GLP-1 AGENTS AND WEIGHT LOSS

"ITS MORE THAN LOOKING GOOD"

Waist-Hip Ratio Chart for Ladies

HIPS	0.67	0.70	0.72	0.75	0.77	0.80	0.82	0.85	0.87	0.90	0.92	0.95	0.97	1.00	1.02
35	23.5	24.5	25.0	26.0	27.0	28.0	28.5	30.0	30.5	31.5	32.0	33.0	34.0	35.0	36.0
36	24.0	25.0	26.0	27.0	28.0	29.0	29.5	30.5	31.5	32.5	33.0	34.0	35.0	36.0	37.0
37	25.0	26.0	27.0	28.0	28.5	29.5	30.5	31.5	32.5	33.5	34.0	35.0	36.0	37.0	38.0
38	25.5	26.5	27.5	28.5	29.5	30.5	31.0	32.0	33.0	34.0	35.0	36.0	37.0	38.0	39.0
39	26.0	27.5	28.5	29.5	30.0	31.0	32.0	33.0	34.0	35.0	36.0	37.0	38.0	39.0	40.0
40	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0	36.0	37.0	38.0	39.0	40.0	41.0
41	27.5	28.5	30.0	31.0	32.0	33.0	34.0	35.0	36.0	37.0	38.0	39.0	40.0	41.0	42.0
42	28.0	29.5	30.5	31.5	32.5	33.5	34.5	35.5	37.0	38.0					
43	29.0	30.0	31.5	32.5	33.5	34.5	35.5	36.5	37.5	38.5					
44	29.5	31.0	32.0	33.0	34.0	35.0	36.5	37.5	38.5	39.5					
45	30.0	31.5	32.5	34.0	35.0	36.0	37.0	38.5	39.5	40.5					
46	31.0	32.0	33.0	34.5	36.0	37.0	38.0	39.0	40.5	41.5					
47	31.5	33.0	34.0	35.0	36.5	37.5	38.5	40.0	41.0	42.5					
48	32.0	33.5	35.0	36.0	37.0	38.5	39.5	41.0	42.0	43.0					
49	33.0	34.5	35.5	36.5	38.0	39.0	40.5	41.5	43.0	44.0					
50	33.5	35.0	36.0	37.5	38.5	40.0	41.0	42.5	43.5	45.0					

WHR

WAIST

Waist-Hip Ratio Chart for Men

Robert Chilton
Professor of Medicine
Director of cath lab
Associate interventional program director
Director of clinical proteomics UTHSCSA/NIH
University of Texas Health Science Center

ACOI 2023

STEP-HFpEF Trial

529 patients with and BMI >30 randomized

Once-weekly semaglutide (2.4 mg)
or placebo for **52 weeks**

Dual primary end points

1. Kansas City Cardiomyopathy Questionnaire clinical summary score (KCCQ-CSS; scores range from 0 to 100, with higher scores indicating fewer lifestyle limitations)

2. Change in body weight (median 231 pounds)(BMI 37)

DOI: 10.1056/NEJMoa2306963

Semaglutide in Patients with Heart Failure with Preserved Ejection Fraction and Obesity

M.N. Kosiborod, S.Z. Abildstrøm, B.A. Borlaug, J. Butler, S. Rasmussen, M. Davies, G.K. Hovingh, D.W. Kitzman, M.L. Lindaas, O.V. Møller, S.J. Shah, M.B. Treppendahl, S. Verma, W. Abhayaratna, F.Z. [illegible] V. Chopra, J. Ezekowitz, M. Fu, H. Ito, M. Lelonek, V. Melenovsky, B. [illegible] Muñez, E. Perna, M. Schou, M. Senni, K. Sharma, P. Van der Meer, [illegible]inski, D. Wolf, and M.C Petrie, for the STEP-HFpEF T[illegible]ees and Investigators*

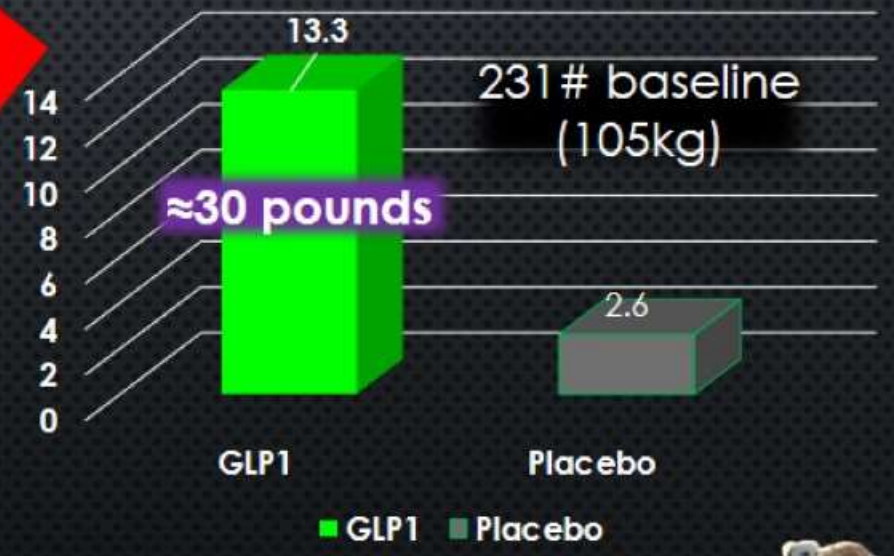
"Win for all mankind"
More than weight loss

ABSTRACT

BACKGROUND

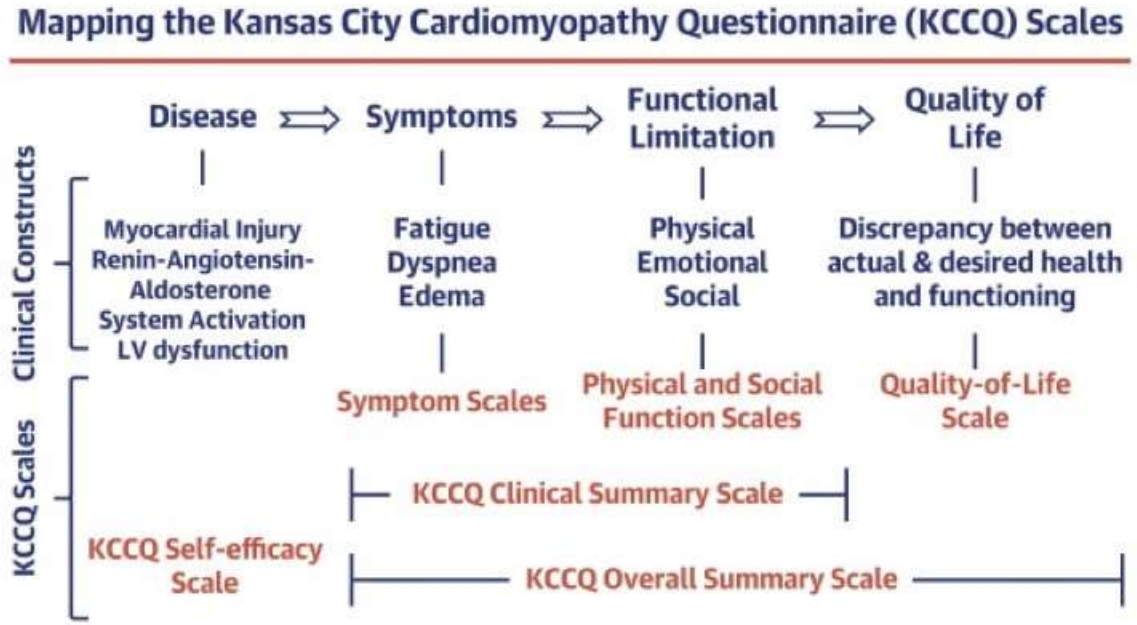
Heart failure with preserved ejection fraction is increasing in prevalence and is associated with a high symptom burden and functional impairment, especially in persons with obesity. No therapies have been approved to target obesity-related heart failure with preserved ejection fraction.

