



Management of obesity in elderly

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Road map

- Current obesity narrative
- I have a case
- Case review questions
- Patient perspective
- Obesity in elderly
- How to devise a management scheme
- Clinical pearls

Criteria for EASO-Collaborating Centres for Obesity Management

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Task Force of the European Association for the Study of Obesity



Obesity specialists come out of multiple disciplines

EASO Certification in Obesity Management



The EASO Certification in Obesity Management recognises national and European experts in obesity management.

Applicants must be a fully paid up member of their affiliated EASO National Association (where an affiliated Association exists in the applicant's country of residence). Each applicant should obtain a written endorsement from their National Association, or in special circumstances where no affiliated National Obesity Association exists, directly from EASO. Each application is reviewed by the EASO OMTF (Obesity Management Task Force) or EASO COTF (Childhood Obesity Task Force) as appropriate. Successful applicants will be notified by the EASO Secretariat. Nominations will be reported at each ECO, via the EASO website, in Obesity Facts and via EASO membership newsletters.



National Clinical Fellow

To qualify as an EASO National Clinical Fellow, an applicant must hold a role in an accredited EASO COM and/or complete the EASO endorsed AOMP e-learning programme. EASO will also accept candidates who have completed SCOPE or ABOM training. They must then meet the following criteria:

- ✓ **Be a certified physician or HCP**
- ✓ **Have undertaken training in a medical specialty** relevant to obesity management (E.G. Diabetes; Dietetics; Endocrinology; Gastroenterology; Health/Clinical Psychology Internal Medicine; Paediatrics; Physiotherapy; Primary Care; Surgery).
- ✓ **Clinical experience in obesity management** (not less than 5 years)
- ✓ **Continuing interest and updating in obesity management as shown by participation in international scientific meetings** (3 congress participations with accepted abstracts or invited presentations in the last 5 years, notably ECO).

European Clinical Fellow

To qualify as an EASO European Clinical Fellow, an applicant must hold a **management role** in an accredited EASO COM and meet the following criteria:

- ✓ **Be a certified physician or HCP**
- ✓ **Have undertaken training in a medical specialty** relevant to obesity management (E.G. Diabetes; Dietetics; Endocrinology; Gastroenterology; Health/Clinical Psychology Internal Medicine; Paediatrics; Physiotherapy; Primary Care; Surgery).
- ✓ **Clinical experience in obesity management** (not less than 10 years) with particular reference to referral of patients who are difficult to treat.
- ✓ **High-level engagement in scientific activities**, including participation and presentation at internationally renowned and recognized courses and congresses (3 presentations in last 5 years).
- ✓ **At least 10 international, peer-reviewed publications on obesity or obesity-related diseases**, preferably published over the last 5 years, or 20 publications with no time limit.

I have a case

- Mrs. Smith is A 72 yo woman who begins her story with the statement “I can not lose weight because I do not exercise”
- Appetite score: 8/10, physical activity score: 0/10. Eats 3 meals a day and has one snack late afternoon. Denies binge eating, night eating, is not bulimic, has stress eating and emotional eating
- Complains about sleepiness after lunch and dinner
- Has loud snoring and a Hx of CPAP usage
- She had several surgeries including TAH+BSO (myoma uteri), and right knee total replacement
- No family history for type 2 diabetes, medullary thyroid cancer or MEN-2. No smoking or alcohol
- Has only received professional help from a dietician.

Physical exam

Vital signs are unremarkable. Weight:106kg, Height: 160cm, BMI 42. Her waist circumference is 100cm. BP: 150/100mmHg, N:60/min NSR. No stigmata for Cushing's syndrome or sign of Acanthosis nigricans. No facial or pretibial edema. The rest of the examination is unremarkable.

Laboratory results

FBG	117mg/dl	Creatinine	0.98mg/dl	Hb	14.3g/dl	25OH VitD	35ng/ml
OGTT	177mg/dl	BUN	13mg/dl	Ferritin	70ng/ml	TSH	2.5μIU/ml
HbA1c	%5.95	Na	140mmol/L	Vit B12	496pg/ml	Albuminuria	15mg/g
Insulin	18.5uU/ml	K	4.5mmol/L	Leucocyte	7,660/μL	Abdominal US	MAFLD
Total Cholesterol	216mg/dl	Uric acid	5.7mg/dl	Platelet	399,000/μL		
Triglyceride	136mg/dl	ALT	45U/L	Ca	9.5mg/dl		
HDL-Cholesterol	43mg/dl	AST	25U/L	P	3.7mg/dl		
LDL-Cholesterol	148mg/dl	CPK	42U/L	Albumin	4.4g/dl		

Case review questions

1. What are your diagnoses?
2. What is your treatment plan?
3. Do you think aging may alter your treatment plans?
4. Is Mrs. Smith a candidate for an antiobesity drug?
5. Is Mrs. Smith a candidate for bariatric surgery?
6. What is your follow-up plan?

Current diagnoses

1. Obesity
2. Prediabetes
3. Insulin resistance
4. Hypertension
5. MAFLD
6. Sleep apnea
7. Osteoarthritis

Behaviour modification

Nutrition recommendations:

- Hypocaloric diet with 250-750 Cal/day deficit
- High protein >1.0g/kg high quality
- Vitamin D, vitamin B₁₂ replacement

Physical activity prescription

- Physical performance assessment
- Pre-exercise CVD risk analysis
- Simultaneous diet plus exercise (Aerobic & anaerobic)

Preparing the patient for a change

- Impaired cognition
- Depression
- Loneliness
- Age stigma
- Quality of life

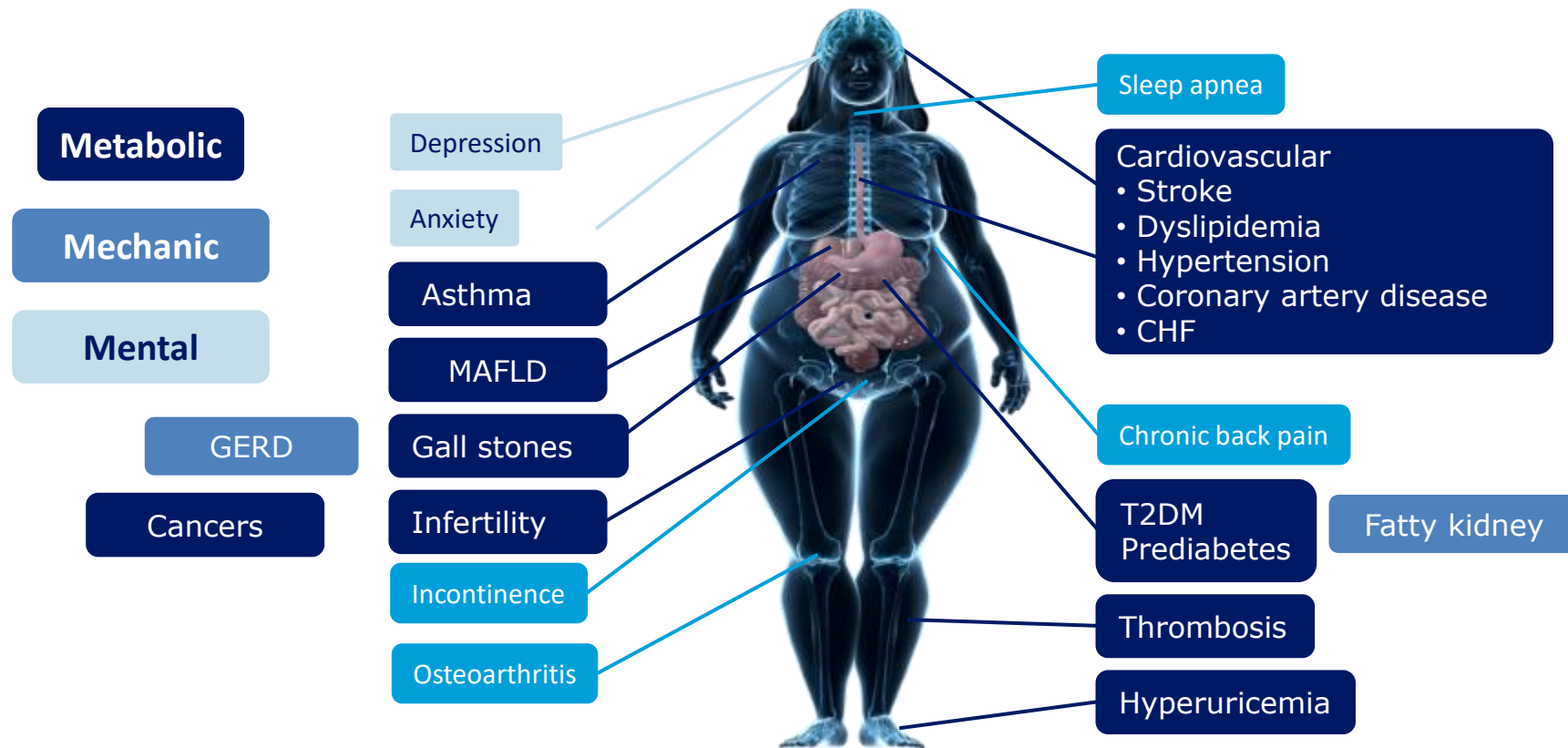
Treatment & follow-up

1. Obesity management
 - Behaviour modification
 - Anti-obesity medication
2. Hypertension management
 - Behaviour modification
 - ARB or ACEI plus CCB or
 - ARB/ACEI plus thiazide
3. Preobesity+IR
 - Behaviour modification
 - Weight loss and maintenance
 - Biguanide
4. Obstructive sleep apnea
 - Weight loss and maintenance
 - CPAP
5. Osteoarthritis
 - Weight loss and maintenance
 - NSAIDs

