

European Association for the Study of Obesity Position Statement on the Diagnosis and Management of Obesity in Older Adults

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Keywords

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Abstract

Obesity is increasingly prevalent among older adults and is a major contributor to cardiometabolic diseases, functional decline, frailty, and loss of independence. The intersection between population ageing and the obesity epidemic poses

major public health and clinical challenges. This European Association for the Study of Obesity (EASO) position statement represents an update of the EASO guideline from 2012, and provides a comprehensive overview of the epidemiology, pathophysiology, clinical consequences, and management of obesity in adults aged ≥ 65 years. It summarizes current evidence and offers practical recommendations for

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diagnosis and treatment tailored to this age group. To guide clinicians and researchers through this updated framework, the position statement highlights four central concepts that underpin obesity assessment and management in later life: (1) obesity affects up to one-third of older adults globally, with prevalence varying by sex and geography; (2) ageing is associated with changes in body composition, hormonal milieu, and lifestyle factors (diet, physical inactivity, and polypharmacy) that favour fat accumulation and sarcopenic obesity; (3) body mass index alone is insufficient; assessment should include body composition analysis (including fat distribution and muscle mass), psychological status, and functional performance; (4) a multimodal approach is recommended, including moderate energy restriction with adequate protein intake, structured multicomponent exercise, behavioural support, and, where appropriate, obesity management medications and/or metabolic bariatric surgery. The focus should be on preserving muscle mass, functional capacity, and quality of life, rather than weight loss alone. Effective management of obesity in older adults should focus on individualized, multidisciplinary strategies that balance the benefits of weight reduction against the risks of sarcopenia, malnutrition, and loss of independence.

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Introduction

Obesity is now recognized as a chronic, relapsing, multifactorial disease characterized by excess adiposity and adipose tissue dysfunction, with widespread metabolic and clinical consequences [1]. As populations age, the absolute and proportional number of older adults living with obesity continues to rise, reshaping clinical needs and public health priorities. This dual trend is clinically relevant because obesity in later life intersects with age-related changes in body composition, multimorbidity, and medication use, amplifying risks for cardiometabolic disease, disability, and loss of independence.

Older adults show distinct pathophysiological features, most notably the combination of increased fat mass and remodelling of white and beige adipose tissue [2] with reduced muscle mass and strength, a condition often referred to as sarcopenic obesity [3]. This phenotype is associated with worse clinical outcomes than obesity or sarcopenia alone and highlights the limitations of body mass index (BMI) as a sole diagnostic criterion, supporting the need for complementary body composition and functional assessments [4].

Management of obesity in older adults requires an individualized and goal-oriented approach. Nutritional strategies and multicomponent physical exercise form the foundation of care, with the selective addition of behavioural interventions, obesity management medication, or bariatric surgery when appropriate. Primary therapeutic goals should focus on preserving muscle mass, maintaining functional capacity, and improving quality of life rather than on weight reduction alone.

This European Association for the Study of Obesity (EASO) position statement will update the EASO guideline in older adults from 2012 [5]. It reviews the epidemiology and pathophysiology of obesity in older adults, discusses diagnostic approaches beyond BMI, and provides practical guidance on management tailored to this population.

General Considerations on Terminology

The term “older adults” (≥ 65 years) is preferred over labels such as “elderly,” “old” or “senior,” which reinforce stereotypes of frailty and dependence and are often used pejoratively (WHO, Global report on ageism, 2021). It is, therefore, essential to adopt respectful and empowering terminology, in line with person-first language principles. Interpersonal forms of ageism, such as “elderspeak” (overly simplistic or infantilizing language), further undermine dignity and contribute to negative perceptions of older adults [6, 7].

Similarly, “persons with obesity” or “individuals living with obesity” is preferred over “obese persons” to reduce weight bias and discrimination in research and clinical practice [8]. Language should reflect that health, dignity and respectful care are fundamental rights for all, irrespective of body weight or age.

Prevalence and Etiopathogenesis

Intersection of Population Ageing and Rising Obesity

- Population ageing, driven by increased longevity, reduced mortality and declining birth rates, is transforming demographic structures worldwide, with the proportion of adults aged 65 years and older progressively increasing. [9]. While in 1950, older people represented 5% of the world's population, this percentage is expected to increase to 16% by 2050 [10].
- In parallel, obesity prevalence has also been growing over the past decades and it is expected to increase in the next decades, making it an emerging determinant

of morbidity and loss of independence in later life [11]. These converging trends pose significant challenges for healthcare systems, particularly for long-term care facilities, which must adapt infrastructures and workforce training to meet the complex needs of older adults with obesity [12].

