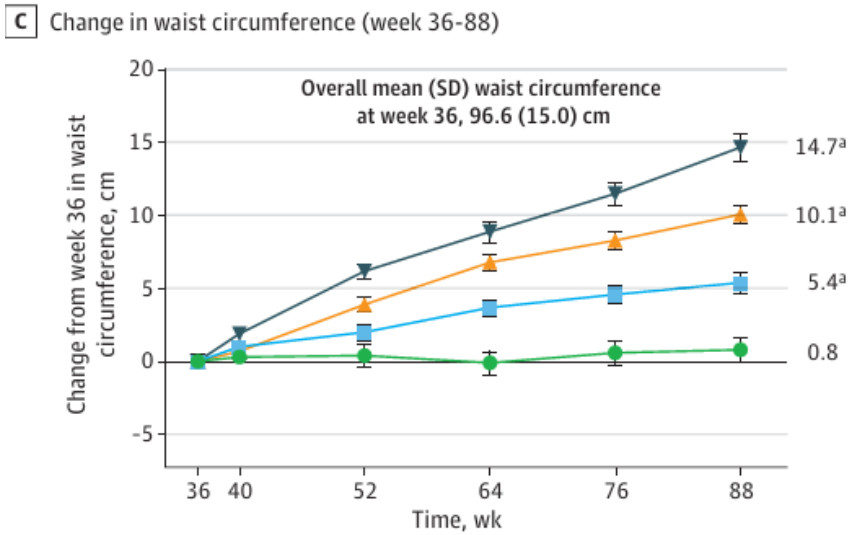
withdrawing tirzepatide led **to 25% or greater weight regain** in most participants **within 1 year**

Deborah B. Horn, DO, MPH; Bruno Linetzky, MD; Melanie J. Davies, MD; Luke J. Laffin, MD; Hui Wang, PhD; Madhumita A. Murphy, MD; Sarah Zimner-Rapuch, PharmD; Eva Lau, MD, PhD; Avigdor D. Arad, PhD; Clare J. Lee, MD, MHS









ΧΝΝ και παχυσαρκία

Νεότεροι GLP-1RA

NEXT-GENERATION OBESITY DRUGS ARE ARRIVING SOON

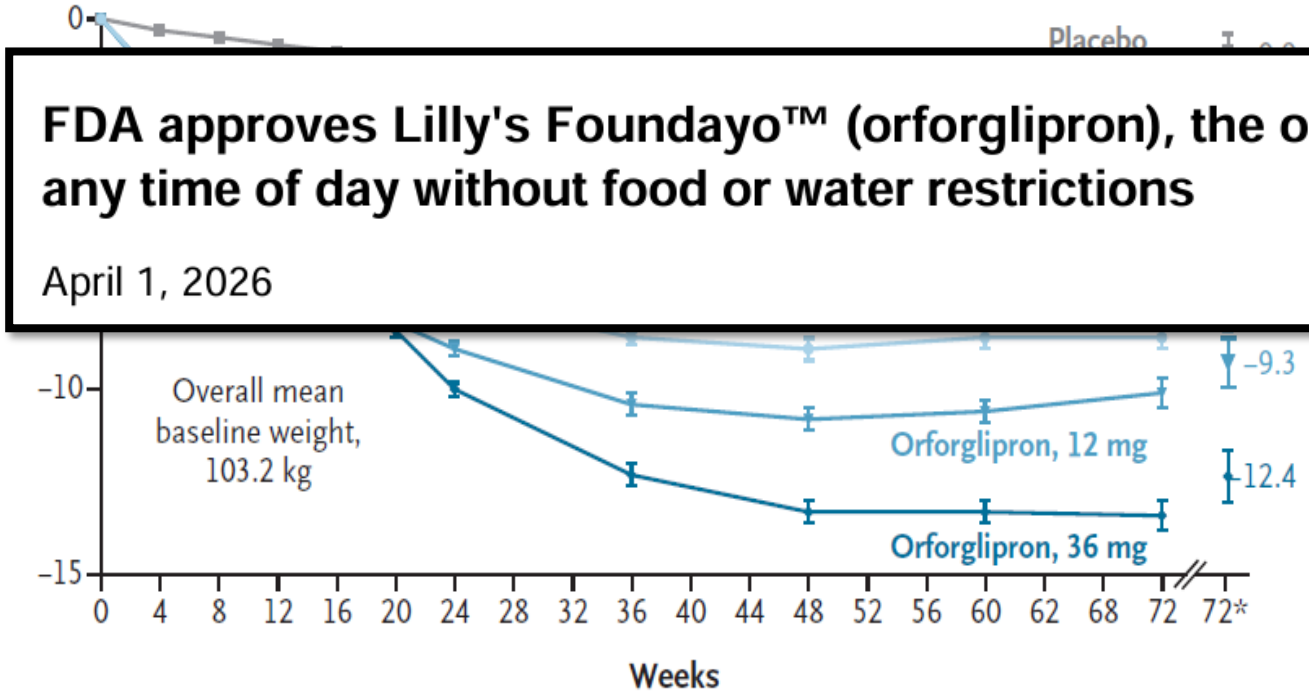
More than 100 treatments are in development to deliver greater and healthier weight loss. Some should be available in the next few years. **By Elie Dolgin**