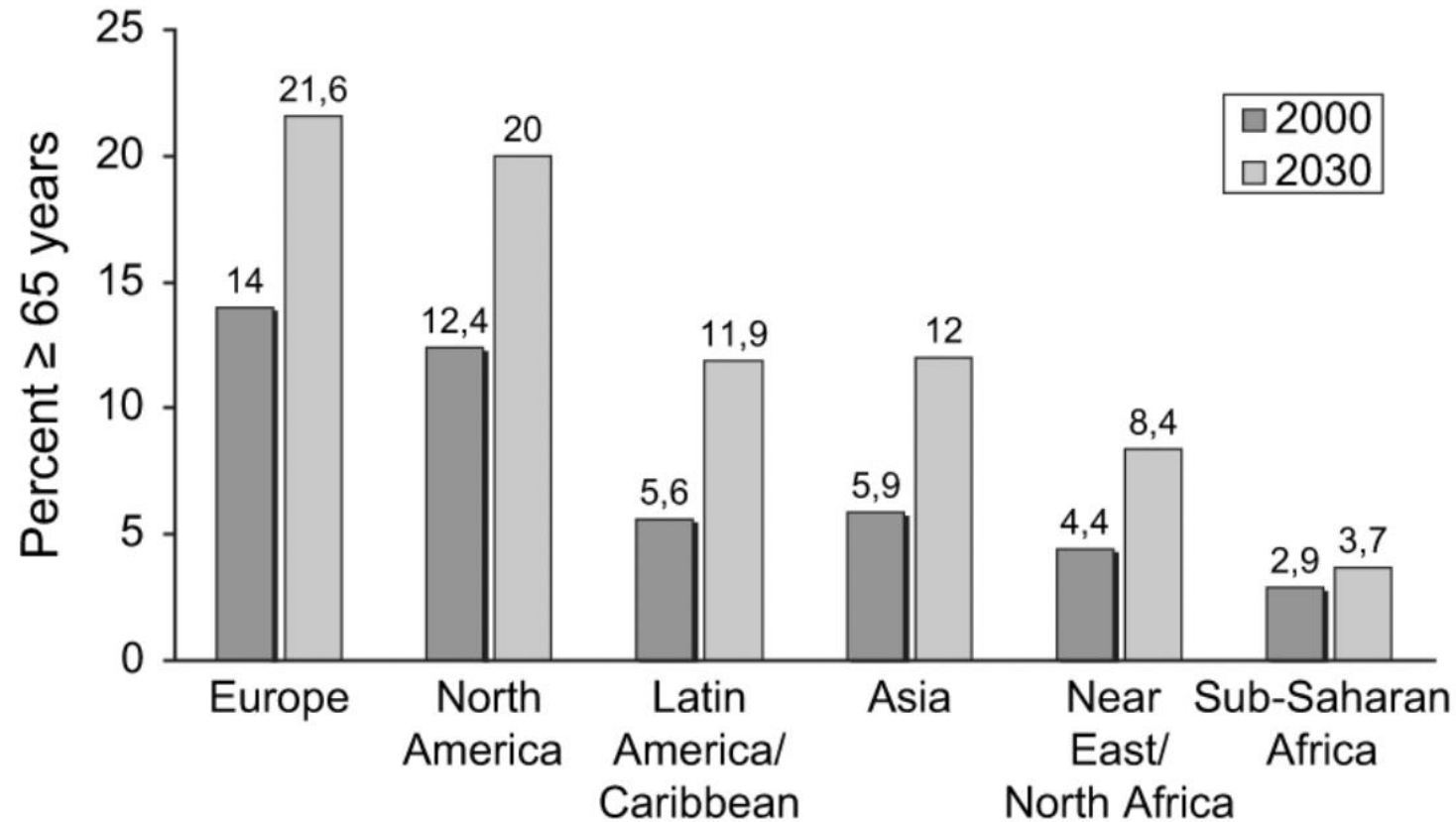
Patient perspective

- My weight problem was brought up by my GP for the first time
- I did not know obesity could be the root cause for my knee degeneration & pain
- I am very happy to have discussed obesity treatment alternatives
- I am getting support from a multidisciplinary team and it seems like I am changing
- I learned that the caring team is saving my muscles and bones
- My quality of life has gone up so much