Percent weight loss at 52 weeks



Kansas City Cardiomyopathy Questionnaire clinical summary score (KCCQ-CSS; scores range from 0 to 100

CENTRAL ILLUSTRATION: Conceptual Mapping of the Kansas City Cardiomyopathy Questionnaire to Different Manifestations of Heart Failure

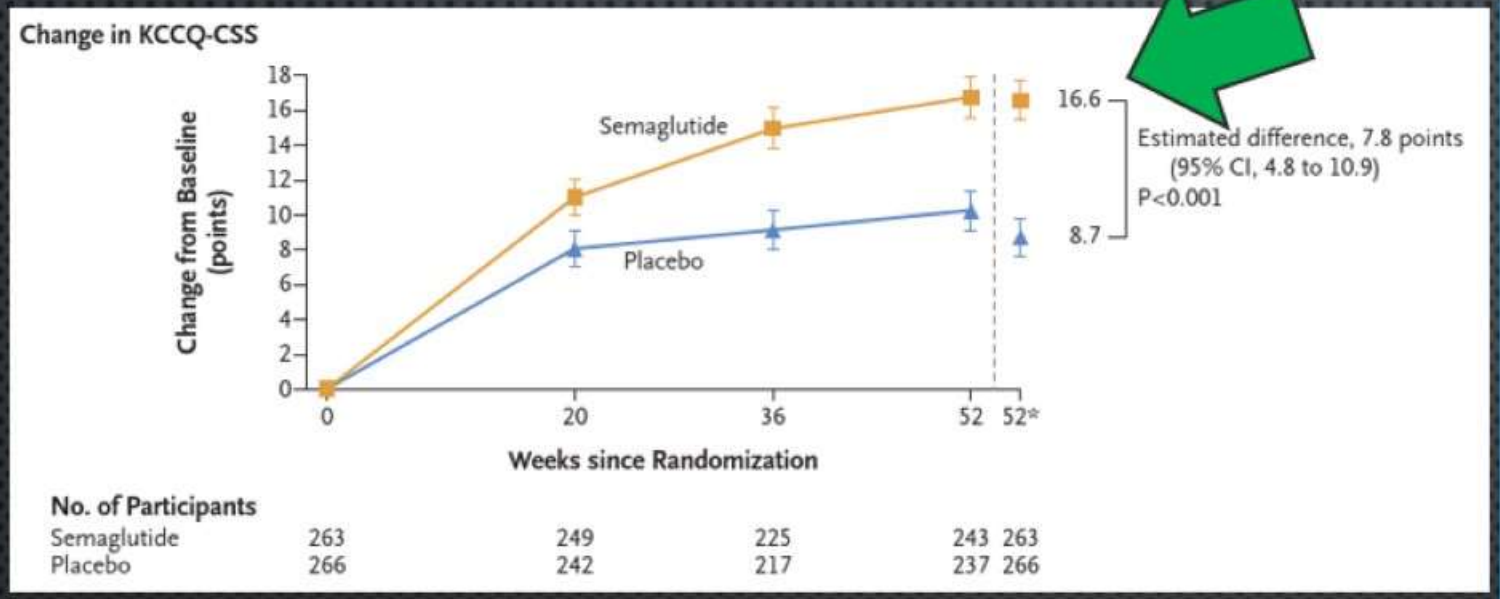


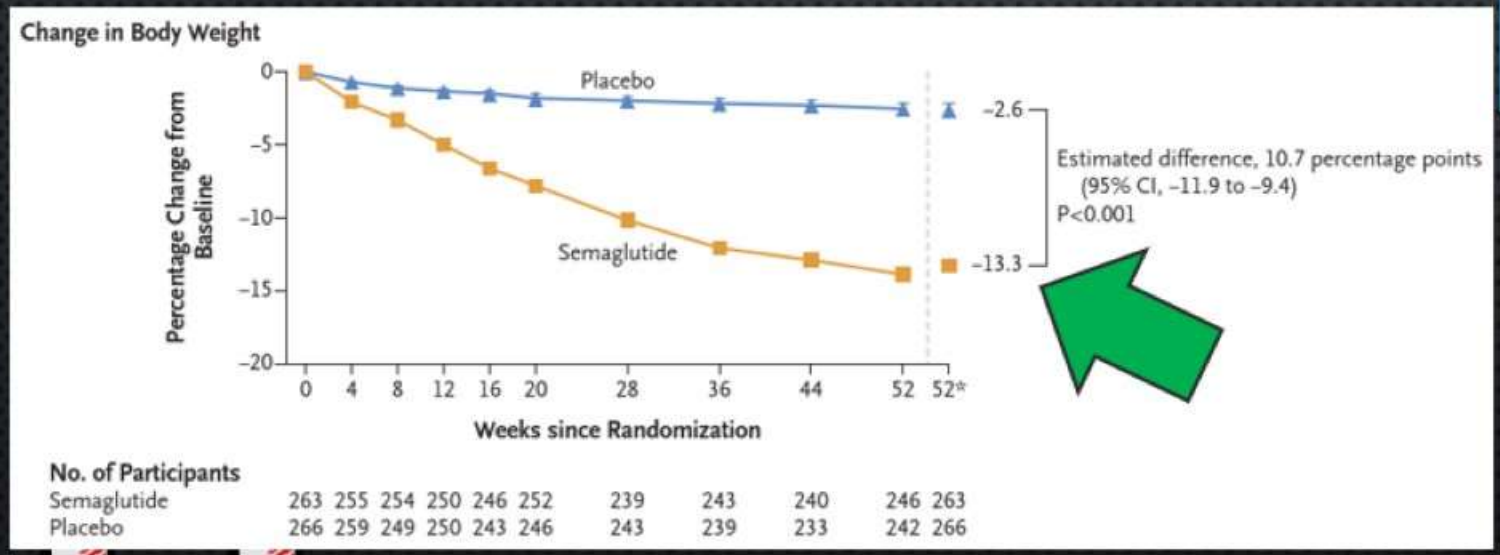
Spertus, J.A. et al. J Am Coll Cardiol. 2020;76(20):2379-90.