Estimated year	Drug	Company	Description
2026	Orforglipron	Eli Lilly	An oral, small-molecule drug that activates the glucagon-like peptide 1 (GLP-1) receptor.
2026	CagriSema	Novo Nordisk	An injectable that activates the amylin and GLP-1 receptors.
2027	Survodutide	Boehringer Ingelheim	An injectable that activates the glucagon and GLP-1 receptors.
2027	Retatrutide	Eli Lilly	An injectable that activates GLP-1, gastric inhibitory polypeptide (GIP) and glucagon receptors.
2028 and beyond	MariTide	Amgen	An injectable that activates the GLP-1 receptor while blocking GIP signalling.
2028 and beyond	Bimagrumab	Eli Lilly	An injectable that blocks receptors involved in myostatin signalling.
2028 and beyond	Monlunabant	Novo Nordisk	An oral drug that inhibits the CB1 cannabinoid receptor.

Nature 2025

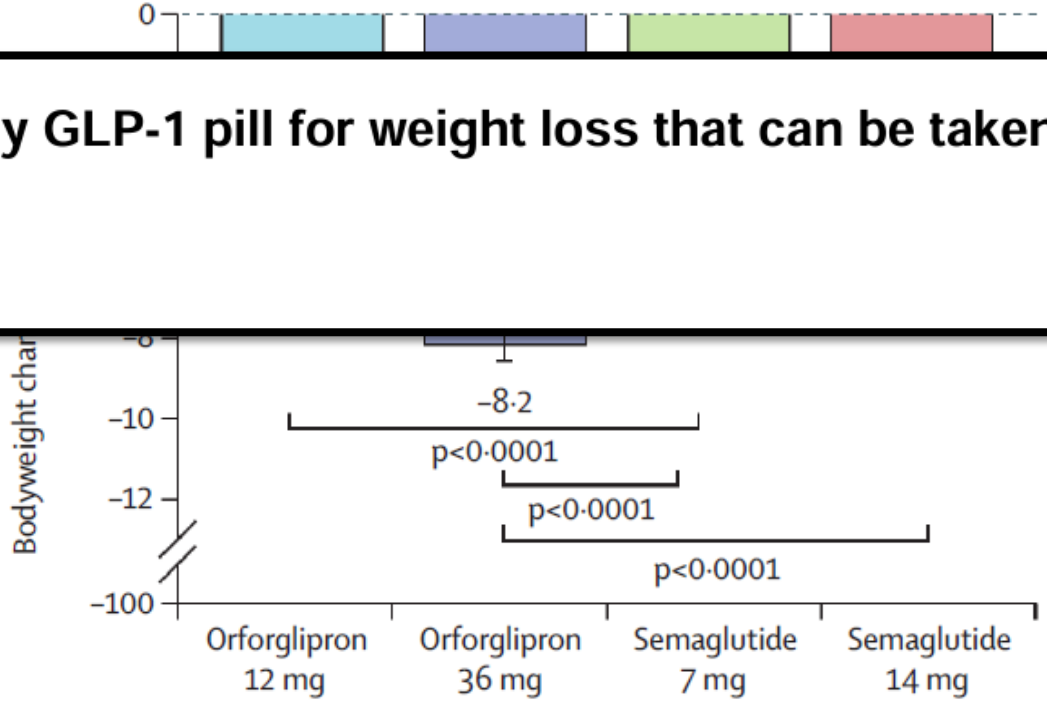
Orfoglipron: an oral small-molecule GLP-1RA