Complications of obesity

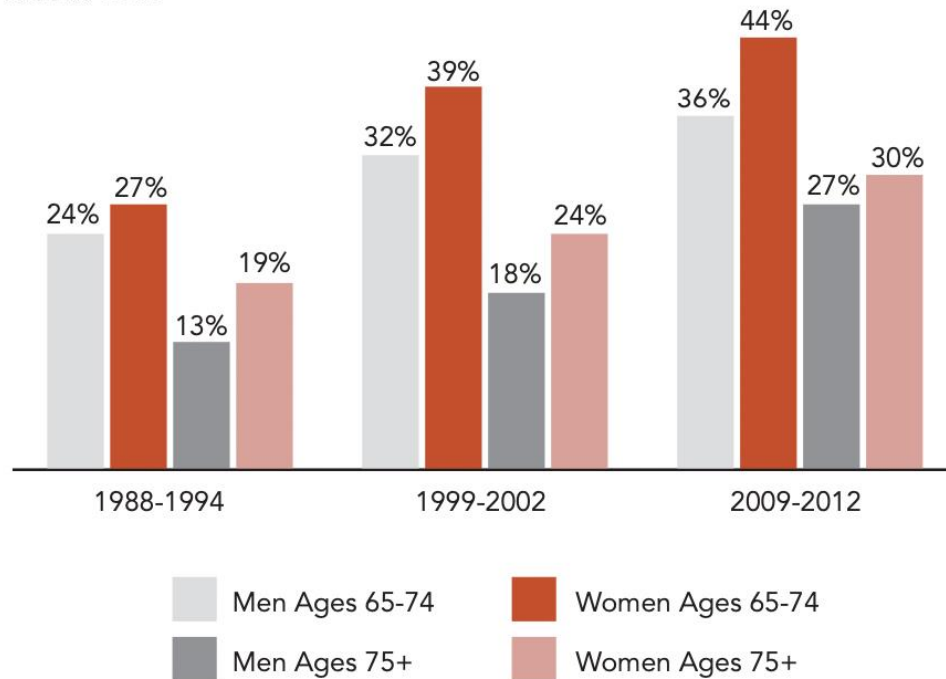


The ageing populaton of the world

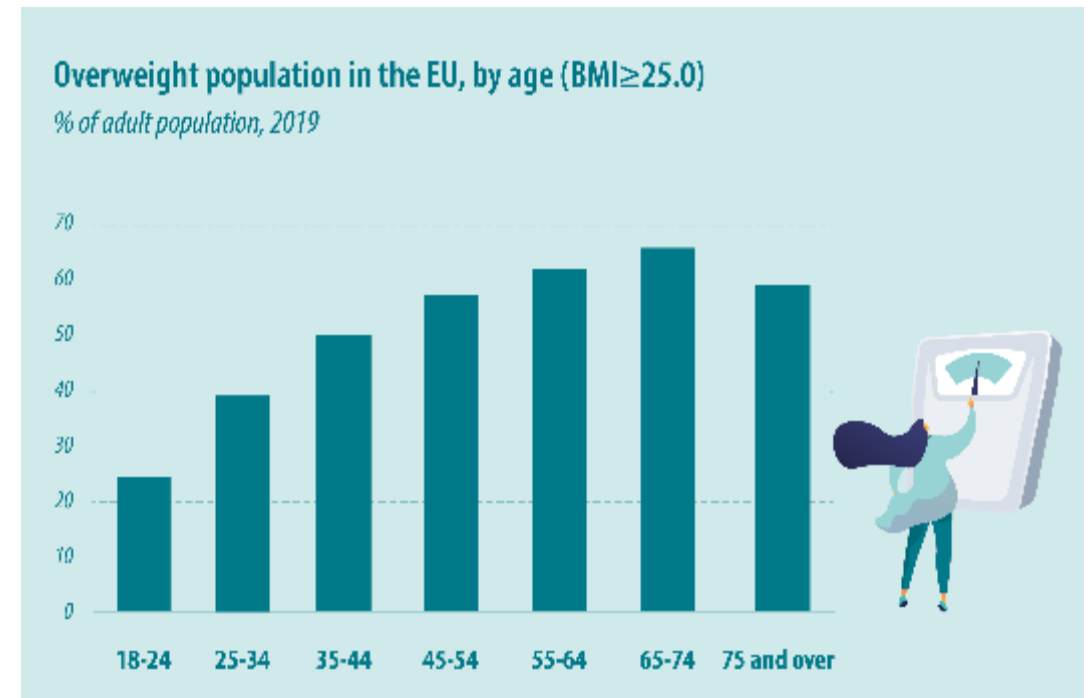


Obesity in elderly

Adults Ages 65 and Older Who Are Obese, by Sex and Age Group, 1988 to 2012



Population Bulletin 2015, www.prb.org

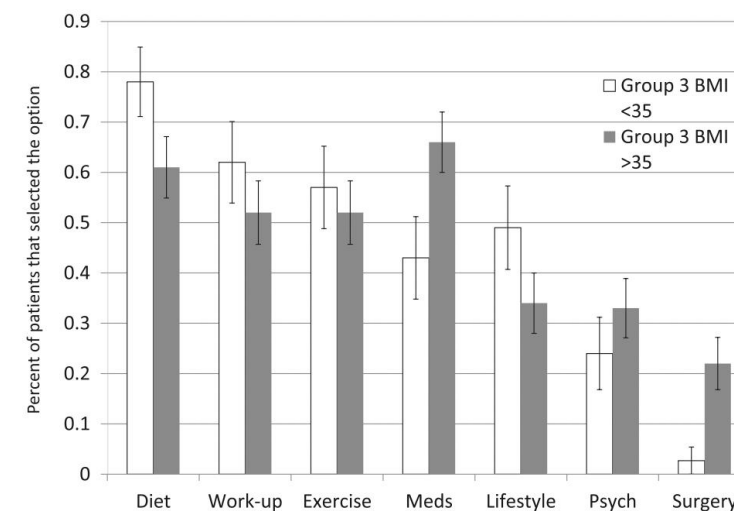
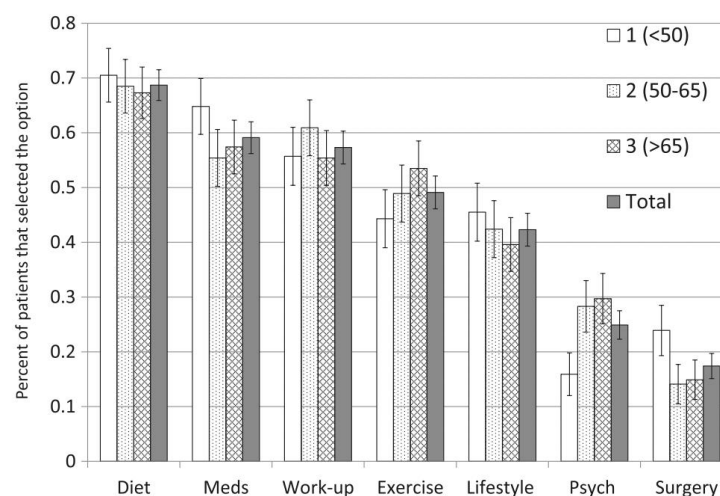
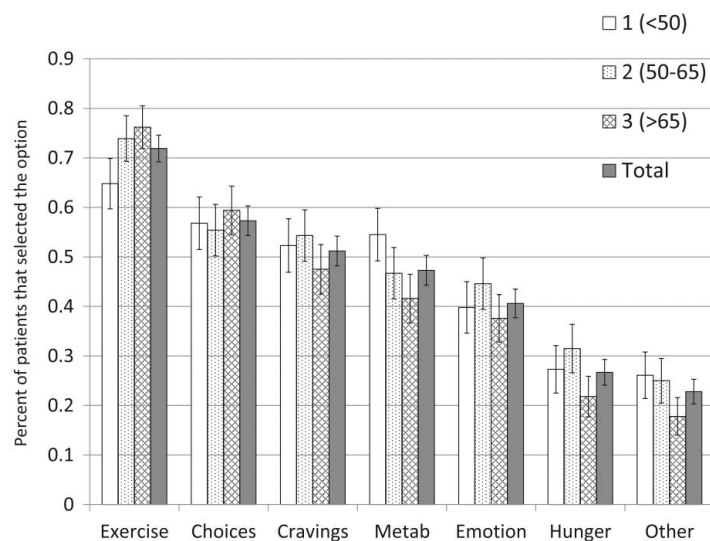


ec.europa.eu/eurostat

A survey on geriatric patients with overweight & obesity

Geriatric weight loss options

Why do you think you are overweight or obese? What treatment options would you like to discuss? What treatment options would you like to discuss?



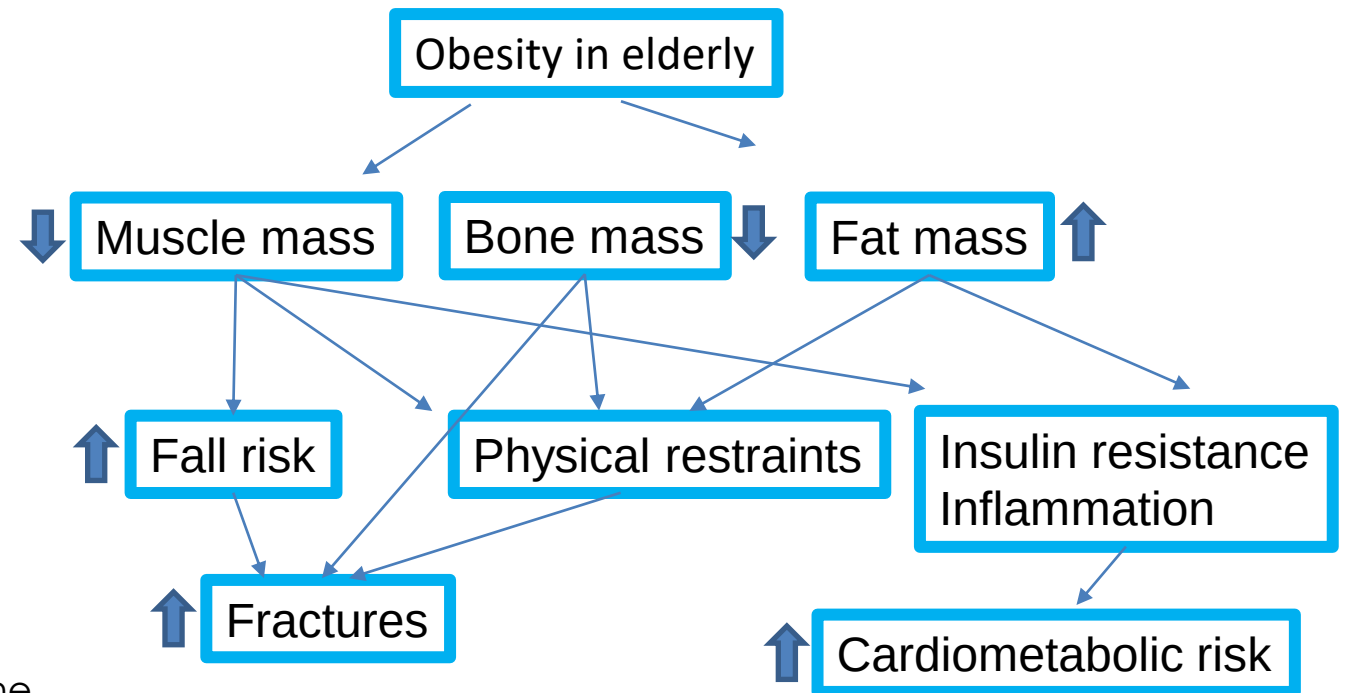
Physiology of ageing & physiopathology of obesity in elderly

Review Article

Prevalence, Pathophysiology, Health Consequences and Treatment Options of Obesity in the Elderly: A Guideline

Elisabeth M.H. Mathus-Vliegen^a on behalf of the Obesity Management Task Force (OMTF) of the European Association for the Study of Obesity (EASO); members: Arnaud Basdevant^b Nick Finer^c Vojtech Hainer^d Hans Hauner^e Dragan Micic^f Maximo Maislos^g Gabriela Roman^h Yves Schutzⁱ Constantine Tsigos^j Hermann Toplak^k Volkan Yumuk^l Barbara Zahorska-Markiewicz^m

20–70 age range, progressive decrease in FFM by 40%, decline in BMR by 30%; >70 yrs, FM & FFM decrease in parallel, but an increase in abdominal fat, decrease in physical activity occur



Weight loss in elderly

- **Benefits**

- T2DM risk reduction
- CVD risk reduction
- Improved respiratory function
- Improved functional capacity
- Improved QoL
- Improved BG, BP and lipid control

- **Risks**

- Gall stone formation
- Nutritional deficiencies
- BMD loss & increased fractures
- Sarcopenia

Weight loss & sarcopenia in elderly

Health, Aging & Body Composition Study

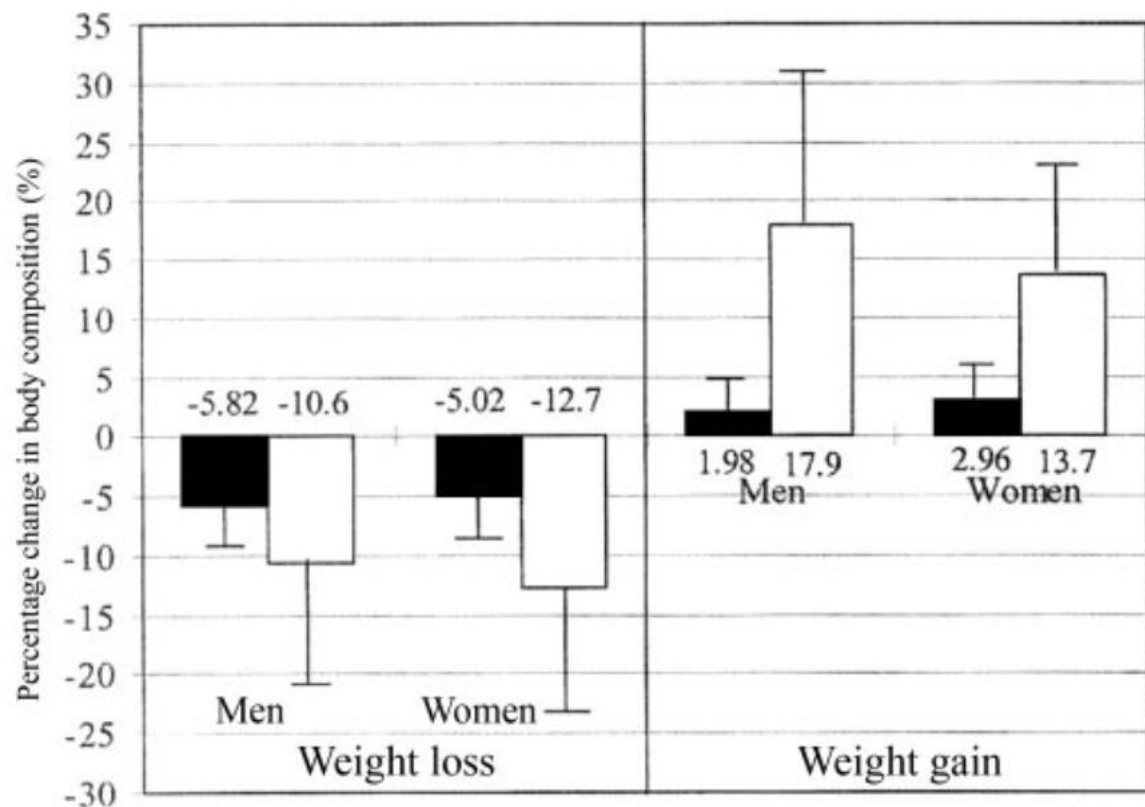


FIGURE 1. Mean ($\pm$ SD) percentage changes in lean (■) and fat (□)