Prevalence

- In 2022, based on BMI ≥ 25 kg/m² the prevalence of overweight and obesity in Europe reached its highest levels among adults aged 65–74 years (64%), declining slightly to 58% among those aged 75 years and older [13].
- On a global scale, a meta-analysis including 44 studies and more than 45 million older adults estimated the prevalence of obesity at 25.3% (95% CI: 21.9–29) based on the World Health Organization definition (BMI ≥ 30 kg/m²) [14]. The same analysis highlighted geographical differences: South America 40.4% (95% CI: 12.5–76.4), Europe 33.6% (95% CI: 24.1–44.5), Africa 32.5% (95% CI: 16.1–54.8), North America 27.3% (95% CI: 24.4–30.5), Oceania 20.8% (95% CI: 18.9–22.8), and Asia 14.6% (95% CI: 10.7–19.5) [14]. However, these estimates may underestimate obesity prevalence in Asian populations, where lower BMI cut-offs (≥ 25 or ≥ 28 kg/m²) are recommended to account for a higher metabolic risk at lower body mass [15].
- In older adults aged ≥ 85 years, prevalence estimates are lower but remain clinically relevant. In a Swedish longitudinal study including four cohorts assessed between 2000 and 2017, obesity prevalence (BMI ≥ 30 kg/m²) ranged from 6.6% to 10.2%, confirming that obesity persists even in the oldest age groups [16].
- Regarding sex differences, a study across 12 European countries found that among adults aged over 65 years, obesity prevalence was higher in women (17.3%) compared with men (15.2%) [17].

Biological Factors

- Biological factors contributing to obesity in older adults include hormonal changes (such as insulin resistance and changes in hormones that regulate appetite and fat storage), decreased muscle mass, and decreased basal metabolic rate. Genetic factors can influence fat storage, fat metabolism, and appetite regulation through specific genes like those for leptin and the melanocortin 4 receptor (MC4R). These biological and genetic predispositions are exacerbated by environmental factors like reduced physical activity, which is often associated with ageing [18].

Eating Behaviours

- In Europe, as in other high-income regions, the obesity epidemic has been strongly influenced by widespread access to calorie-dense and nutrient-poor foods, coupled with increasingly sedentary lifestyles [19]. These dietary patterns remain a cornerstone of obesity risk in older adults.
- The affordability of energy-dense foods, despite their poor micronutrient profile, has further contributed to their dominance in the diet, particularly among vulnerable populations [19]. This imbalance favours weight gain while limiting overall nutritional adequacy. A similar nutrition transition is now evident in low- and middle-income countries, where shifts from traditional diets to processed, high-calorie products are becoming increasingly common [20].

Sedentarism and Physical Inactivity

- Parallel to these changes in diet, reductions in physically demanding occupations and the expansion of sedentary leisure activities, such as screen time, have exacerbated the imbalance between energy intake and expenditure [19, 20].
- A positive association between obesity, physical inactivity, and sedentary behaviour in older adults has been demonstrated. Physical inactivity refers to not achieving recommended levels of moderate-to-vigorous physical activity, while sedentary behaviour is defined as low-energy activities (≤ 1.5 METs) performed while sitting or reclining; both have been linked to obesity in later life [21, 22].

Polypharmacy

- Polypharmacy is common in older adults due to multimorbidity, and several widely used drug classes have been linked to weight gain. These include glucocorticoids, insulin and sulfonylureas, antipsychotics, antidepressants, and β -blockers. The chronic use of such medications may aggravate age-related metabolic changes, thereby contributing to the development or persistence of obesity in later life [23, 24].

Social, Cultural, and Economic Determinants

- Psychological, functional, and social factors play a critical role in shaping eating behaviours in older adults. Depression, chewing or swallowing difficulties may lead to a preference for soft, calorie-dense, and nutrient-poor foods that are easier to consume, thereby promoting weight gain despite a risk of qualitative malnutrition [25, 26].

- Low income, high medication costs, loneliness, and eating alone have all been shown to negatively affect diet quality and energy balance, further contributing to unhealthy weight trajectories. Family structure and living situation (e.g., marital status, social isolation), as well as educational level, are key determinants of dietary choices and eating behaviour in community-dwelling older adults.

Key Message

Population ageing and rising obesity prevalence are converging trends that substantially affect older adults. Obesity remains prevalent even in advanced age, reflecting multifactorial causes such as diet, sedentary behaviour, psychological status and socioeconomic conditions in addition to biological and genetic factors, and poses major challenges for health systems.

Pathophysiology

Ageing induces several physiological changes, with alterations in body composition being among the most prominent and clinically relevant [27].