Phase-3 RCT
72-weeks
Orfoglipron vs placebo
N=3127 **obese without DM**



Wharton et al, N Eng J Med 2025

Open-label, phase-3 RCT
52-weeks
Orfoglipron vs oral semaglutide
N=2134 **obese+DM patients**



Rosenstock et al, Lancet 2026

FDA approves Lilly's Foundayo™ (orforglipron), the only GLP-1 pill for weight loss that can be taken any time of day without food or water restrictions

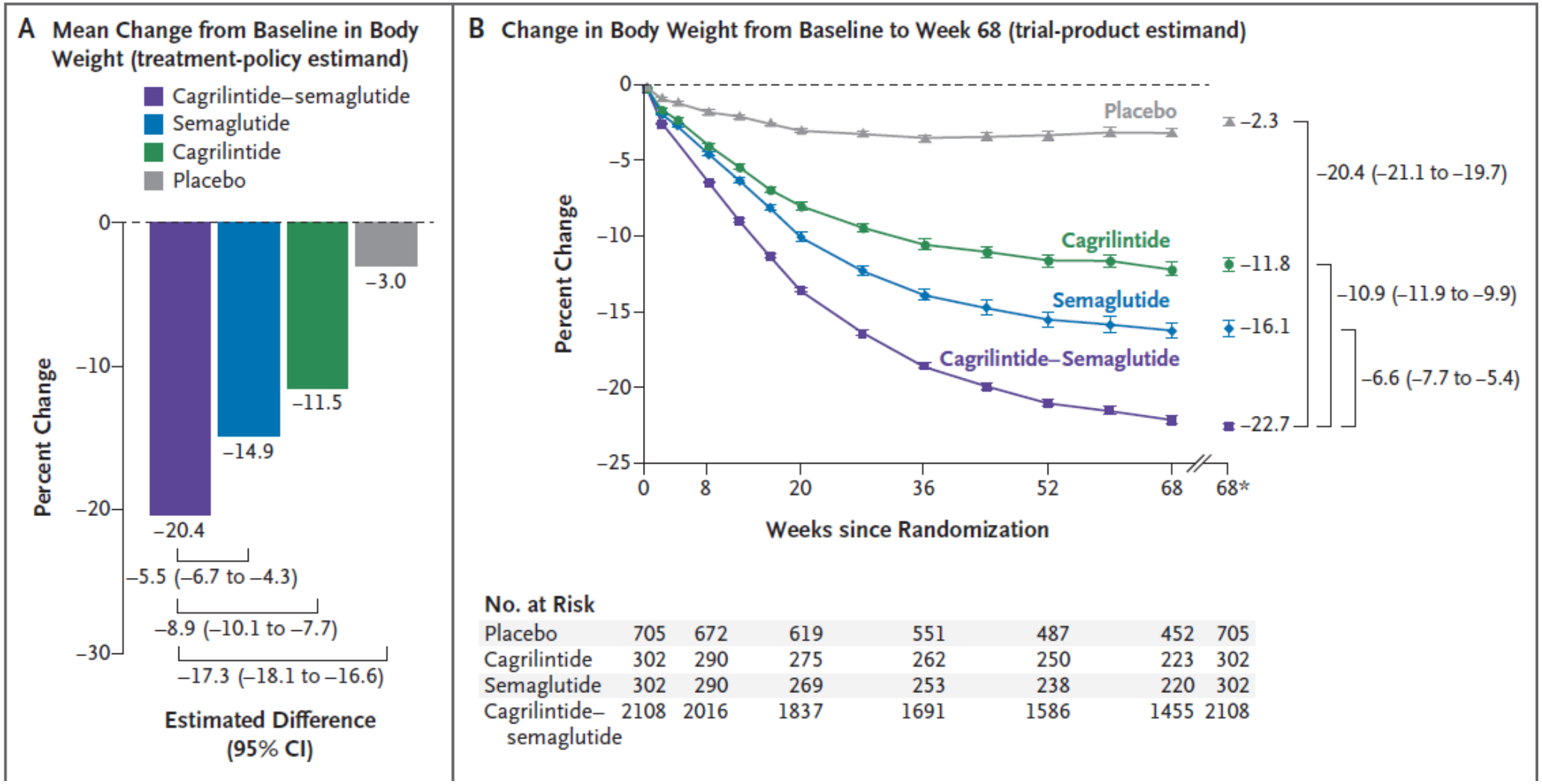
April 1, 2026

Cagri-sema σε παχύσαρκους χωρίς ΣΔ

Phase 3a RCT