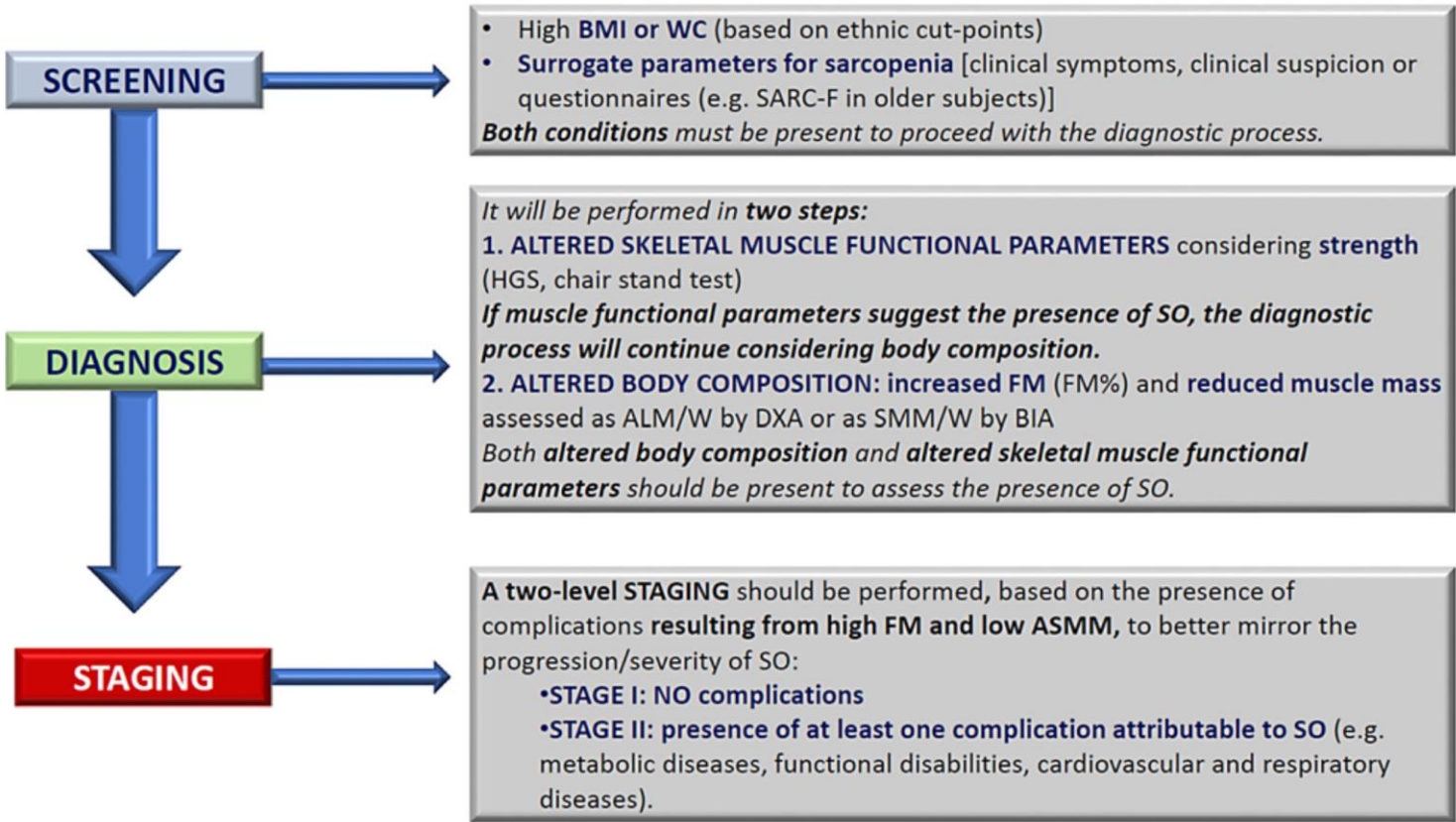
- 2163 participants, 52.5% women, aged 70-79 years, followed for 4 years
- Body composition measured by dual-energy X-ray absorptiometry
- More lean mass was lost with weight loss than was gained with weight gain
- Weight loss could accelerate sarcopenia in elderly

Definition and Diagnostic Criteria for Sarcopenic Obesity: ESPEN and EASO Consensus Statement

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SARC-F Screen for Sarcopenia

Component	Question	Scoring
Strength	How much difficulty do you have in lifting and carrying 10 pounds?	None = 0 Some = 1 A lot or unable = 2
Assistance in walking	How much difficulty do you have walking across a room?	None = 0 Some = 1 A lot, use aids, or unable = 2
Rise from a chair	How much difficulty do you have transferring from a chair or bed?	None = 0 Some = 1 A lot or unable without help = 2
Climb stairs	How much difficulty do you have climbing a flight of 10 stairs?	None = 0 Some = 1 A lot or unable = 2
Falls	How many times have you fallen in the past year?	None = 0 1–3 falls = 1 4 or more falls = 2



Diagnostic procedure for the assessment of sarcopenic obesity. ALM/W, appendicular lean mass adjusted to body weight; ASMM, absolute skeletal muscle mass; BIA, bioelectrical impedance analysis; BMI, body mass index; DXA, dual X-ray absorptiometry; FM, fat mass; HGS, handgrip strength; SMM/W, total skeletal muscle mass adjusted by weight; SO, sarcopenic obesity; WC, waist circumference; SARC-F, strength, assistance with walking, rising from a chair, climbing stairs and falls.

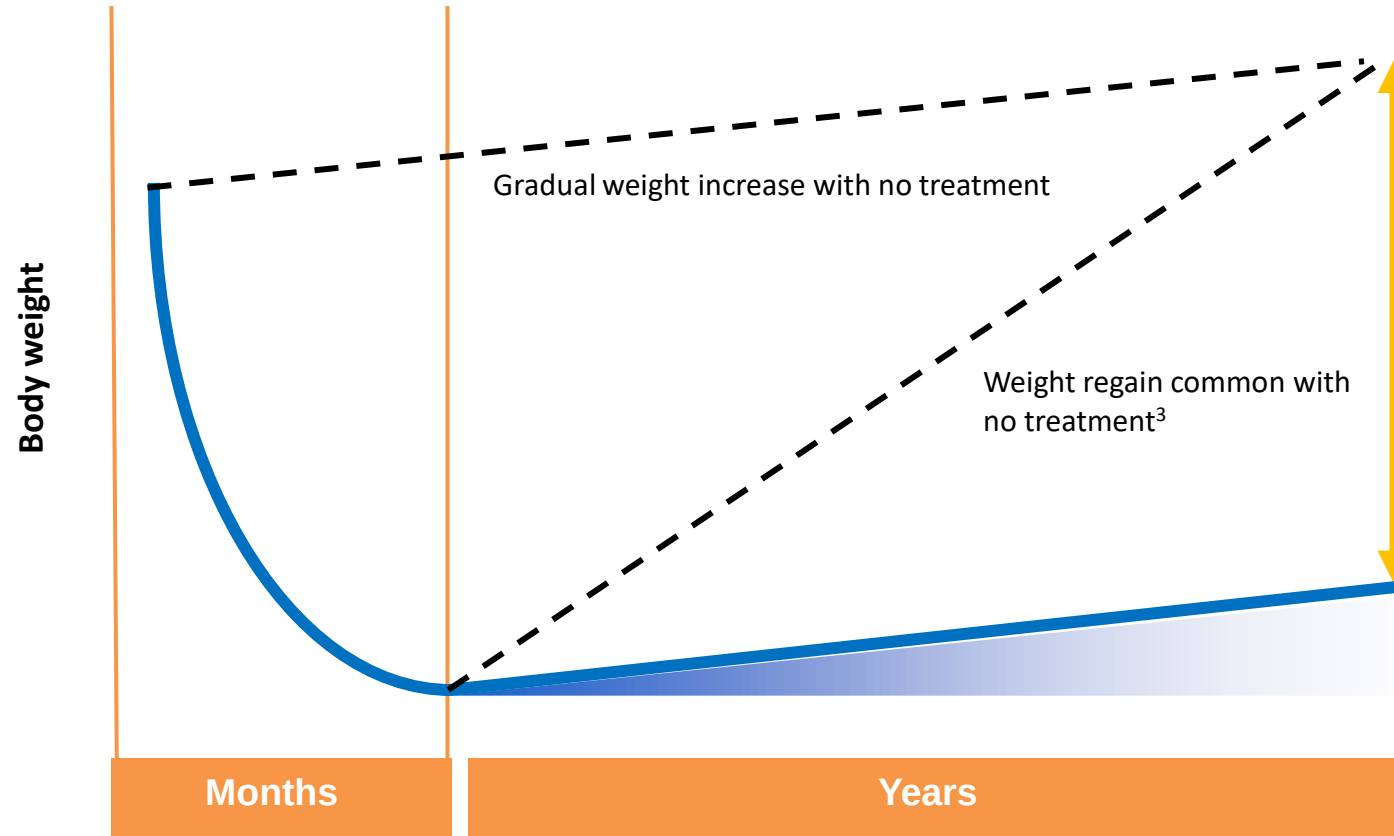
Potential approved therapies in preventing & treating (sarcopenic) obesity