- The excess of adipose tissue represents one of the most common manifestation of these alterations, leading to obesity [28, 29]. Beyond excess and/or dysfunctional adiposity, obesity is associated with a series of tissue-level modifications, including the redistribution of fat from subcutaneous and lower-body depots to the visceral compartment and even to non-adipose tissues such as skeletal muscle, myocardium, liver, and pancreas. Additionally, cellular changes involve adipocyte hypertrophy and hyperplasia, as well as a preferential differentiation of mesenchymal stem cells toward the adipogenic rather than the osteogenic lineage [30, 31]. Obesity-related complications are mainly determined by two pathological processes, i.e., physical forces (fat mass disease) as well as endocrine and immune responses (sick fat disease) [28]. Accordingly, the impact of obesity on health extends beyond excess body weight itself, encompassing a wide range of clinical conditions, such as cardiovascular diseases (CVD), type 2 diabetes (T2DM), certain cancers, functional decline, and reduced quality of life [8, 32, 33].
- Obesity is frequently accompanied by a progressive and generalized loss of muscle mass and function, a condition referred to as sarcopenia. Traditionally,

described as a geriatric syndrome with a multifactorial aetiology and an age-related increase in prevalence [34, 35], sarcopenia may also develop in individuals with obesity at any age [36]. This occurs because obesity can independently lead to muscle loss and function due to the negative impact of adipose tissue-dependent metabolic derangements, such as oxidative stress, inflammation, and insulin resistance, all of which negatively affect skeletal muscle mass and quality. When obesity and sarcopenia coexist, the resulting condition, termed sarcopenic obesity (SO), is associated with a synergistic worsening of clinical outcomes. Specifically, not only SO exacerbates functional impairment and weakens cardiorespiratory fitness but also increases the risk of dysmetabolic diseases and all-cause mortality compared to obesity or sarcopenia alone [3, 37].

- With ageing, hormonal changes play a significant role in metabolic health. In women, menopause is characterized by an abrupt decline in oestrogen, while in men, late-onset hypogonadism reflects the progressive reduction of testosterone levels. Ageing is also associated with decreased secretion of adrenal androgens and reduced growth hormone/IGF-1 (insulin-like growth factor 1) activity. Collectively, these endocrine changes contribute to increased adiposity, sarcopenia and a higher risk of metabolic complications, thereby influencing the pathogenesis of obesity in later life [38].
- In parallel, increasing evidence underlines a detrimental relationship between obesity and bone health. Age-related bone loss is a well-recognized phenomenon, particularly accelerated in women after menopause, leading to a higher risk of osteopenia and osteoporosis compared to men [27, 39]. Obesity, particularly when associated with metabolic disorders, has been implicated in compromised bone quantity and quality, thereby further increasing the risk of osteoporosis and fragility fractures in older individuals [39, 40].
- Increasing evidence also highlights a distinct clinical and functional condition characterized by the concurrent presence of osteoporosis, sarcopenia, and obesity, named osteosarcopenic obesity [41]. This triad results in compounded negative outcomes including impaired physical function, reduced mobility, increased risk of fall and fractures, and impaired quality of life [42], particularly among older adults, who are more frequently affected than those with any of the individual conditions alone [43].

Beyond the mere presence of excess adiposity, its distribution plays a crucial role in determining health outcomes. Fat can accumulate predominantly in subcutaneous depots or within the visceral compartment, with markedly different implications. Visceral adiposity, surrounding internal organs, is particularly detrimental as it is strongly associated with chronic low-grade inflammation, insulin resistance, adverse metabolic profiles, and an increased risk of bone fragility and fractures [44]. By contrast, subcutaneous fat appears to have a more neutral or even protective role in metabolic and skeletal health [45, 46].

Key Message

Ageing alters body composition through increased adiposity, muscle loss, and bone fragility, possibly leading to obesity, sarcopenia and osteoporosis, respectively. These conditions interact synergistically, and dysfunctional adipose tissue exacerbates cardiovascular and metabolic risk, functional decline, and skeletal deterioration.

Diagnosis beyond BMI

Limits of BMI

According to the World Health Organization (WHO), overweight and obesity are defined as abnormal or excessive fat accumulation that presents a risk to health [47]. A BMI ≥ 30 kg/m², regardless of age and sex remains the most widely used anthropometric measure to identify individuals with obesity; however, while its simplicity, accessibility, and low-cost make it suitable for epidemiological surveillance and preliminary screening, BMI has significant limitations, particularly evident at the individual level, which have raised concerns regarding its use as the sole criterion for the diagnosis of obesity [1]. Specifically, the following limitations are significant:

- BMI is unable to discriminate between fat mass and fat-free mass. This lack of specificity often leads to misclassification of individuals, particularly those with reduced muscle mass and excess body fat (typical of SO), despite a normal BMI. As a result, BMI may fail to detect malnutrition, muscle depletion, and sarcopenia, particularly in older adults [1].
- BMI does not provide information regarding body fat distribution. In particular, indices of central adiposity, such as waist circumference, waist-to-height or waist-

to-hip ratios [48], more accurately detect visceral fat accumulation, and have been consistently associated with insulin resistance, T2DM, CVD, and mortality, independently of BMI values [49].