Cagri-sema vs Cagrilintide vs Sema vs placebo

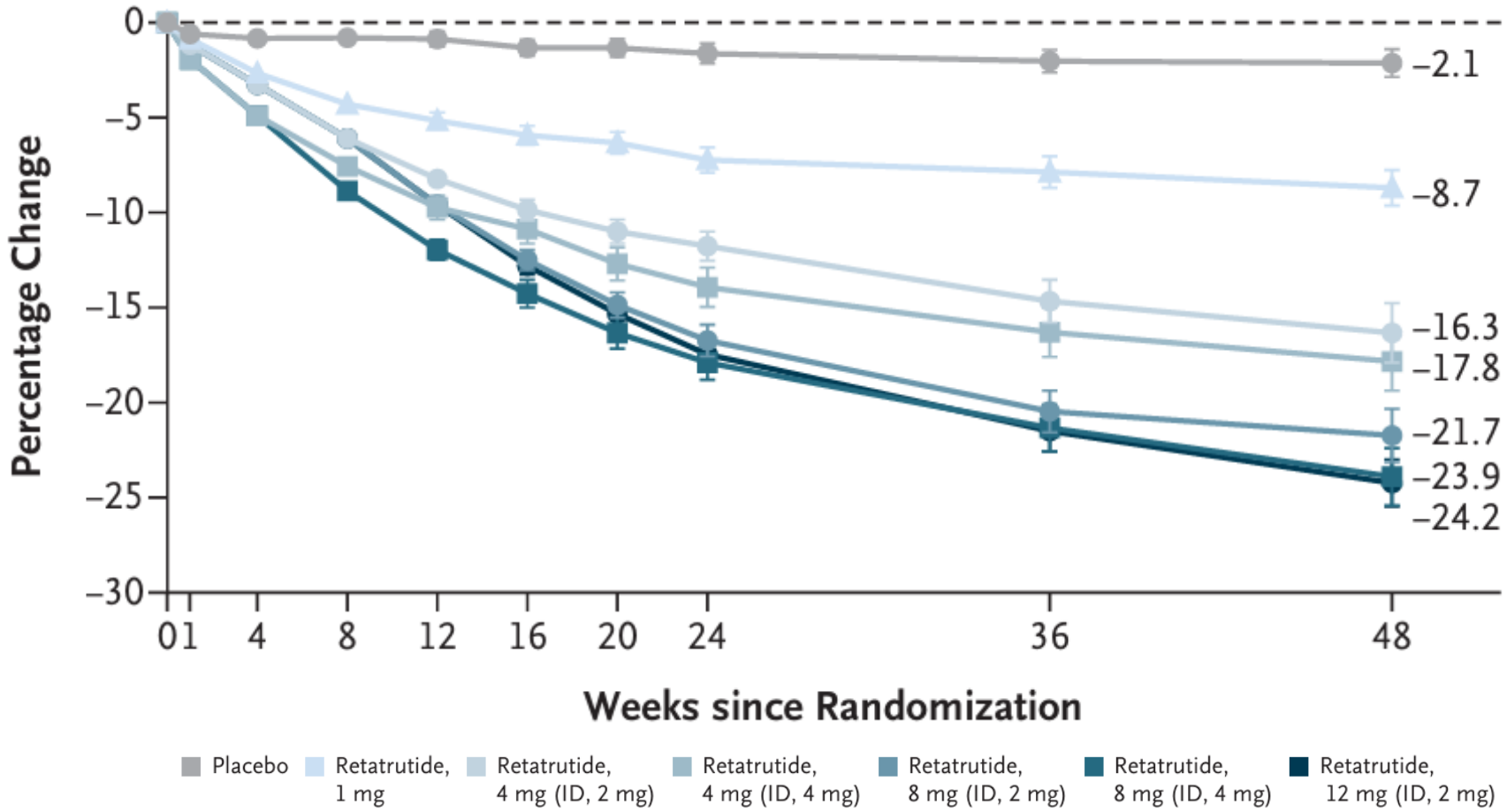
N=3,417 **παχύσαρκοι χωρίς ΣΔ**



Garvey et al. N Eng J Med 2026

Triple agonists (GLP-1/GIP/Glucagon): Retadrutide

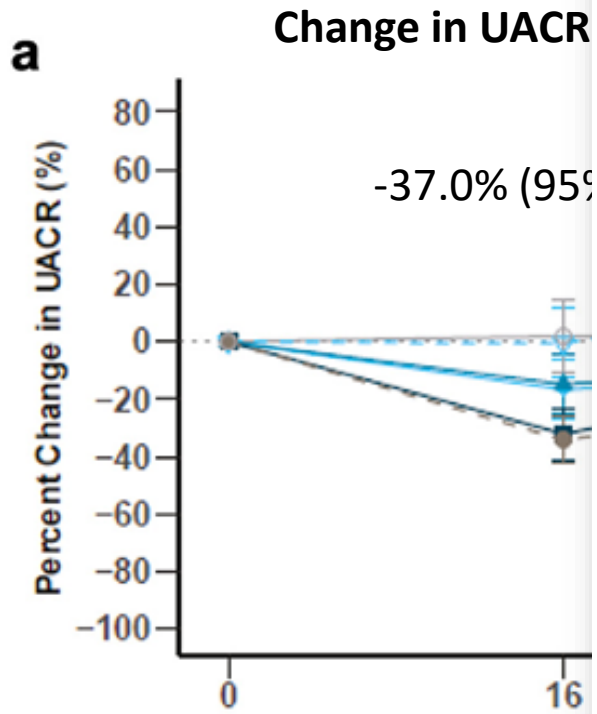
Phase 2 RCT
N=338 παχύσαρκοι ασθενείς