Component	Goal	Suggested approach
Calorie restriction	Lose body fat and improve physical function	500–1,000 kcal per day ~0.5 kg per week aiming for 8–10% weight loss at 6 months followed by weight loss maintenance No specific diets are proven in this population
Aerobic exercises	Improve cardiorespiratory fitness	150 min per week of moderate to vigorous aerobic exercise
Resistance exercises	Improve muscle strength and mass; attenuate loss of muscle and bone during weight loss efforts	60–75 min of resistance training 3 times weekly, separated by one day focusing on strength, balance and flexibility
Protein supplementation	Mitigate loss of muscle mass and strength	1.0–1.2 g/kg per day of protein in divided doses (25–30 g daily) 2.5–2.8 g leucine daily *
Calcium supplementation	Prevent potential disturbances in bone metabolism	1,200 mg per day of supplemental calcium, preferably through dietary measures
Vitamin D supplementation	Prevent potential disturbances in bone metabolism	1,000 IU vitamin D per day, ideally maintaining blood levels ≥ 30 ng/ml

* J of Nutrition. 2016; doi:10.3945/jn.116.230771; Batsis JA & Villareal DT. Nature Reviews Endocrinology 2018; 14: 513-537.

Goals and benefits of effective obesity management

1. Achieve weight loss^{1,2}
2. Maintain weight loss and prevent regain^{1,2}
3. Provide clinically meaningful benefits¹



- Reduce diabetes risk¹
- Improve markers of cardiovascular risk¹
- Reduce functional impairment⁴
- Improve quality of life⁴

Obesity management strategies

Clinical Information

European Guidelines for Obesity Management in Adults

Volkan Yumuk^a Constantine Tsigos^b Martin Fried^c
Karin Schindler^d Luca Busetto^e Dragan Micic^f
Hermann Toplak^g for the Obesity Management Task Force of
the European Association for the Study of Obesity

BMI, kg/m ² *	WC, cm* men <94, women <80	men ≥94, women ≥80	Complications
25.0–29.9	L	L	L ± D
30.0–34.9	L	L ± D	L ± D ± S**
35.0–39.9	L ± D	L ± D	L ± D ± S
≥40.0	L ± D ± S	L ± D ± S	L ± D ± S

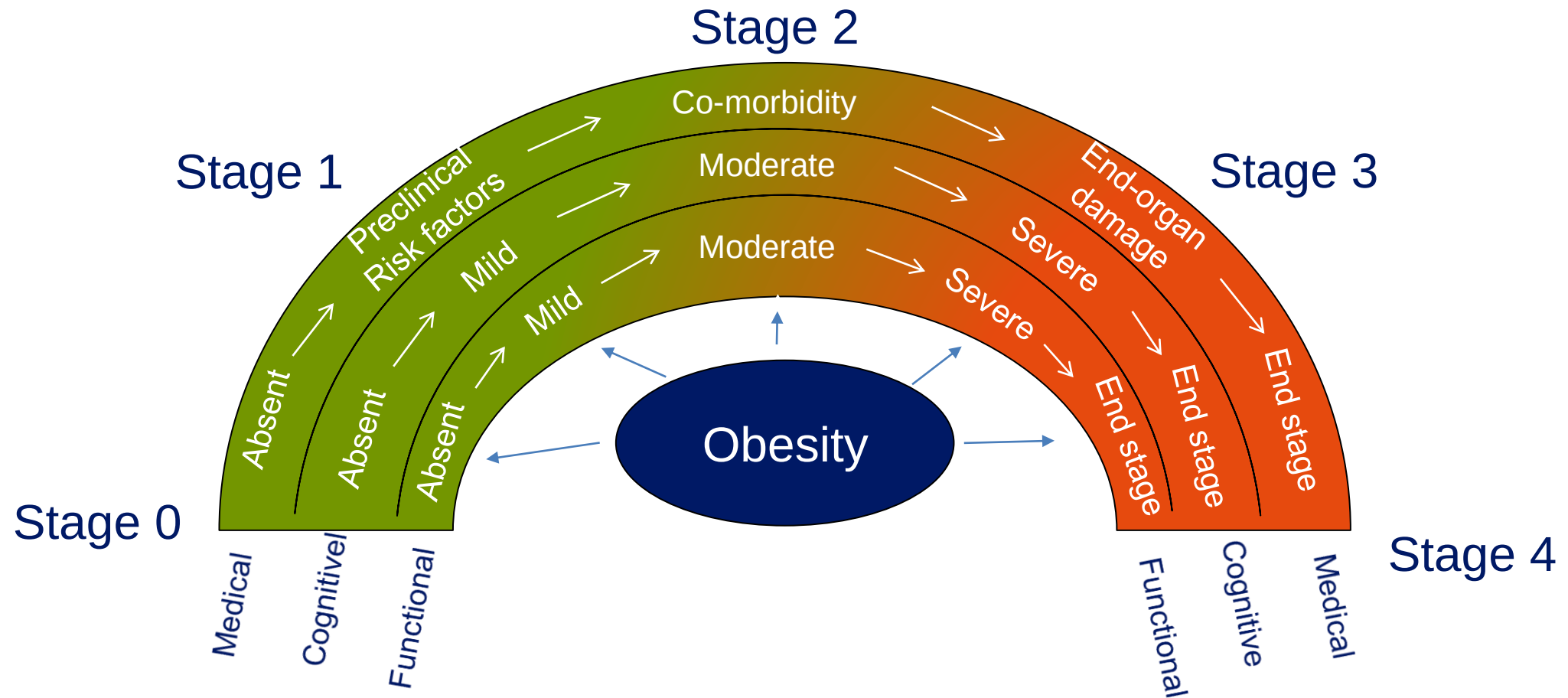
L = Lifestyle intervention (diet and physical activity); D = consider drugs;

S = consider surgery.

*BMI and waist circumference cut-off points are different for some ethnic groups.

**Patients with type 2 diabetes on individual basis.

^{1,2}Edmonton Obesity Staging System: Assessing disease severity



Treatment algorithm of patients who are overweight or living with obesity

EOSS	BMI < 30	BMI 30-35	BMI 35-40	BMI >40	Age (years)
STAGE 0					> 60
					< 60
STAGE 1				S	> 60
					< 60
STAGE 2				S	> 60
					< 60
STAGE 3			S	S	> 60
					< 60
STAGE 4					> 60
		S	S	S	< 60

 lifestyle intervention

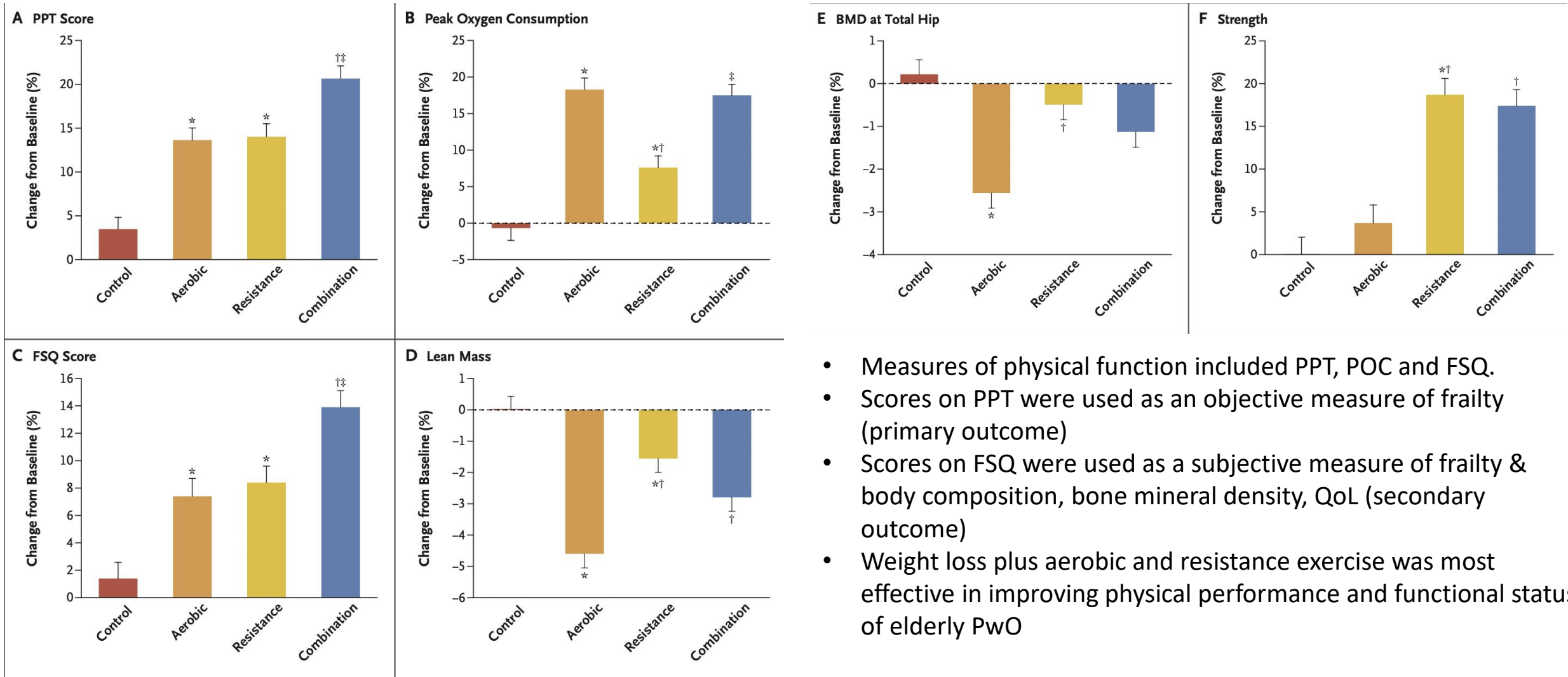
 rehabilitation (physical, neurological, cardiopulmonary, psychiatric)

pharmacological therapy
(In patients with T2DM, is indicated the use of antidiabetic medications that have additional actions to promote weight loss, such as GLP-1 analogs).