- BMI cut-offs do not account for interindividual variability related to age, sex and ethnicity [1, 50]. For instance, in older adults, BMI may mask significant muscle loss due to concomitant fat accumulation, limiting its reliability in the detection of conditions such as sarcopenia or SO [3]. Similarly, at equivalent BMI levels, Asian populations tend to exhibit higher body fat percentages compared to Caucasian populations, highlighting the need for population-specific BMI cut-off points for accurate risk assessment [51].
- The European Association for the Study of Obesity (EASO) recently introduced a new framework to define obesity that incorporates anthropometric measures beyond body mass index (BMI) and clinical comorbidities. In particular, the waist-to-height ratio was introduced into the diagnostic process, instead of waist circumference, due to its superiority as a cardiometabolic disease risk marker. Although the feasibility and reliability of height measurement in geriatric age can represent a problem, the new EASO framework may provide a more sensitive tool to diagnose obesity than the traditional BMI definition [1, 52].

Body Composition

To overcome the abovementioned limitations, the assessment of body composition provides distinct quantification of body compartments (for instance, fat mass, fat-free mass).

- Dual-energy X-ray absorptiometry (DXA) is widely regarded as the reference standard for both clinical practice and research. DXA enables accurate measurement of total and regional body composition, including visceral adipose tissue and appendicular skeletal muscle mass, while simultaneously assessing bone mineral density.
- Bioelectrical Impedance Analysis (BIA) represents a practical, non-invasive, and cost-effective alternative that estimates body composition [53] based on the electrical conductivity of different human tissues. Although less precise than DXA, BIA is widely used in clinical settings due to its accessibility and rapid assessment capabilities. Notably, the phase angle derived from BIA has emerged as a valuable biomarker of cellular health and nutritional status, showing strong associations with BMI and fat mass [53]. Low phase angle values have been consistently associated with

malnutrition (under-nutrition), sarcopenia and frailty, and can predict disability and mortality in older adults [54]. Importantly, in individuals with obesity, phase angle values may be affected by alterations in tissue hydration [53, 55], such as those caused by body fluid overload or oedema, which can complicate their interpretation [56].

- Advanced imaging modalities, such as computed tomography (CT) and magnetic resonance imaging (MRI) and spectroscopy (MRS), offer unparalleled resolution for the quantification of visceral adipose tissue, intramuscular fat infiltration, and ectopic fat accumulation in organs. Despite their greater accuracy, the routine application of these methods is often constrained by factors such as cost, availability, and, in the case of CT, exposure to ionizing radiation. Nevertheless, in specific clinical or research contexts, these imaging techniques provide valuable insights into fat distribution and muscle quality that cannot be depicted by anthropometric measures or simpler body composition tools [57].
- In absence of universally accepted validated references for body composition in older adults, especially those aged >80 years, suggested cut-off values for excessive fat mass % are >43% and >31% for Caucasian women and men; >41% and >29% for Asian women and men; >41% and >29% for African-American women and men [58], respectively.
- As for low muscle quantity, suggested cut-off points for appendicular skeletal muscle mass (ASM) are <15 kg and <20 kg for women and men, respectively. As for appendicular skeletal muscle mass/height² (ASMI) cut-points are <5.5 and <7.0 kg/m² for women and men, respectively [34]. Taking into account skeletal muscle mass/weight (SMM/W) suggested cut-off are <0.267 and <0.370 for women and men, respectively [59]. Finally, as for appendicular lean soft tissue adjusted to body weight (ALST/W) [60] (previously reported as appendicular lean mass/weight [ALM/W]), suggested cut-offs are <0.2347 for women and <0.2827 for men, respectively [61].

Functional Status

While body composition assessment provides essential information on tissue distribution, evaluating the functional capacity of the musculoskeletal system represents an equally important dimension in determining overall health and the risk of adverse outcomes in older adults. In this population, obesity is consistently associated with poor functional performance, a higher prevalence of disability, and an increased risk of future functional decline [62]. Nevertheless, to date, no definite

cut-off points for BMI, waist circumference or body fat percentage has been identified at which age-related functional status begins to decline.