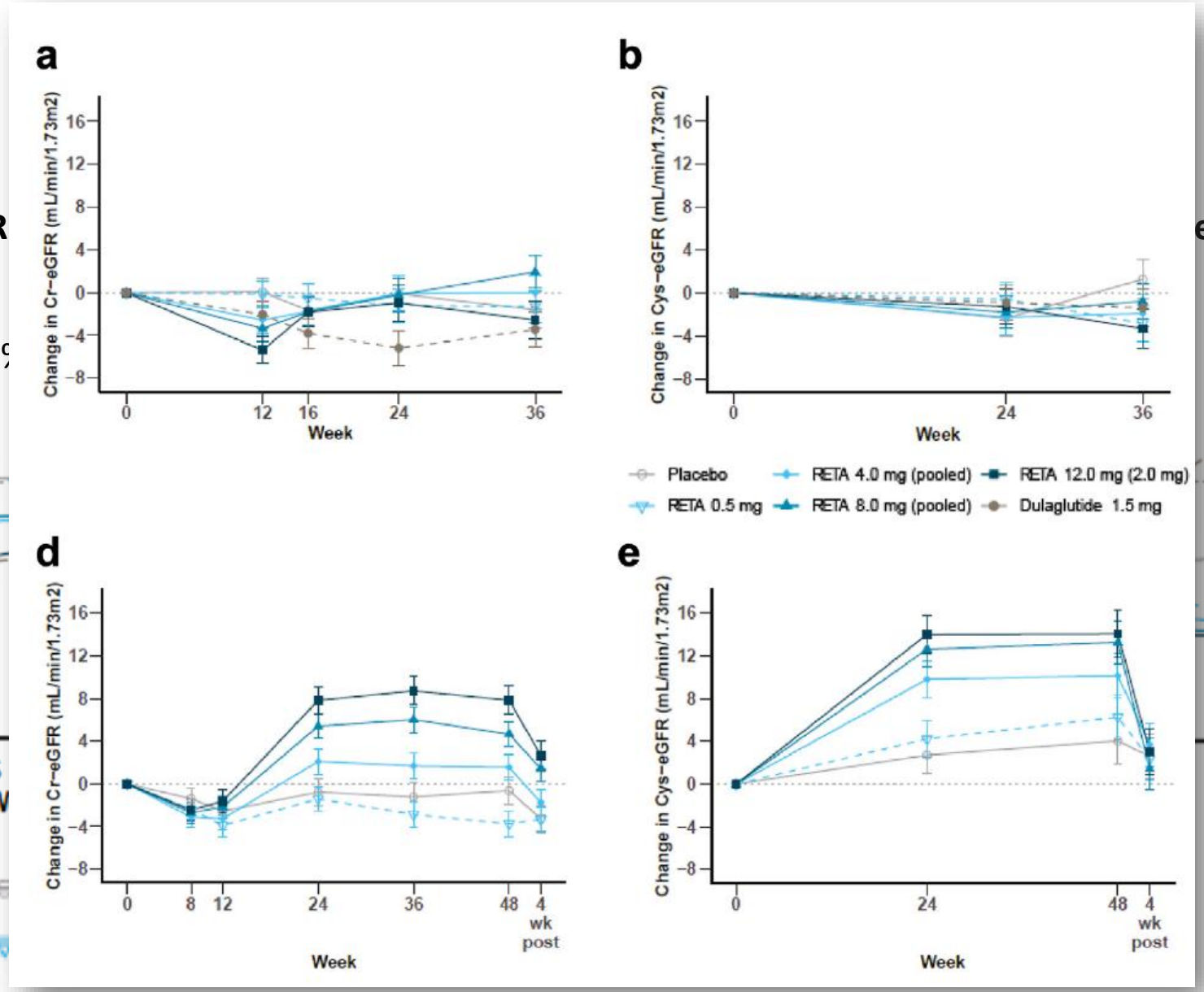


Jastreboff et al. N Eng J Med 2023

Retadrutide: post-hoc analysis for UACR and eGFR changes

Post-hoc analysis 2 RCTs
N=281 με ΣΔ and N=338 παχύσαρκοι χωρίς ΣΔ





Heerspink et al. Kidney Int Rep 2025