- bariatric surgery

S surgery to be considered in selected cases with favorable risk/benefit profile

Lifestyle Intervention Trial in Elderly living with obesity (LITOE) Exercise in dieting elderly PwO (n=160)



- Measures of physical function included PPT, POC and FSQ.
- Scores on PPT were used as an objective measure of frailty (primary outcome)
- Scores on FSQ were used as a subjective measure of frailty & body composition, bone mineral density, QoL (secondary outcome)
- Weight loss plus aerobic and resistance exercise was most effective in improving physical performance and functional status of elderly PwO

Asterisk indicates $P < 0.05$ for comparison with control group, dagger $P < 0.05$ for comparison with aerobic group, double dagger $P < 0.05$ for comparison with resistance group.

PPT: Physical Performance Test; FSQ: Functional Status questionnaire;

BMD: Bone Mineral Density

Protein intake during weight loss interventions in elderly PwO: A framework for guidelines

Current literature points at the following protein goals during energy restriction for weight loss in elderly PwO

Recommendation	Amount of protein	Timing of ingestion
May need to increase total daily protein intake above current RDA	At least 1–1.2 g/kg/day, or 20–30% of total calories	Even daily distribution
May need to divide protein intake evenly per meal	At least 20–30 g of protein per meal	Add a protein-rich snack after exercise and/or before bed
Whey protein supplements may help meet elevated needs and preserve LBM	About 20–25 g per day, once or twice daily, with or without additional essential amino acids	Not Specified

g is grams; kg is kilograms; LBM is Lean Body Mass.

Behavioral therapy prescription

Weight loss	Weight maintenance
Food intake and physical activity diary	Continue with diaries: random or daily
Weekly weight measurement	Twice a week or daily
DPP, *LookAHEAD	Prevent regain, individual problem solving
Routine feedback	Periodic feedbacks

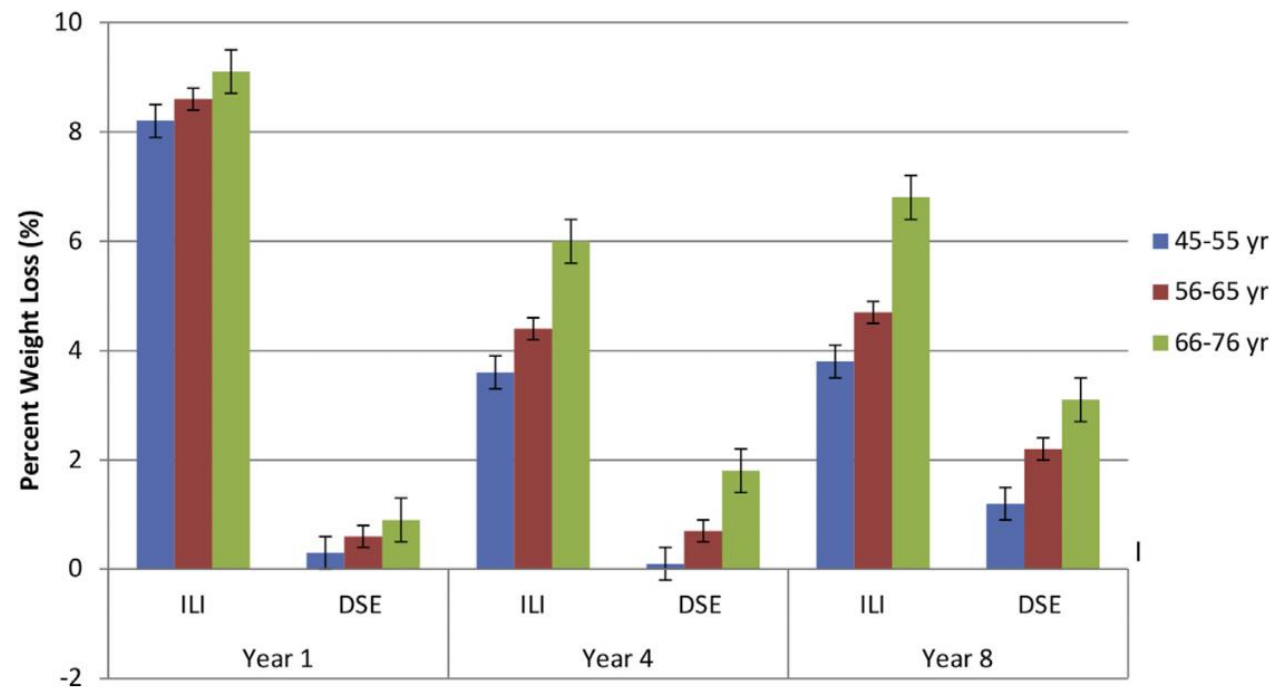
*	Frequency of On-Site Visits	Format of Treatment Sessions	Weight Loss Goal	Activity Goal	Special Features
Phase I Months 1–6 Months 7–12	Weekly 3 per mo.	3 group, 1 individual. 2 group, 1 individual.	Lose $\geq 10\%$ of initial weight. Continued loss or weight maintenance.	Exercise ≥ 175 min/wk by mo. 6. Increase min/wk of activity; 10,000 steps/day goal.	Treatment toolbox. Advanced toolbox options; orlistat.
Phase II Years 2–4	Minimum of 1 per mo.	1 individual with minimum of 1 additional contact by phone, mail, or e-mail.	Weight maintenance, reverse weight gain as it occurs.	Maintain high levels of physical activity.	Refresher Groups to reverse weight gain; National Campaigns across 16 centers.
Phase III Year 5+	Monthly Recommended.	individual	Prevention of weight gain.	Prevention of inactivity.	Refresher groups; Campaigns; open groups.

Telemedicine	Mindfulness
Motivational interviewing	Goal setting
Portion control	Cognitive behavioral therapy
Self monitoring	Psychological evaluation & counseling

Obesity & diabetes in an aging population

8 year weight loss by age group in Look AHEAD study of with T2DM

Study	Characteristics of Population	Elderly (%)	Lifestyle Intervention Goals	Weight Outcomes (% from Baseline)	Other Health Risk Outcomes
DPP	3234 individuals at high risk for DM based on OGTT	20	≥7% weight loss and ≥150 min of moderate physical activity/wk	5–7	71% reduced risk to progression to DM; 10-y follow-up 49% reduced risk (vs 39% for entire cohort)
Look AHEAD	5145 individuals with T2DM at risk for CV events	17	≥7% weight loss and ≥150–200 min of moderate physical activity/wk	5–10	No change in primary outcome of CV events; improvements in cardiometabolic risk factors



ILI: Intensive Lifestyle Intervention; DSE: Diabetes Support education.

Regardless of age ILI was more effective than DSE for weight reduction, although the difference between ILI and DSE decreased over time. The greatest weight loss at each time point was for those in the oldest age group, for both ILI and DSE ($P < .017$ for comparison of different age groups)

Anti-obesity drugs

Drugs	Status	Mechanism	Dosing	Response evaluation	Warnings	Contraindications	Side-effects
Orlistat	FDA & EMA approved	pancreatic, gastric lipase inhibitor	120 mg tid 60 mg tid (OTC)	2.9–3.4% 1 year	hepatitis, liver failure (rare), concomitant multivitamin advised	pregnancy, breast feeding, chronic malabsorption syndrome, cholestasis	decreased absorption of fat soluble vitamins, steatorrhoea, faecal urgency
*Lorcaserin	FDA approved	5HT _{2c} R agonist	10 bid	3.6% 1 year stop if <5% weight loss at 12 weeks	serotonin syndrome, cognitive impairment, depression, valvulopathy hypoglycaemia, priapism	pregnancy, breast feeding, use with caution: MAOIs, SSRIs, SNRIs	headache, nausea dry mouth, dizziness fatigue, constipation
Phentermine/ topiramate	FDA approved	NE release (P) GABA modulation (T)	starting dose: 3.75/23 qd recommended dose: 7.5/46 qd *high dose: 15/92 qd	6.6% (recommended dose) 1 year 8.6% (high dose) 1 year stop if <5% weight loss at 12 weeks	fetal toxicity, acute myopia, cognitive dysfunction, metabolic acidosis, hypoglycaemia	pregnancy, breast feeding, glaucoma, hyperthyroidism, use with caution: MAOIs	insomnia, dry mouth constipation, paresthesia, dizziness, dysgeusia
Bupropione/ naltrexone	FDA & EMA approved	DA/NE reuptake inhibitor(B) opioid antagonist (N)	8/90 mg tb 2 tb bid	4.8% 1 year stop if <5% weight loss at 12 weeks	fetal toxicity, increased seizure risk, glaucoma, hepatotoxicity	uncontrolled hypertension, seizure, anorexia nervosa / bulimia, drug or alcohol withdrawal, use with caution: MAO inhibitors	nausea, constipation, headache, vomiting, dizziness
Liraglutide	FDA & EMA approved	GLP-1 agonist	3 mg sc	5.8 kg 1 year stop if <4% weight loss at 14 wks	acute pancreatitis, acute gall bladder disease	medullary thyroid cancer history, MEN type 2 history	nausea, vomiting, pancreatitis

FDA = Food & Drug Administration; EMA= European Medicinal Agency; OTC = over the counter; 5HT_{2c}-R = 5 hydroxytryptamine 2c receptor; MAOI = monoamine oxidase inhibitor; SSRI = selective serotonin reuptake inhibitor; SNRI = serotonin norepinephrine reuptake inhibitor; NE = norepinephrine; GABA = gamma amino butyric acid; DA = dopamine; GLP-1 = glucagon-like peptide-1; MEN = multiple endocrine neoplasia.