Higher scores indicating fewer symptoms and physical limitations

0 to 24: very poor to poor; 25 to 49: poor to fair; 50 to 74: fair to good; and 75 to 100: good to excellent

STEP-HFpEF Trial: Primary endpoints

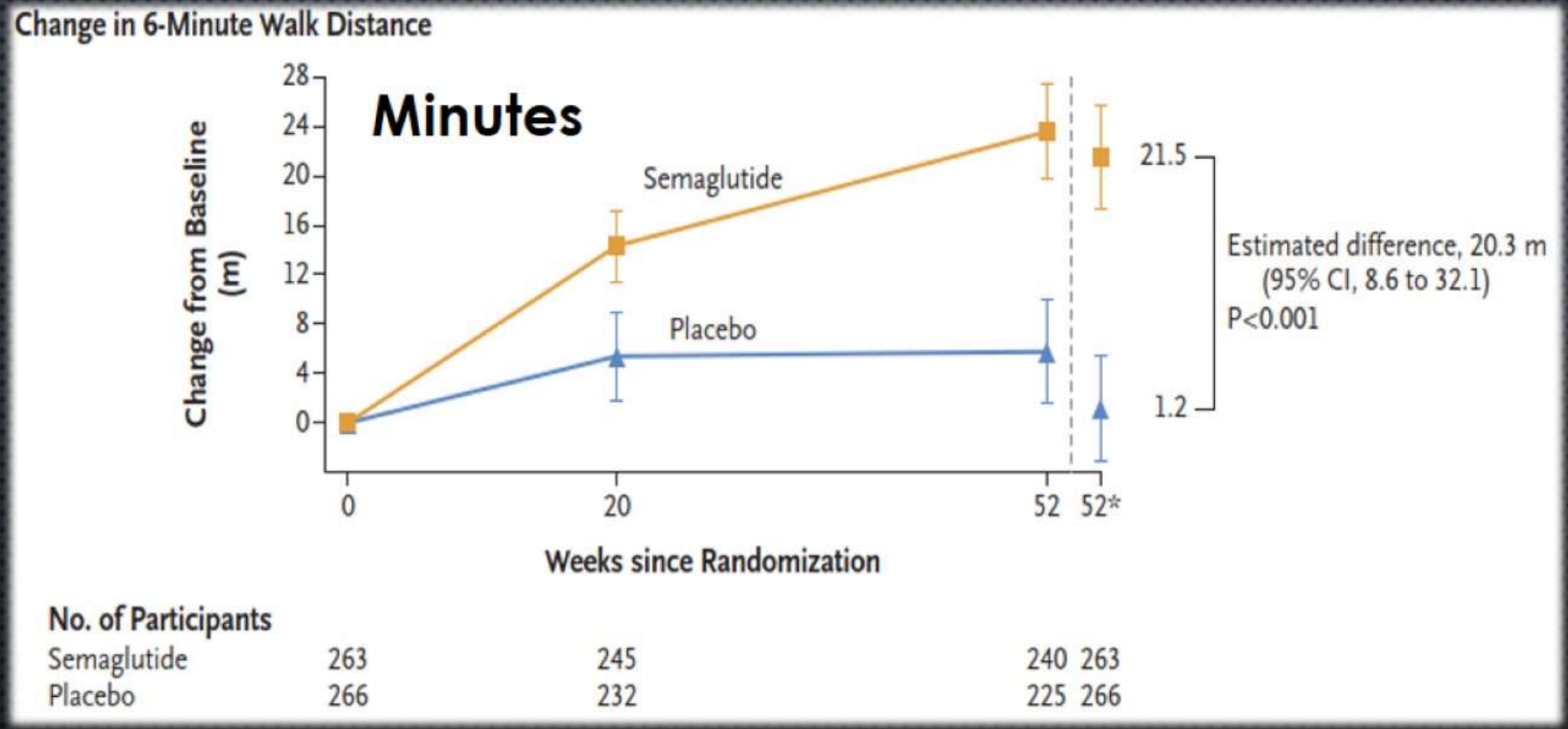




At **least one** of the following findings: elevated left ventricular filling pressures (on the basis of **direct** invasive measurements), elevated natriuretic peptide levels (with thresholds stratified according to the BMI at baseline) plus echocardiographic abnormalities, or hospitalization for heart failure in the 12 months before screening plus ongoing treatment with diuretics

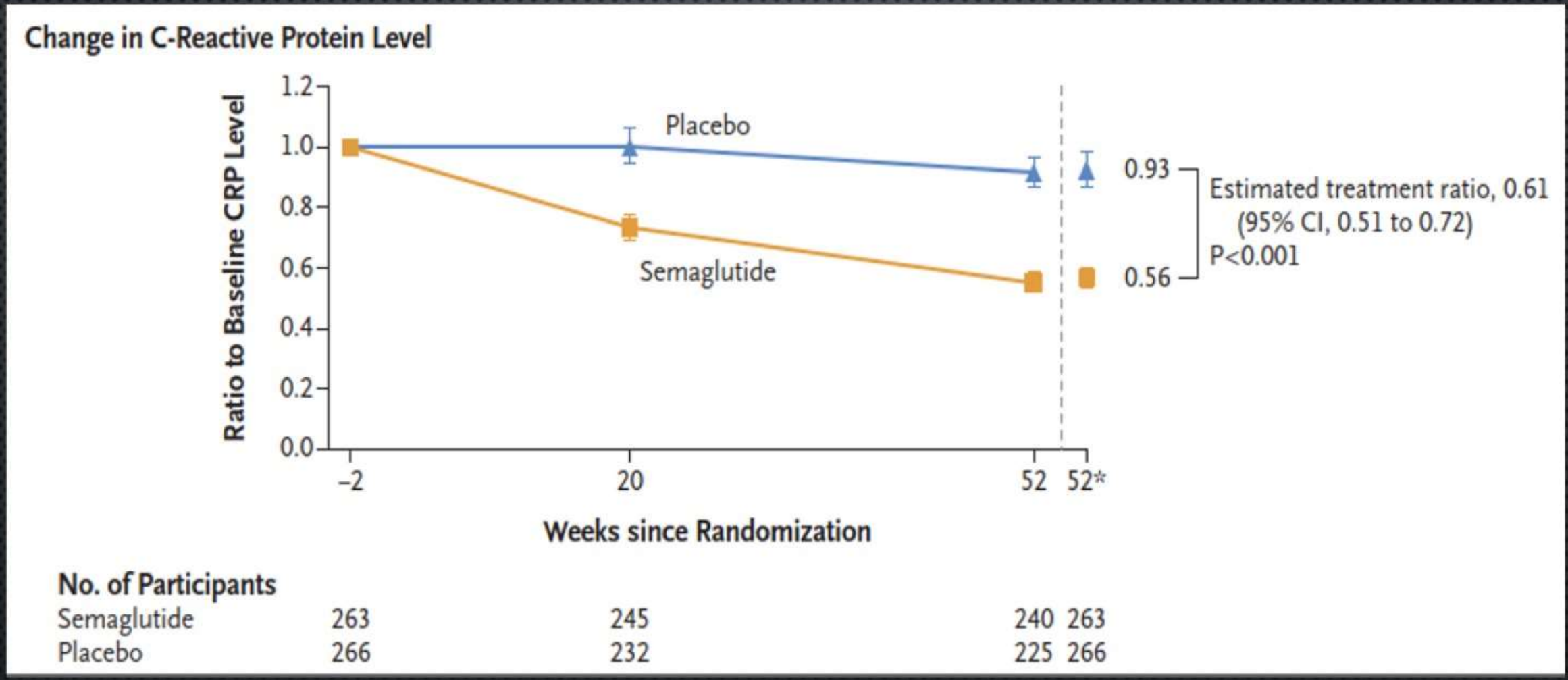
DOI: 10.1056/NEJMoa2306963

STEP-HFpEF Trial: Lifestyle walking distance



DOI: 10.1056/NEJMoa2306963

STEP-HFpEF Trial: Inflammation



DOI: 10.1056/NEJMoa2306963

NYHA Class II - Mild symptoms (mild shortness of breath and/or angina) and slight limitation during ordinary activity.