- Muscle strength should be considered the functional parameter of choice for obesity-related assessments. Although current evidence does not clearly favour a single functional test over others, sex- and age-specific reference values are recommended when interpreting functional assessments [3]. Among the most reliable and accessible indicators is handgrip strength (HGS), measured using a handheld dynamometer. Established as a core diagnostic criterion for sarcopenia by the European Working Group on Sarcopenia in Older People (EWGSOP2 [34]) and for sarcopenic obesity by the ESPEN-EASO Consensus Statement [3], HGS is a validated predictor of morbidity, hospitalization, and all-cause mortality [63, 64]. HGS cut-off values for low muscle strength are <16 kg for women and <27 kg for men [34].
- Additional tests, such as the five-times-sit-to-stand test, evaluate lower limb strength and endurance by chair stand and have demonstrated predictive value for identifying individuals at risk of functional decline and falls [65]. Cut-off point for low chair stand is >15 s for both sexes [34].
- Gait speed, typically assessed over a short walking distance, serves as another reliable and easily implementable measure of physical performance. Reduced gait speed is associated with increased risk of frailty, falls, functional dependence, and mortality, making it a valuable tool for both clinical and epidemiological assessments [66]. Gait speed cut-off point for low performance is ≤0.8 m/s for both sexes [34].
- For a more comprehensive physical performance evaluation, tools such as the Short Physical Performance Battery (SPPB) and the Timed Up and Go (TUG) test integrate multiple components, including balance, strength, and mobility [34]. Low physical performance is defined by an SPPB score ≤8 points and by non-completion or a completion time ≥6 min in the 400 m walk or the TUG test [34], for both sexes.

Psychological Status

Psychological factors represent an essential, yet often underrecognized, component of comprehensive health assessment in adults with obesity [67]. Psychological well-being critically influences dietary behaviours, physical activity patterns, treatment adherence, and overall health outcomes. In individuals with obesity, body image dissatisfaction is highly prevalent and frequently associated with disordered eating behaviours, reduced quality of life, and poorer engagement in weight management interventions. Failure to

identify and address these psychological disturbances may perpetuate maladaptive behaviours, contributing to the progression of obesity and its related complications [68].

- Psychological assessment in older adults with obesity should first include screening for eating behaviour disturbances. Commonly used tools such as the Sick Control One Fat Food (SCOFF) questionnaire [69] can help identify individuals at risk for eating disorders. Those who screen positive should undergo further evaluation using validated tools such as the Eating Disorder Examination questionnaire (EDEq) [70], which assesses core symptoms of disordered eating over the past 28 days. The Binge Eating Scale (BES) [71] explores cognitive, emotional, and behavioural aspects of binge episodes. It should be noted that these tools, although widely used in adult populations, have not been specifically validated in older adults.
- General psychological distress and mood disorders should also be assessed. While the Symptom Checklist-90 revised (SCL-90-r) [72] evaluates a wide range of psychopathological symptoms, including depression, anxiety, and somatization, it has not been fully validated in geriatric populations. Therefore, for older adults, it may be more appropriate to use the Geriatric Depression Scale (GDS), which is validated in this age group and provides a reliable measure of depressive symptoms [73].
- Weight stigma and internalized weight bias are significant psychosocial stressors that may represent critical factors in affecting the psychological well-being of people with obesity [74, 75]. Notably, weight stigma has been associated with adverse outcomes, such as poor health-related quality of life and can negatively affect help-seeking behaviour, adherence to treatment, and clinical outcomes [76, 77]. Tools such as the Weight Bias Internalization Scale (WBIS) [78], can assess the extent to which individuals attribute negative self-worth to their body weight. However, these instruments have not been specifically validated in older adults. Addressing internalized stigma and promoting a non-judgemental, patient-centred approach to care is essential to support therapeutic engagement and facilitate sustainable behaviour change.

Key Message

BMI alone is insufficient for diagnosing obesity, particularly in older adults. Accurate assessment requires evaluating body composition, functional and psychological status (including visceral fat, muscle strength, gait, and weight-related distress) to enable accurate risk stratification and personalized management.

Clinical and Functional Consequences

Clinical Consequences

Obesity is associated with more than 200 medical complications and represents the fifth leading cause of death globally [79].

- *Cardiovascular disease (CVD)*. Obesity in older adults is consistently associated with an increased risk of atherosclerotic cardiovascular disease (ASCVD), morbidity, and mortality, in line with evidence from large epidemiological cohorts [80, 81]. However, recent analyses suggest that the relationship between body weight and cardiovascular outcomes in later life is complex. In a sample of adults aged 60–79 years, weight loss $\geq 5\%$ was associated with higher predicted 10-year ASCVD risk, whereas weight gain showed no protective effect [82]. These findings highlight the importance of distinguishing intentional from unintentional weight change when assessing cardiovascular risk in this population [83, 84]. Also, evidence from longitudinal studies indicates that elevated waist circumference is a significant predictor of cardiovascular events in older adults [85, 86].
- *Type 2 diabetes (T2DM)*. In older adults, excess weight and obesity are major contributors to T2DM and its complications, with risk increasing progressively with BMI. Waist circumference, including its fluctuations over time, is strongly associated with diabetes risk [87–89].
- *Metabolic dysfunction-associated steatotic liver disease (MASLD)*. The prevalence of MASLD is rising globally in parallel with population ageing. In a large-scale Korean cohort of more than 329,000 individuals aged ≥ 60 years, overweight and obesity emerged as the strongest predictors of both MASLD and progression to advanced fibrosis, independent of other cardiometabolic risk factors [90].
- *Respiratory complications*. Obstructive sleep apnoea syndrome (OSAS) is particularly common in older adults with obesity due to fat deposition in the upper airway and reduced muscle function. Prevalence is higher in men, but in postmenopausal women not receiving hormone replacement therapy it approaches that of men [91].
- *Renal diseases*. Obesity accelerates chronic kidney disease (CKD) in older adults by increasing risk factors like high blood pressure and T2DM, and by causing direct kidney damage through a process called glomerular hyperfiltration, which increases pressure on the kidneys [92].