*Careful observation.

*Lorcaserine was withdrawn due to increase in several cancer types in January 14, 2020.

European Guidelines for Obesity Management in Adults

Volkan Yumuk^a Constantine Tsigos^b Martin Friedl^c
Karin Schindler^d Luca Busetto^e Dragan Micic^f
Hermann Toplak^g for the Obesity Management Task Force of
the European Association for the Study of Obesity

Pharmacotherapy in elderly PwO

- Adult guidelines for pharmacotherapy may be used
- Non-frail younger people, non-responder to LSI with concomitant diseases
- Orlistat & liraglutide may be first line choices
- Phentermine-topiramate, bupropion-naltrexone combinations may be avoided due to their cardiovascular & central nervous system side effects & scarce data in elderly
- Be aware of polypharmacy and drugs causing weight gain

Bariatric surgery techniques

Obesity Facts
The European Journal of Obesity

Obes Facts 2013;6:449–468

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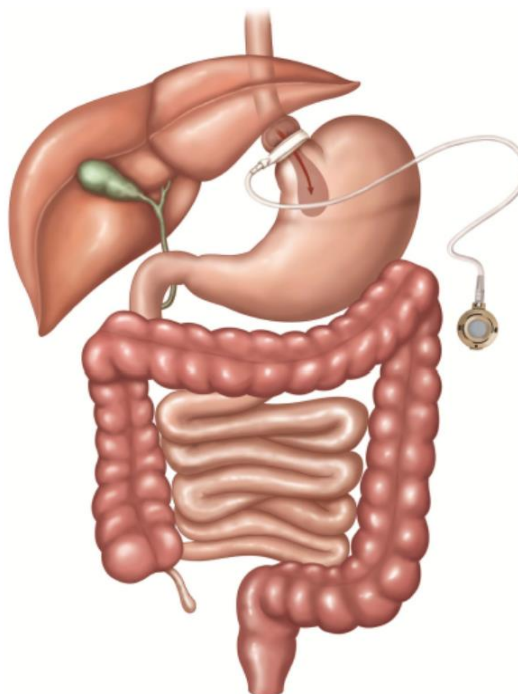
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Clinical Information

Interdisciplinary European Guidelines on Metabolic and Bariatric Surgery

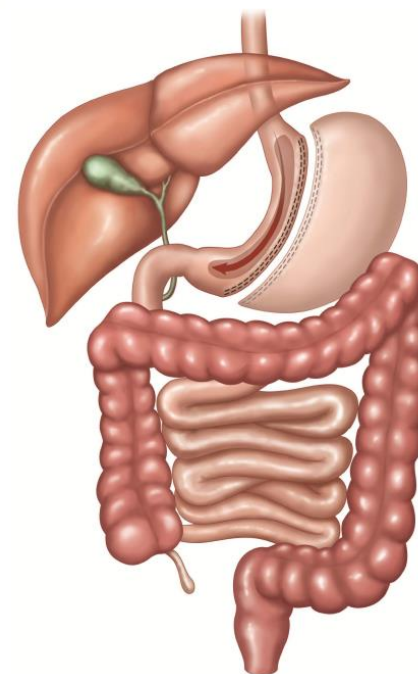
Martin Fried^a Volkan Yumuk^b Jean Michel Oppert^c Nicola Scopinaro^d
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Gastric Band



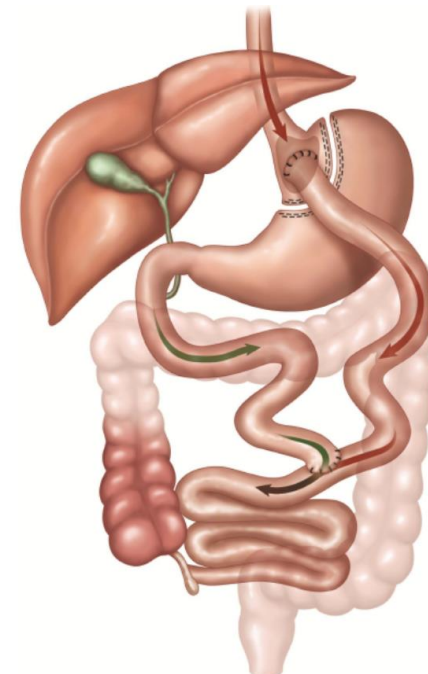
Restrictive, low grade nutrient deficiency, better DM control, contraindicated in GERD mortality 0.05-0.1%

Sleeve Gastrectomy



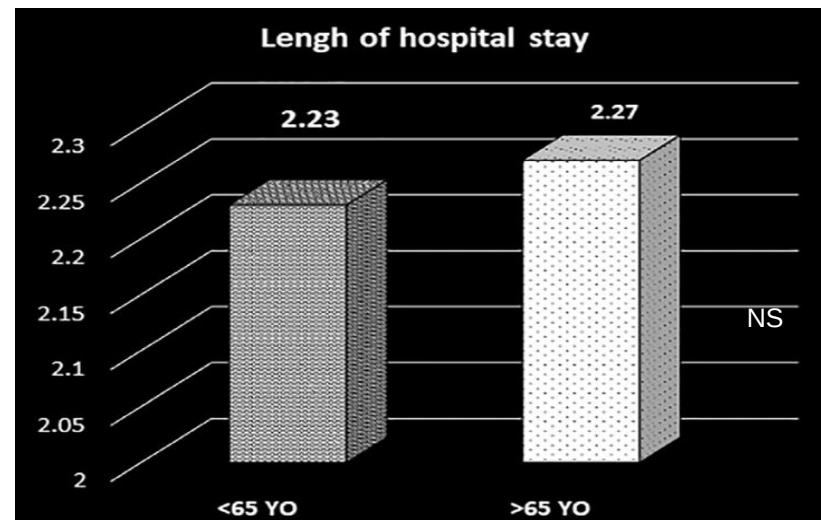
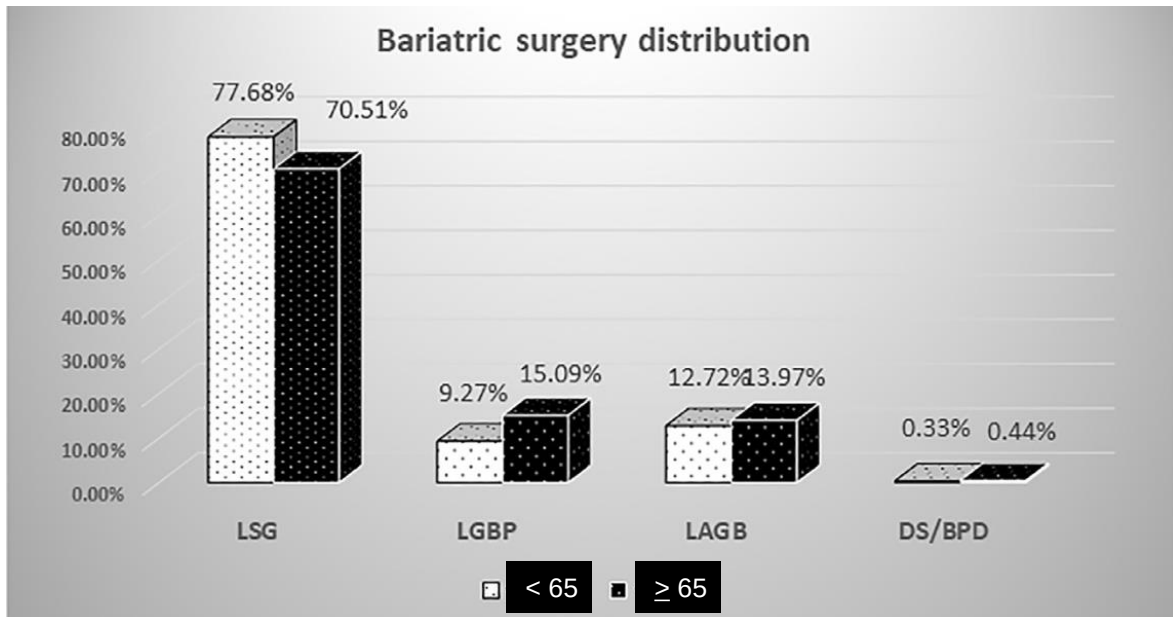
Restrictive with diversion, low grade nutrient deficiency, DM remission, contraindicated in GERD mortality 0.4%

Gastric Bypass



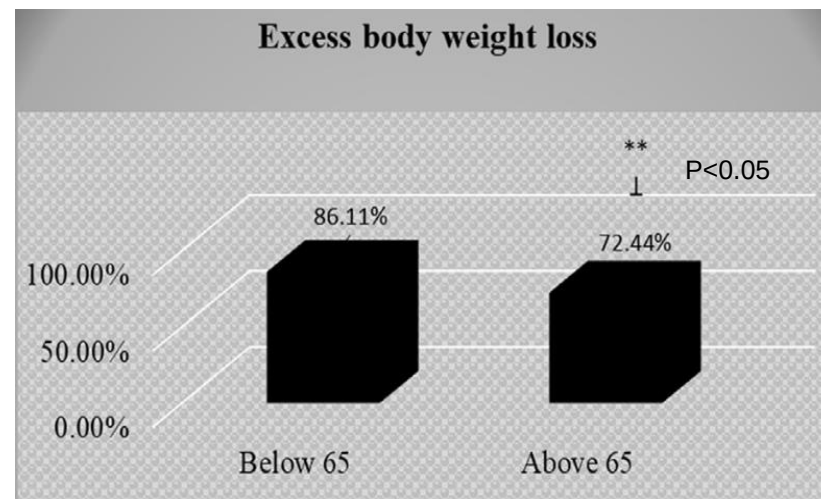
Restrictive and diversion, intermediate nutrient deficiency, DM remission, indicated in GERD mortality 0.3-0.5%

Outcomes of bariatric surgery in elderly



Surgical Complications	Age <65		Age ≥65		P value
	Number	Percent	Number	Percent	
Re-operation	67	.78	6	1.33	.61
Conservative treatment	207	2.40	24	5.32	.002*
Co-morbidities related complication	164	1.91	10	2.21	.78
Total	438	5.09	40	8.86	.03*

*statistically significant differences.