STEP-HFpEF Trial

Table 1. Baseline Demographic and Clinical Characteristics of the Participants.*

Median LVEF (IQR) — %	57.0 (50.0–60.0)	57.0 (50.0–60.0)	57.0 (50.0–60.0)
LVEF stratum — no. (%)			
45 to <50%‡	37 (14.1)	48 (18.0)	85 (16.1)
50 to 59%	113 (43.0)	102 (38.3)	215 (40.6)
≥60%	113 (43.0)	116 (43.6)	229 (43.3)
Median KCCQ-CSS (IQR) — points§	59.4 (42.7–72.9)	58.3 (40.5–72.9)	58.9 (41.7–72.9)
Median 6-minute walk distance (IQR) — m	316.0 (251.0–386.0)	325.8 (232.4–392.0)	320.0 (240.0–389.0)
Hospitalization for heart failure within 1 year — no. (%)	42 (16.0)	39 (14.7)	81 (15.3)
Coexisting conditions at screening — no. (%)			
Atrial fibrillation	135 (51.3)	140 (52.6)	275 (52.0)
Hypertension	216 (82.1)	217 (81.6)	433 (81.9)
Coronary artery disease	53 (20.2)	45 (16.9)	98 (18.5)
NYHA functional class — no. (%)			
II	183 (69.6)	167 (62.8)	350 (66.2)
III or IV	80 (30.4)	99 (37.2)	179 (33.8)

DOI: 10.1056/NEJMoa2306963

STEP-HFpEF Trial

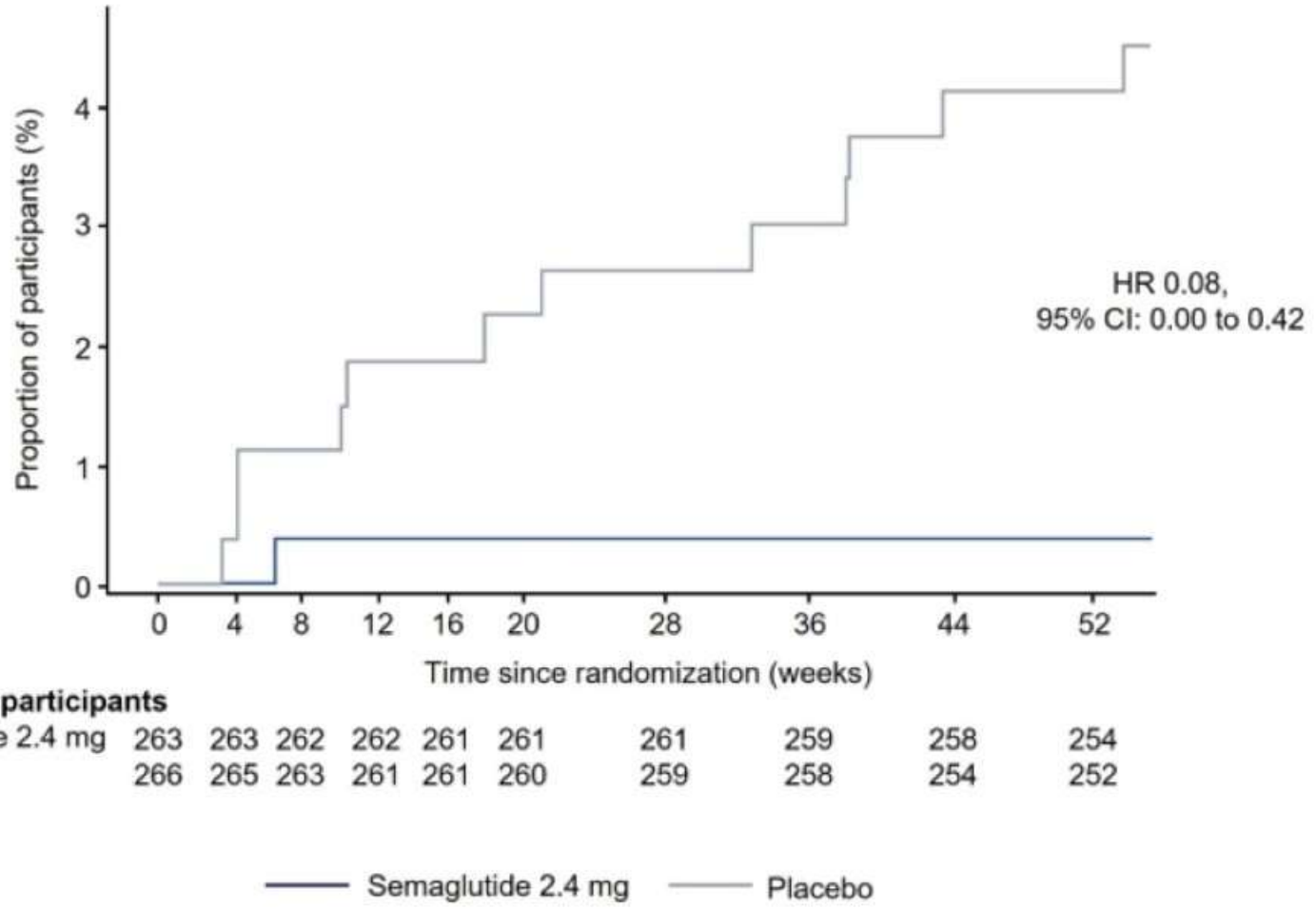
Table 2. Efficacy End Points.*

End Point	Semaglutide (N=263)	Placebo (N=266)	Estimated Difference or Ratio (95% CI)	P Value
Dual primary end points				
Change in KCCQ-CSS from baseline to week 52 — points	16.6	8.7	7.8 (4.8 to 10.9)†	<0.001
Percentage change in body weight from baseline to week 52	−13.3	−2.6	−10.7 (−11.9 to −9.4)†	<0.001
Confirmatory secondary end points				
Change from baseline to week 52 in 6-minute walk distance — m	21.5	1.2	20.3 (8.6 to 32.1)†	<0.001
Change from baseline to week 52 in CRP level — %	−43.5	−7.3	0.61 (0.51 to 0.72) ‡§	<0.001
Hierarchical composite end point — crude percentage of wins¶	60.1	34.9	1.72 (1.37 to 2.15)‖	<0.001