- *Urinary incontinence.* Obesity is associated with urinary incontinence, likely through increased intra-abdominal pressure and pelvic floor dysfunction. Prevalence correlates positively with BMI and waist circumference in women, while a U-shaped association has been reported in older men [93].
- *Dementia.* The link between obesity and dementia is complex. Midlife obesity increases dementia risk 10–15 years later, but in late life this association weakens, while weight loss due to malnutrition or preclinical disease correlates with greater dementia risk [94].
- *Cancer.* Obesity is a recognized risk factor for several malignancies. Excess body weight has been causally associated with cancers of the endometrium, ovary, and postmenopausal breast in women, and with cancers of the oesophagus (adenocarcinoma), gastric cardia, colon and rectum, liver, gallbladder, pancreas, kidney, as well as meningioma and multiple myeloma in both sexes [95–97].

Functional Consequences

- *Disability and falls.* In older adults, obesity is strongly associated with physical disability, with a consequent negative impact on quality of life [98]. Chronic pain is a major contributor, mediated by mechanical overload, low-grade inflammation and cardiometabolic complications such as peripheral neuropathy and claudication [99]. Functional limitations also translate into a higher risk of falls and recurrent falls, as confirmed by a meta-analysis of 31 studies [100].
- *Fractures and osteoarthritis.* The association between obesity and fracture risk is site-specific. While obesity appears protective against hip fractures, it increases the risk of humerus, leg, and ankle fractures [100]. Obesity is a major risk factor for osteoarthritis, especially in the knees, with risk increased 2.5- to 4.6-fold compared to normal weight. In addition to joint overload, low-grade inflammation, altered lipid metabolism and adipokines contribute to disease pathophysiology [101, 102].

Key Message

In older adults, obesity remains a major determinant of morbidity, disability and mortality. Despite the debated “obesity paradox,” consistent evidence links excess body fat with cardiovascular diseases, type 2 diabetes, MASLD, respiratory disorders, incontinence, dementia, cancer and functional decline, underscoring its multifactorial burden on ageing populations.

Management of Obesity in Older Adults

The management of obesity is primarily based on individualized dietary protocols and structured physical exercise. In selected cases, these approaches may be integrated with pharmacological therapies, bariatric surgery, and formal behavioural interventions to improve long-term outcomes [1].

Nutritional Approach

Nutritional strategies for obesity management in older adults must achieve a delicate balance between inducing fat mass reduction and preserving lean mass (and in particular skeletal muscle mass), functional capacity, and overall nutrient adequacy.

- Caloric restriction remains the cornerstone of body weight reduction; however, overly restrictive regimens may induce or exacerbate sarcopenia, micronutrient deficiencies, and frailty. Consequently, moderate energy restriction, typically around 500 kcal/day below estimated requirements, is recommended, in combination with adequate protein intake to mitigate loss of skeletal muscle mass, and appropriate essential micronutrients intake.
- Protein intake is particularly critical in ageing [103], given the decline in protein synthesis associated with anabolic resistance [104]. High-quality proteins rich in essential amino acids, especially leucine (a branched-chain amino with a central role in stimulating muscle protein synthesis), are strongly recommended [105]. Current recommendations indicate a minimum daily protein intake of 1.0–1.2 g/kg of body weight for older adults to maintain muscle mass and function [105], broadly consistent with findings from a systematic review and meta-analysis among older adults showing that protein intakes above 1 g/kg were associated with greater lean mass retention compared to intakes less than 1 g/kg [106]. In this regard, avoiding low protein intake is essential and, in addition to dietary advice promoting protein-rich foods, the use of protein-enriched dairy products or protein supplements may be considered. In individuals with impaired renal function higher intakes (>1.2 g/kg) should be avoided [107]. To avoid excessive protein intake, consensus and position papers (e.g., the ones from ESPEN and EASO) have supported protein intakes above 1 g/kg adjusted body weight (ABW)·day (ABW = ideal body weight + 25% excess body weight) [108, 109]. Moreover, protein consumption should be timed at each of the three main meals (≥25 g per meal) to counteract age-related

changes in digestion, gastric emptying, splanchnic extraction, and peripheral utilization, all of which influence the anabolic response [110]. Even if evidence regarding the differential effects of plant-based versus animal-based protein sources on fat mass regulation remains inconclusive [111], animal-derived proteins appear more effective in stimulating muscle protein synthesis in older adults [112].