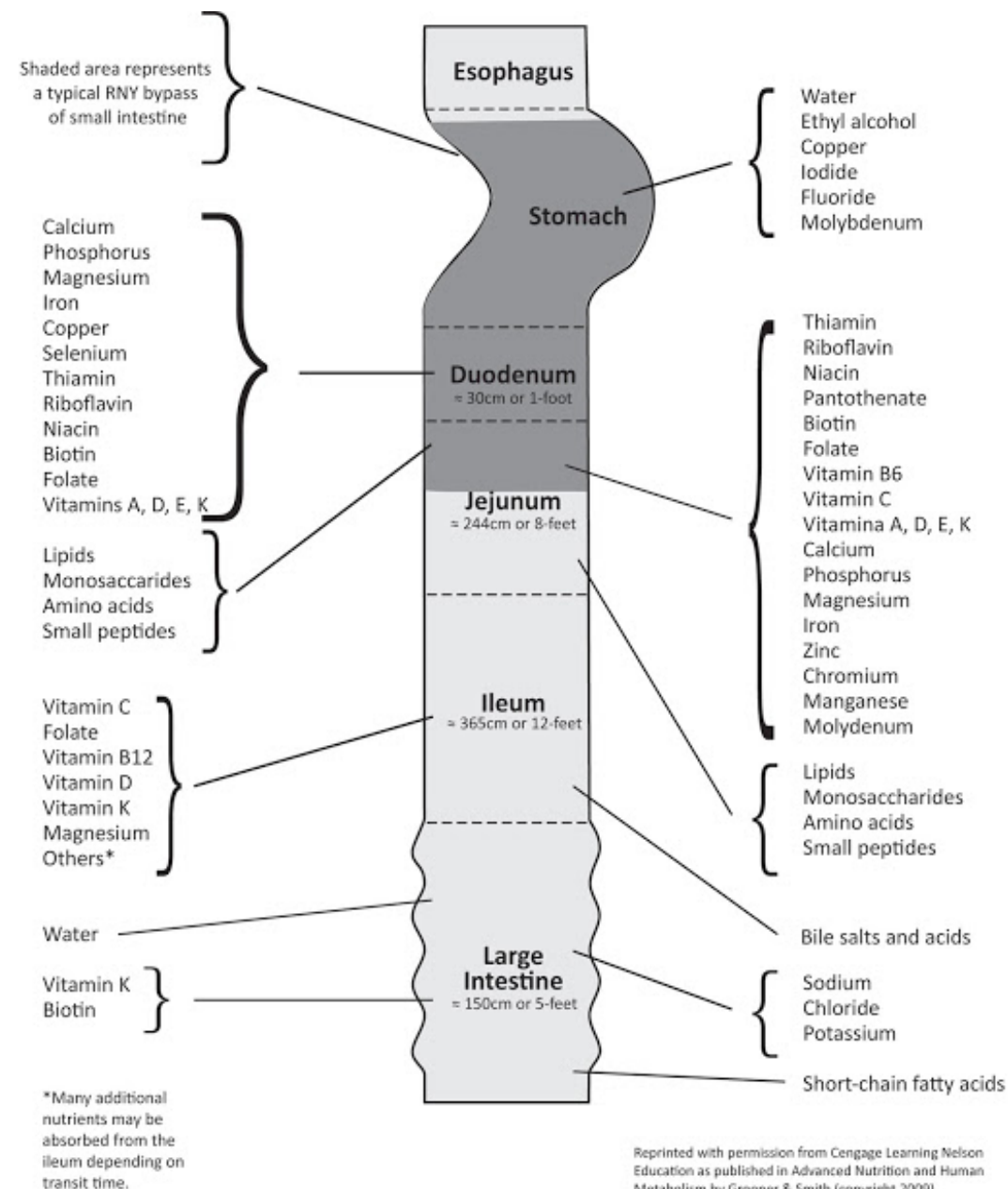


Review Article

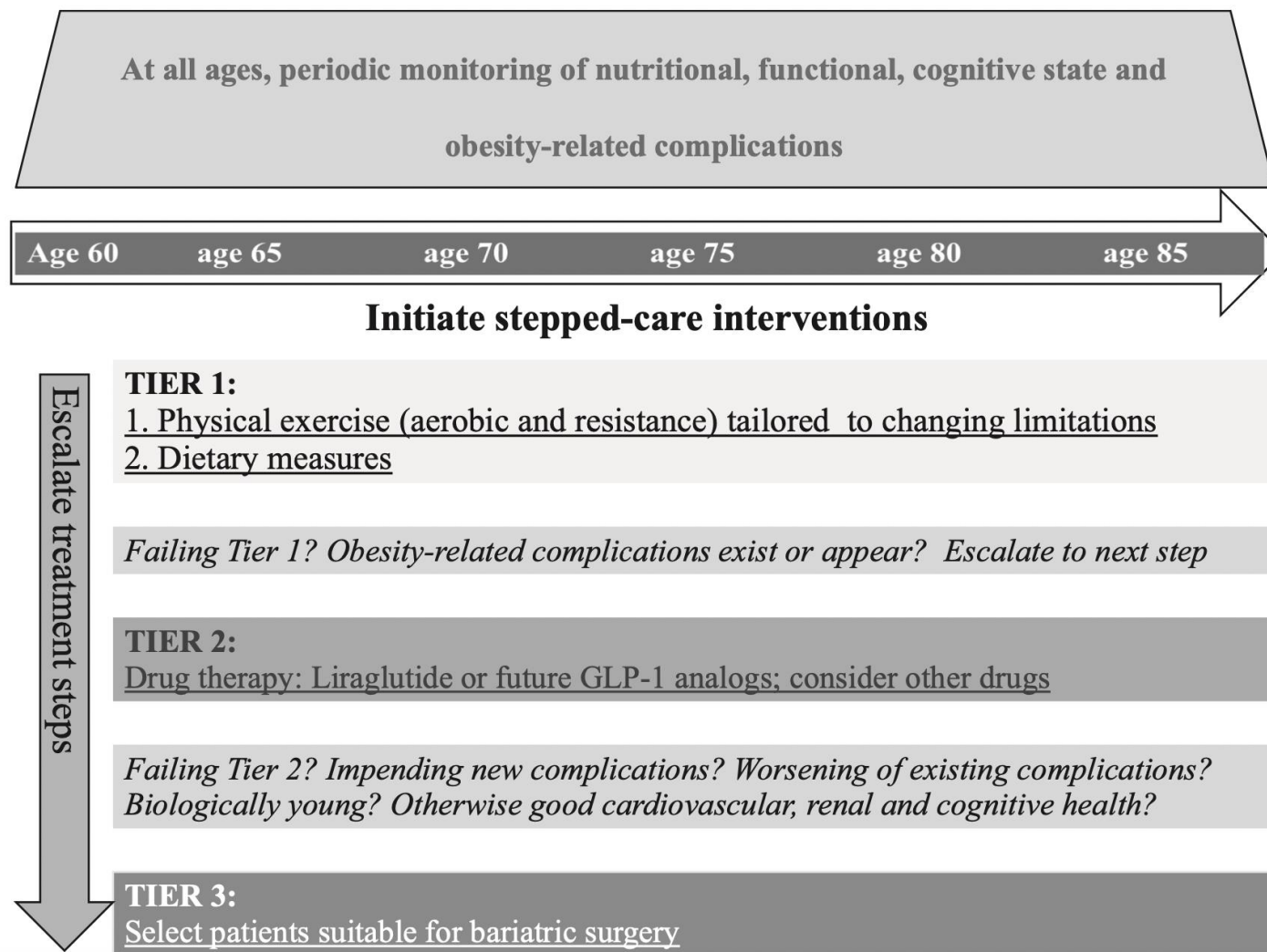
Practical Recommendations of the Obesity Management Task Force of the European Association for the Study of Obesity for the Post-Bariatric Surgery Medical Management

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- Nutritional management
- Micronutrient supplementation
- Management of obesity complications
- Pharmacotherapy after bariaric surgery
- Psychological aspects
- Pregnancy after bariatric surgery
- Weight regain management



A proposed treatment algorithm for obesity in elderly



Clinical pearls

- Obesity is a multifactorial chronic relapsing disease generating from genetic, epigenetic, biological, psychologic and sociocultural interactions (not lack of will power)
- Management of obesity in elderly rests upon the evidence for young adults
- Preventing sarcopenia and osteopenia is essential
- Building physical performance and improving functional status are crucial
- Holistic weight management can help maintain weight loss
- Being elderly is not an absolute contraindication for bariatric surgery
- Standardized obesity center (COM) is a requisite
- Post treatment follow up is one of the the keys to success