DOI: 10.1056/NEJMoa2306963

STEP-HFpEF Trial

Figure S6. Cumulative incidence plot of time from randomization to first heart failure event including HR and 95%CI



DOI: 10.1056/NEJMoa2306963

STEP-HFpEF Trial

Table S5. Number and proportion of participants with reportable adverse events

	Semaglutide 2.4 mg (N=263)			Placebo (N=266)		
	n (%)	No. of events	Events/100 person-year	n (%)	No. of events	Events/100 person-year
Serious adverse events	40 (15.2)	78	30.5	75 (28.2)	151	56.8
Serious adverse events leading to discontinuation of drug or placebo	6 (2.3)	7	2.7	6 (2.3)	7	2.6
Gastrointestinal disorders	1 (0.4)	1	0.4	1 (0.4)	1	0.4
Adverse events leading to discontinuation of drug or placebo	35 (13.3)	47	18.4	14 (5.3)	17	6.4
Fatal events	3 (1.1)	3	1.2	4 (1.5)	5	1.9
Most frequent serious adverse events*						
Cardiac disorders	8 (3.0)	10	3.5	33 (12.4)	50	17.2
Atrial fibrillation	4 (1.5)	4	1.4	10 (3.8)	13	4.5
Cardiac failure	0	0	0	13 (4.9)	14	4.8
Atrial flutter	0	0	0	3 (1.1)	5	1.72
Cardiac failure congestive	1 (0.4)	1	0.35	4 (1.5)	4	1.4

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Obesity epidemiology

Emergence of the obesity epidemic: 6-decade visualization with humanoid avatars

Michael C Wong,[1,2] Cassidy McCarthy,[3] Nicole Fearnbach,[3] Shengping Yang,[3] John Shepherd,[1] and Steven B Heymsfield[3]

[1]University of Hawaii Cancer Center, Honolulu, HI, USA; [2]Graduate Program in Nutritional Sciences, University of Hawaii at Manoa, Honolulu, HI, USA; and [3]Pennington Biomedical Research Center, Louisiana State University System, Baton Rouge, LA, USA

ABSTRACT

Background: Visualizations of the emerging obesity epidemic, such as with serial US color prevalence maps, provide graphic images that extend informative public health messages beyond those in written communications. Advances in low-cost 3D optical technology now allow for development of large image databases that include participants varying in race/ethnicity, body mass, height, age, and circumferences. When combined with contemporary statistical methods, these data sets can be used to create humanoid avatar images with prespecified anthropometric features.

Introduction

The global obesity epidemic began several decades ago (1) and continues unabated today (2). One of the most striking visual presentations of the rise in obesity prevalence are the color-coded US maps published by the CDC (3). Extending back several decades, the maps sequentially show the remarkable rise in obesity prevalence across the full United States by state and territory. These graphic images of obesity sweeping across the United States over several decades extend informative public health messages beyond those in written communications. Ivan

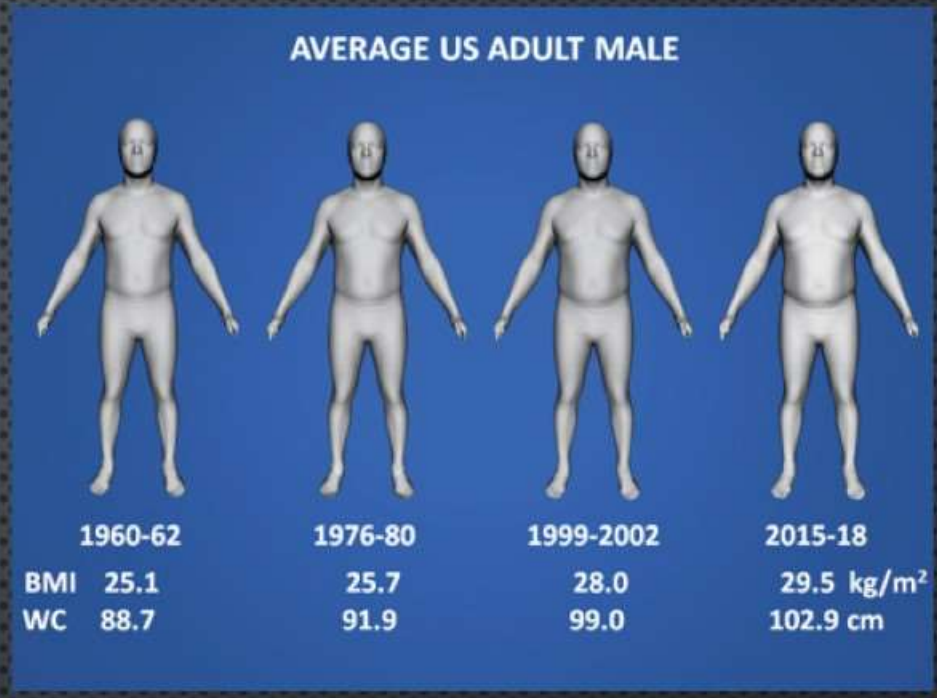
https://www.cdc.gov/obesity/data/databases.html

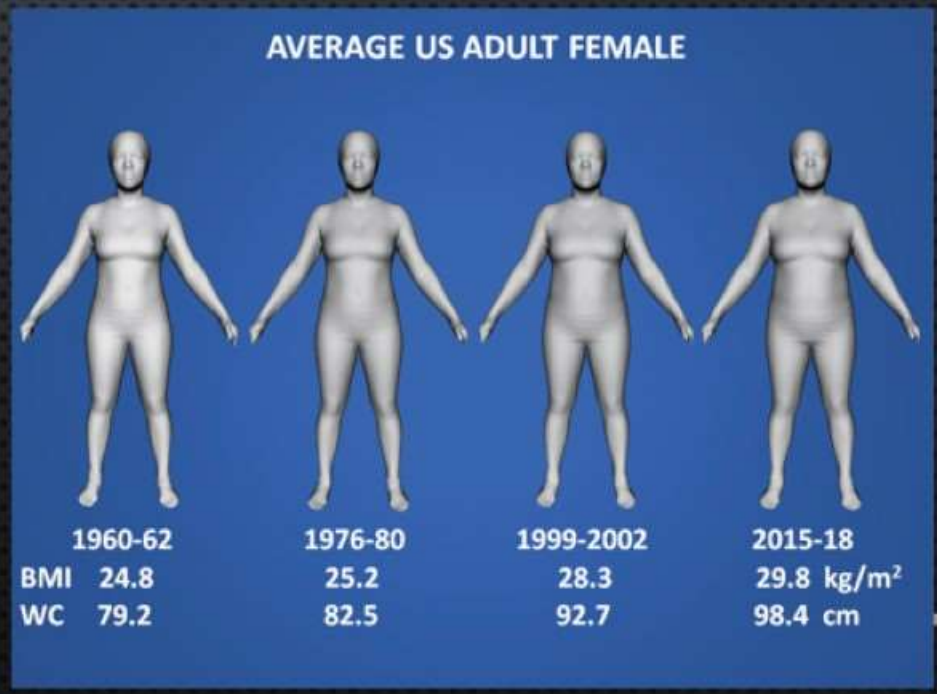
Avatars- signifies the material appearance on Earth.. Hinduism history