- The adequacy of specific micronutrients should be ensured (possibly also through supplementation) as deficiencies can impair muscle health and metabolic function. Particular focus should be given to vitamin D, involved in protein synthesis and strength, magnesium (as low levels are associated with insulin resistance), and vitamins B6, B12, and selenium, which have been associated with functional decline in older populations [113]. According to the Nordic Nutrition Recommendation 2023 [114], the recommended intake of vitamin D in older adults is 20 µg/day [114]. Vitamin D and calcium are essential for bone health. While the recommended intake of calcium can generally be achieved with daily intakes of dairy products (e.g., cheese, milk and yoghurt), vitamin D supplementation may be required to achieve the recommended levels.

Physical Exercise

Physical exercise represents a fundamental component in the management of obesity in older adults, particularly due to the combined effect of ageing and excess adiposity, which reduce functional capacity even in absence of comorbidities. In SO, structural muscle alterations lead to a progressive loss of muscle strength and performance, compromising independence and limits the ability to perform activities of daily living [115]. At the same time, obesity exacerbates low-grade systemic inflammation and cardiometabolic risk, ultimately contributing to shorter life expectancy [116].

Physical exercise counteracts these detrimental processes by improving metabolic health [117], enhancing functional independence [117], and inducing favourable changes in body composition, including reductions in visceral and ectopic fat [118]. Specifically:

- Multicomponent training combining flexibility, balance, aerobic, and resistance training is strongly advised [1].
- Aerobic training of 150–200 min/week at moderate intensity reduces body weight, total fat, visceral fat, intra-hepatic fat, and improves blood pressure [119].
- Resistance training at moderate-to-high intensity attenuates lean mass loss during weight loss, preserves bone mineral density and limits bone turnover [118, 119].

- Exercise training of any type (aerobic, resistance, and combined aerobic or resistance) or high-intensity interval training (after thorough assessment of cardio-vascular risk and under supervision) improves insulin sensitivity and increases cardiorespiratory fitness [119].
- Aerobic, resistance or combined training improves psychological well-being and overall quality of life [113, 119].
- Balance training is particularly beneficial for older persons with obesity as it improves physical function, reduces frailty, increases muscle strength, and lowers the risk of falls [120, 121]. It also led to reduced fear of falling, and increased confidence in performing activity of daily living [122].
- Exercise programs tailored to individual capacities, following the FITT principle which considers frequency, intensity, time and type, act synergistically with dietary protocols to promote weight loss, prevent weight regain, and reduce obesity-related complications [1, 118].
- In severe obesity or in the presence of significant functional limitations, exercise and diet alone may be not sufficient; in such cases, pharmacological or surgical treatments can support weight reduction and improve exercise tolerance. There is no fixed upper age limit for bariatric surgery. The decision should be based on individual patient health and physiological status rather than chronological age alone, although epidemiological data show that risk factors increase with age [123].

Behavioural Therapies

- Evidence on behavioural change techniques (BCTs) in older adults with obesity is limited. Strategies such as education, motivational interviewing, self-monitoring, goal setting and personalized feedback have been tested, but data on their effectiveness in this age group remain scarce [124]. Interventions should consider age-related challenges, including cognitive status, social isolation, depression, disease burden and dependency, which can hinder adherence [120, 125].
- Behavioural therapy should prioritize realistic, health-oriented goals, focussing on improving comorbidities and quality of life rather than weight loss alone. Sustained support, regular follow-up and family or social involvement improve adherence, while relapse prevention strategies are crucial for long-term success. Older adults are more likely to engage in behaviour change when it is linked to health and functional outcomes, rather than appearance or social influences [126].

Obesity Management Medications

Recent progress in obesity pharmacotherapy, particularly with the advent of second-generation agents, has been described as a paradigm shift in the medical management of obesity [24].

- To date, The Electronic Medicines Compendium notes that evidence on the use of these therapies in individuals aged 75 years and older is scarce.
- Three incretin mimetics (IMs) are currently approved for obesity pharmacotherapy: liraglutide and semaglutide, both GLP-1 receptor agonists, and tirzepatide, a dual GIP/GLP-1 receptor agonist. They act by enhancing satiety, delaying gastric emptying and reducing energy intake, with tirzepatide providing additional metabolic effects concerning incremental glucose-lowering effects [127, 128].
- Gastrointestinal adverse events are frequent during therapy with GLP-1 receptor agonists and dual agonists, primarily related to delayed gastric emptying and central appetite modulation [129]. In older adults, together with sensory impairment [130], heightened gastrointestinal sensitivity, characterized by increased pyloric activity and elevated postprandial gut hormones (CCK, GLP-1), may amplify these effects and contribute to the “anorexia of ageing,” a common condition in individuals aged over 75 years, which is associated with reduced food intake and increased malnutrition risk [131].
- IMs induce clinically meaningful weight loss; however, a considerable share of this reduction originates from lean mass. In older adults, this raises particular concern as it may precipitate or worsen sarcopenic obesity. Weight-loss interventions with incretin-based therapies should, therefore, be coupled with strategies aimed at preserving muscle mass, such as adequate protein intake and resistance exercise [131, 132].
- For other classes of drugs (already approved and in use, being tested or being marketed) data on their use in older adults (in particular those over the age of 75 years) are very scarce [24]. While little is known about drug-drug interactions and the effect on bone and muscle, older adults are more likely to experience adverse events of obesity management medications, and/or a higher rate of treatment discontinuation. Given this uncertainty, a tailored, individualized approach to prescribing obesity pharmacotherapy for older people is required, with careful consideration of potential risks and benefits followed by close medical supervision [133]. From

this point of view it may be useful to refer to the Framework on the Pharmacological Treatment of Obesity proposed by EASO [134, 135].

Metabolic Bariatric Surgery

- Age per se is not an absolute contraindication to bariatric surgery. In the past, most international guidelines on metabolic bariatric surgery (MBS) focused on patients aged 18–60 years [136, 137]. More recently, the clinical practice guidelines of the European Association for Endoscopic Surgery (EAES), the American Society for Metabolic and Bariatric Surgery (ASMBS) and the International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO) have removed upper age limits, recommending surgery for patients considered fit and without contraindications to laparoscopy, regardless of chronological age [138, 139].
- No randomized trial has directly compared surgery with non-surgical interventions in older adults, making it impossible to define a reliable balance of benefits and risks or to issue strong age-specific recommendations [140].
- Several observational studies have investigated weight loss outcomes following MBS in individuals aged ≥ 65 years, demonstrating clinically meaningful reductions in body weight, although the magnitude of benefit appears in some analyses to be lower than that observed in younger cohorts [140]. Weight loss generally begins early after surgery and is maintained for 2–3 years, while robust long-term data are still lacking.
- Older patients show higher odds of in-hospital mortality after bariatric surgery compared with younger adults and are at increased risk of respiratory, infectious, and renal complications, as well as longer hospital stays [141]. In addition, bone health may be adversely affected after surgery due to nutrient malabsorption and accelerated bone loss [142].

Key Message

Management of obesity in older adults should be personalized, prioritizing the preservation of muscle mass, functional capacity, and quality of life. Moderate caloric restriction combined with adequate protein intake, multicomponent exercise, and behavioural support are the cornerstones of treatment. Obesity management medications, and metabolic bariatric surgery may be considered in selected patients, with attention to age-related risks, adverse effects, and long-term adherence.

Conclusions

Obesity in older adults is a growing public health challenge, driven by population ageing and rising obesity prevalence worldwide. Its diagnosis requires approaches that go beyond BMI, incorporating body composition and functional assessment. Management should aim for moderate weight loss when indicated, with strategies focused on maintaining lean mass (and in particular skeletal muscle mass), improving comorbidities, and supporting independence. Nutritional therapy, multi-component exercise, behavioural support, and, where appropriate, pharmacotherapy or metabolic surgery can be combined to optimize outcomes.

Special attention must be given to risks specific to this age group, including sarcopenia, bone loss, polypharmacy, and the potential adverse effects of weight-loss interventions. This EASO position statement calls for a person-centred, evidence-based, and stigma-free approach to the diagnosis and management of obesity in older adults, as well as further research to define optimal treatment targets and improve outcomes in this vulnerable but heterogeneous population.

Conflict of Interest Statement

Luca Busetto declares personal fees as advisory board member and/or speaker by Amgen, Boehringer Ingelheim, Bruno Farmaceutici, Lilly, Novo Nordisk, Pfizer, Pronokal, Recordati, Regeneron, Rhythm, and Roche. Lubomíra Fábryová received payment of honoraria from Zentiva, Sandoz, Eli Lilly, Novo Nordisk, and Boehringer Ingelheim; grants/research supports from Pfizer, Novo Nordisk, KOWA, and Eli

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Author Contributions

L.M.D.: conceptualization and writing – review and editing; O.D.V. and M.M.: investigation and writing – editing; and J.L.B., R.B., E.B., L.B., A.C., D.D., L.F., T.H., B.M., S.M., E.P., P.S., M.S., E.W., V.Y.: review and editing.

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