From 1960 up to the present represents almost a 60-y time span for which anthropometric data on US population

Obesity epidemiology

Am J Clin Nutr 2022;115:1189–1193

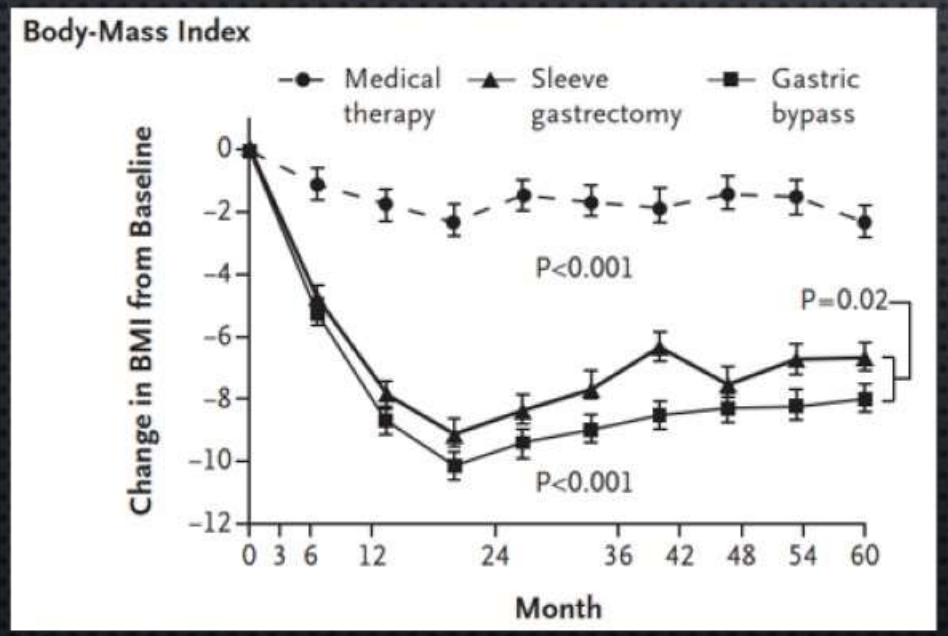




150 patients with type 2 diabetes and BMI 27 to 43 were randomly assigned

1- intensive medical therapy alone

2- intensive medical therapy plus Roux-en-Y gastric bypass or sleeve gastrectomy.



Bariatric Surgery versus Intensive Medical Therapy for Diabetes — 5-Year Outcomes

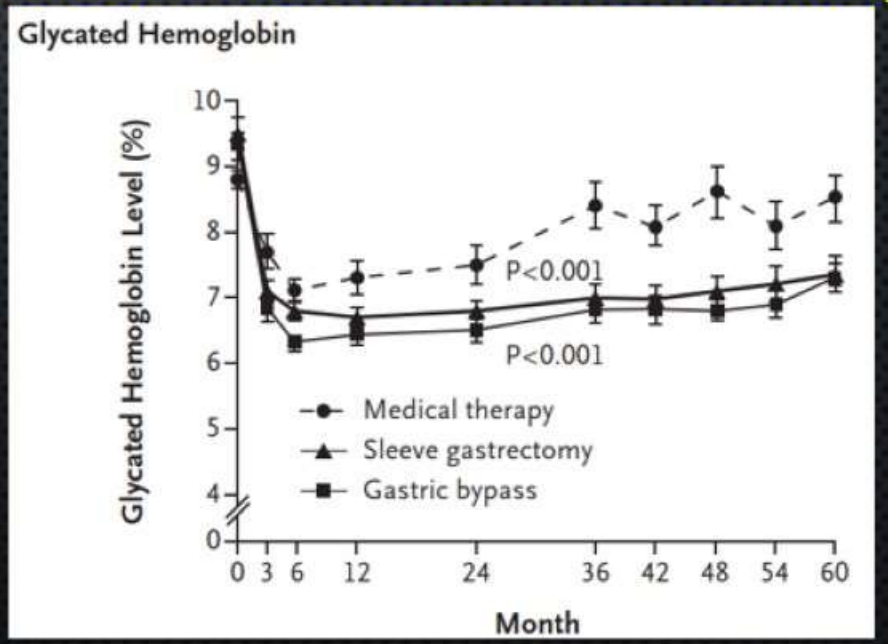
Philip R. Schauer, M.D., Deepak L. Bhatt, M.D., M.P.H., John P. Kirwan, Ph.D., Kathy Wolski, M.P.H., Ali Aminian, M.D., Stacy A. Brethauer, M.D., Sankar D. Navaneethan, M.D., M.P.H., Rishi P. Singh, M.D., Anne E. Pothier, M.P.H., Steven M. Nissen, M.D., and Sangeeta R. Kashyap, M.D., for the STAMPEDE Investigators*

STAMPEDE trial

5 years

Primary outcome: glycated hemoglobin level <6.0% with or without the use of diabetes medications

Bariatric surgery plus intensive medical therapy was more effective than intensive medical therapy alone



N Engl J Med 2017;376:641-51

STAMPEDE Investigators-5 years

	Gastric-bypass	Sleeve-gastrectomy	Medical-therapy
Triglyceride level	−40%	−29%	−8%
High-density lipoprotein cholesterol	32%	30%	7%
Use of insulin	−35%	−34%	-13%

One patient in the medical-therapy group had a **fatal myocardial infarction** and **one** patient in the sleeve-gastrectomy group had a **stroke**

Excessive weight gain was observed in 19% of the patients in the medical-therapy group and in no patients in surgical group (P<0.001)

N Engl J Med 2017;376:641-51

Look AHEAD Trial

5145 overweight or obese patients with type 2 diabetes

intensive lifestyle intervention that promoted weight loss through decreased caloric intake and increased physical activity (intervention group) Vs placebo

Trial stopped early on the basis of a futility analysis-9.6 yrs

Cardiovascular Effects of Intensive Lifestyle Intervention in Type 2 Diabetes

The Look AHEAD Research Group*

ABSTRACT

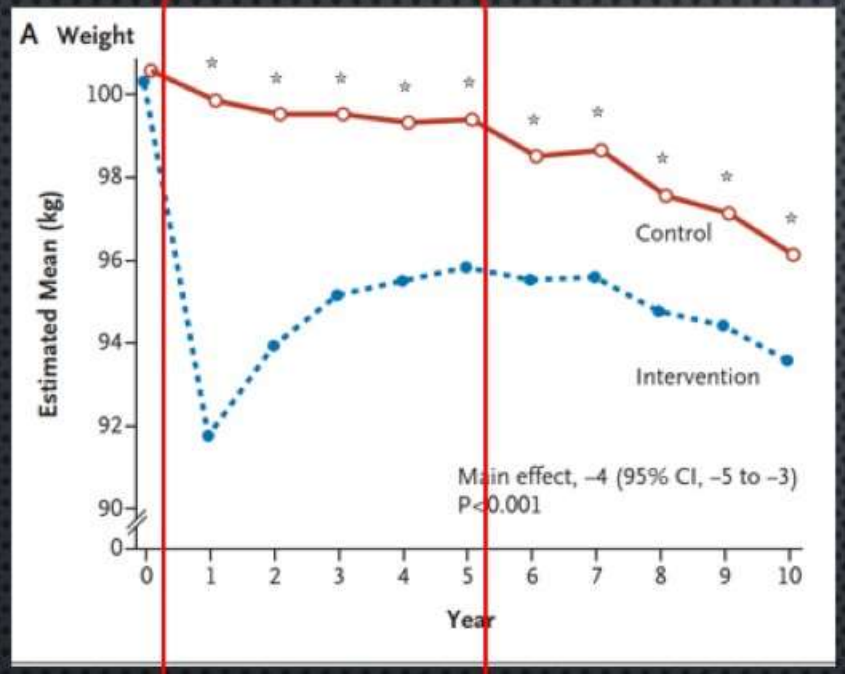
BACKGROUND

Weight loss is recommended for overweight or obese patients with type 2 diabetes on the basis of short-term studies, but long-term effects on cardiovascular disease remain unknown. We examined whether an intensive lifestyle intervention for weight loss would decrease cardiovascular morbidity and mortality among such patients.

Primary outcome was a **composite of death** from cardiovascular causes, **nonfatal myocardial** infarction, **nonfatal stroke**, or hospitalization for **angina** during a maximum follow-up of **13.5 years**

N Engl J Med 2013;369:145-54
Diabetes Care 2022;45:742–749

Look AHEAD Trial

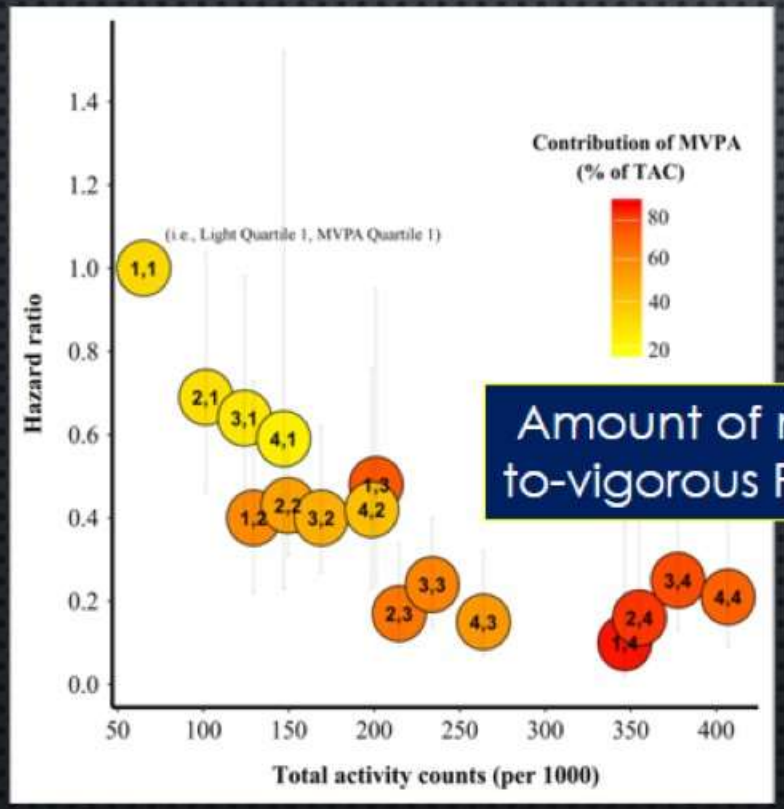


N Engl J Med 2013;369:145-54

Table 2. Primary and Secondary Outcomes and Other Cardiovascular Outcomes.*

Outcome	Patients with Event	Control Group	Intervention Group	Hazard Ratio (95% CI)	P Value
	no.	*no. of events (rate/100 person-yr)*			
Primary outcome					
Death from cardiovascular causes, nonfatal myocardial infarction, nonfatal stroke, or hospitalization for angina	821	418 (1.92)	403 (1.83)	0.95 (0.83–1.09)	0.51
Secondary outcomes					
Death from cardiovascular causes, nonfatal myocardial infarction, or nonfatal stroke	550	283 (1.25)	267 (1.17)	0.93 (0.79–1.10)	0.42
Other cardiovascular outcomes					
Death					
Any cause	376	202 (0.86)	174 (0.73)	0.85 (0.69–1.04)	0.11
Cardiovascular cause	109	57 (0.24)	52 (0.22)	0.88 (0.61–1.29)	0.52
Myocardial infarction					
Fatal or nonfatal†	354	191 (0.84)	163 (0.71)	0.84 (0.68–1.04)	0.11
Fatal	16	11 (0.05)	5 (<0.02)	0.44 (0.15–1.26)	0.13
Nonfatal	342	183 (0.80)	159 (0.69)	0.86 (0.69–1.06)	0.16
Hospitalization for angina	390	196 (0.87)	194 (0.85)	0.97 (0.80–1.19)	0.79
Stroke	165	80 (0.34)	85 (0.36)	1.05 (0.77–1.42)	0.78
Heart failure	218	119 (0.51)	99 (0.42)	0.80 (0.61–1.04)	0.10
CABG	525	269 (1.21)	256 (1.14)	0.93 (0.78–1.10)	0.41
Carotid endarterectomy	54	25 (0.11)	29 (0.12)	1.10 (0.64–1.87)	0.74

Total volume of PA rather than intensity seems to be the key driver in reducing the risk for **all-cause mortality**



Amount of moderate-to-vigorous PA (MVPA)

Volume of Light Versus Moderate-to-Vigorous Physical Activity: Similar Benefits for All-Cause Mortality?

Pedro F. Saint-Maurice, PhD; Richard P. Troiano, PhD; David Berrigan, PhD; William E. Kraus, MD; Charles E. Matthews, PhD

Background—It is unclear whether the greater benefits of moderate-to-vigorous physical activity (PA) over light PA are attributed to the higher-intensity PA or simply the greater volume of PA accumulated per unit time for moderate-to-vigorous PA. We examined this question using estimates of the *volume* of light and moderate-to-vigorous PA in relation to all-cause mortality.

Methods and Results—We used National Health and Nutrition Examination Survey 2003–2006 accelerometer records in adults (≥40 years; n=4840) and mortality data collected through 2011 (n=700 deaths). We estimated intensity-specific PA volume using activity counts (AC) accumulated in light (100–759 AC/min), moderate-to-vigorous PA (≥760 AC/min), and total PA (≥100 AC/min). We examined quartiles of each exposure using Cox proportional hazard models (hazard ratios [95% confidence interval) adjusted for demographic and behavioral risk factors, health status, and body mass index. Mortality risk was less across increasing quartiles of light PA volume (AC× 1000) when compared with the least quartile (AC ≤61.8); the least risk occurred in the upper quartile of light PA, AC >98.5 (hazard ratios=0.69, 95% confidence interval: 0.47, 1.00, *P* trend ≤0.05). The benefits for mortality risk were greater across quartiles of moderate-to-vigorous PA and reached a hazard ratio of 0.28 (95% confidence interval: 0.17,

National Health and Nutrition Examination Survey 2003–2006 accelerometer records in adults (≥40 years; n=4840) and mortality data collected through 2011 (n=700 deaths)

Greater volume of moderate-to-vigorous activity was associated with even lower mortality risk

J Am Heart Assoc. 2018;7:e008815

Table 1. Weighted US Proportions (Standard Error) for Covariates by Quartiles of Light and Moderate-to-Vigorous PA

n=4840	Light PA				Moderate-to-Vigorous PA			
	Q1 (n=1159)	Q2 (n=1215)	Q3 (n=1236)	Q4 (n=1230)	Q1 (n=1174)	Q2 (n=1217)	Q3 (n=1229)	Q4 (n=1220)
	% (SE)	% (SE)	% (SE)	% (SE)	% (SE)	% (SE)	% (SE)	% (SE)
Sex (male)	54.5 (2.4)	50.1 (1.8)	44.7 (2.2)	38.7 (1.6)	34.4 (1.6)	36.9 (1.9)	44.4 (1.5)	63.1 (1.5)
Ethnicity (non-Hispanic white)	80.2 (1.8)	80.3 (2.3)	77.8 (2.0)	72.3 (3.3)	81.7 (1.9)	75.7 (2.9)	76.3 (2.4)	77.3 (2.4)
BMI status (obese)	41.8 (1.9)	33.9 (1.9)	36.5 (1.8)	32.9 (1.7)	38.9 (1.7)	44.5 (1.6)	36.5 (2.0)	27.1 (1.4)
Education (<high school)	21.2 (1.8)	13.8 (1.8)	17.2 (1.5)	18.4 (1.3)	29.2 (2.6)	17.3 (1.2)	13.7 (1.4)	14.1 (1.4)
Alcohol consumption (current)	54.1 (2.3)	64.0 (2.0)	63.5 (2.3)	64.7 (2.5)	41.1 (2.5)	59.6 (1.9)	66.1 (2.7)	72.4 (2.1)
Smoking habits (current)	18.0 (1.6)	19.6 (1.9)	23.5 (1.8)	22.4 (1.6)	18.3 (1.5)	24.1 (2.1)	20.9 (1.1)	20.7 (1.2)
Diabetes mellitus (yes)	22.8 (1.6)	11.6 (1.6)	11.5 (0.9)	8.0 (0.8)	28.1 (1.9)	15.1 (1.1)	10.6 (0.9)	4.5 (0.8)
Stroke (yes)	9.6 (1.2)	2.9 (0.6)	2.5 (0.4)	2.1 (0.4)	12.0 (1.4)	3.4 (0.5)	2.5 (0.5)	1.0 (0.3)
Chronic heart failure (yes)	22.3 (1.7)	10.3 (1.0)	8.7 (1.3)	5.7 (0.7)	29.1 (1.8)	11.0 (1.5)	7.5 (1.0)	4.0 (0.6)
Reduced mobility (yes)	19.2 (1.4)	14.5 (1.6)	10.3 (1.2)	8.6 (0.9)	30.0 (1.4)	14.7 (1.2)	9.5 (1.2)	4.1 (0.7)
Cancer/malignancy (yes)	17.7 (1.4)	15.0 (1.2)	11.1 (0.9)	9.1 (0.8)	24.6 (1.5)	13.4 (1.4)	10.9 (1.0)	7.6 (1.0)

J Am Heart Assoc. 2018;7:e008815

ELSEVIER

Surgery for Obesity and Related Diseases ■ (2023) 1–11

Original article

Short-term cardiovascular events after bariatric surgery in patients with metabolic syndrome

Maryna Chumakova-Orin, M.D.[a], Jennifer L. Ingram, Ph.D.[b], Loretta G. Que, M.D.[b], Neha Pagidipati, M.D.[c], Alexander Gordee, M.A.[d], Maragatha Kuchibhatla, Ph.D.[d], Keri A. Seymour, DO, M.H.S.[e,*]

[a]*Department of Surgery, Dignity Health, Santa Maria, California*
[b]*Division of Pulmonary, Allergy and Critical Care Medicine, Department of Medicine, Duke University Medical Center, Durham, North Carolina*
[c]*Department of Cardiology, Clinical Research Institute, Duke University Medical Center, Durham, North Carolina*
[d]*Department of Biostatistics and Bioinformatics, School of Medicine, Duke University, Durham, North Carolina*
[e]*Department of Surgery, School of Medicine, Duke University, Durham, North Carolina*

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Primary endpoint: patients with MetS more frequently experienced MACE compared with patients without MetS (.3% versus .1%; P ,.001)

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760,076 patients aged 18 years with body mass index 35 kg/m2 who underwent primary bariatric surgery between 2015 and 2018

Postoperative MACE

Variable	MetS (n = 111,128)	Non-MetS (n = 466,754)	Total (n = 577,882)	*P* value
MACE	314 (.3%)	460 (.1%)	774 (.1%)	<.001
Intra-op or post-op myocardial infarction	85 (.1%)	86 (.02%)	171 (.03%)	<.001
Intra-op or post-op CVA	33 (.03%)	36 (.007%)	69 (.01%)	<.001
Death intra-op or within 30 d post-op	211 (.2%)	347 (.1%)	558 (.1%)	<.001
Intra-op or post-op cardiac arrest requiring CPR	107 (.1%)	133 (.03%)	240 (.04%)	<.001

MACE 5major adverse cardiovascular events

Translational biology of inflamed adipocytes

In the lookahead trial the greatest weight loss (10kg) was seen at

1. 1 year
2. 3 years
3. 5 years
4. 10 years

Answer 1 One year

QUESTION

Primary outcome of the STAMPEDE trial was glycated hemoglobin level <6.0% with or without the use of diabetes medications which represents the 2 arms of trial

1. Intensive medical treatment vs bariatric surgery
2. Pioglitazone vs DPPIV inhibitor
3. SGLT2 vs GLP1
4. Insulin vs GLP1
5. Weight loss vs GLP1

Answer 1. Medical vs surgery

Using the National Health and Nutrition Examination Survey which is the correct statement related to exercise and CV events

1. Total volume of physical activity rather than intensity seems to be the key driver in reducing the risk for all-cause mortality
2. Intensity of exercise is the key drive of reducing cardiovascular risk
3. There is no difference between low and high intensity exercise for CV events
4. There was increased mortality with exercise
5. None of the above

Answer 1 total volume wins

QUESTION

In the STAMPEDE trial which treatment reduced the triglycerides 40%

1. Intensive medical treatment
2. Pioglitazone
3. Roux-en-Y gastric bypass
4. Sleeve gastrectomy
5. 3 omega treatment group

Answer 3. gastric bypass

IN THE LOOKAHEAD TRIAL 5145 OVERWEIGHT OR OBESE PATIENTS WITH TYPE 2 DIABETES WERE RANDOMIZED TO WHAT 2 ARMS

1. Insulin + GLP1 vs GLP 1
2. intensive lifestyle intervention that promoted weight loss through decreased caloric intake and increased physical activity (intervention group) vs placebo
3. SGLT2 vs Insulin
4. SGLT2 + GLP1 vs lifestyle
5. Gastric bypass vs lifestyle

Answer 2. intensive lifestyle