

Weight Loss in Older Persons

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KEYWORDS

• Weight loss • Anorexia • Aging • Under nutrition

This article focuses on the epidemiology, causes, and associated consequences of weight loss in older people.

CHANGES IN BODY WEIGHT AND BODY COMPOSITION WITH INCREASING AGE *Changes in Body Weight*

On average, people in developed countries gain weight until they are about 50 to 60 years old, stay fairly weight stable for a while, then lose weight.¹ The weight loss in elderly people has been demonstrated in numerous cross-sectional and prospective studies.² In the large American Cancer Prevention Study, women older than 85 years had body mass indexes (BMIs) 1.8 kg/m² less than women aged 55 to 64 years, and men older than 85 years had BMIs 2.6 kg/m² lower than men aged 45 to 64 years, corresponding to body weights approximately 4.0 kg (9 lb) and 5.5 kg (12 lb) lower in the older adults than the young women and men, respectively.³ Although some of the reduced body weight in older people found in cross-sectional studies is caused by the premature death of obese people, declining body weight among older people has also been detected consistently in longitudinal studies; in one American study, community-dwelling men older than 65 years lost on average 0.5% of their body weight per year.⁴ As a result of this weight loss and the premature death of obese people at younger ages, the prevalence of overweight and obesity as defined by standard criteria peaks around 55 to 65 years of age and decreases after about 70 to 75 years of age. In the 1997 to 1998 US National Health Interview Survey of 68,556 adults, 4 times as many people aged 75 years and older than those aged 45 to 64 years were underweight (BMI <18.5; 5.0% vs 1.2%) and substantially fewer were overweight (BMI >25; 47.2% vs 63.5%).²

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Changes in Body Composition

Enlargement and redistribution of fat stores

With increasing age there is an overall increase in fat stores and decrease in fat-free mass, the latter mainly caused by loss of skeletal muscle. At any given weight, older people have, on average, much more body fat than young adults. In one study, the mean body fat percentage of 75-year-old men weighing 80 kg was 29% compared with 15% in weight-matched 20-year-old men.⁵ The increase in body fat with aging is multifactorial in origin, with decreased physical activity a cause and contributions from reduced anabolic hormone action and reduced resting metabolic rate and thermic effect of food.

Body fat is also distributed differently in older adults compared with younger adults. A greater proportion of body fat in older people is intrahepatic, intramuscular, and intra-abdominal (vs subcutaneous).^{6,7} Intramuscular fat stores are as much as 50% greater, intrahepatic stores 4 times greater, and insulin resistance 2 times greater in older adults than in young adults.⁷ Given that the body weight compatible with longest survival increases with increasing age (see later discussion), and much if not all of the increase in body weight is caused by increased fat stores, it may be that advancing age blunts in some way the harmful effects of increasing body fat.

Loss of skeletal muscle (sarcopenia)

Aging is associated with a decrease in muscle mass and strength, with loss of up to 3 kg of lean body mass per decade after 50 years of age. After 60 years of age loss of body weight is disproportionately of lean body tissue, predominantly skeletal muscle. The causes of age-related skeletal muscle loss are multiple and not fully understood, but probably similar to those leading to fat gain. When excessive, this loss of skeletal muscle leads to sarcopenia (from the Greek meaning “poverty of flesh”). Sarcopenia is associated with poor gait and balance, frailty, falls, and fractures.⁸ Sarcopenia and its management are considered in more detail in an article by Rolland and colleagues elsewhere in this issue for further exploration of this topic.

In older people, in contrast to the usual situation in young adults, increased body fat commonly coexists with muscle loss. The combination of an excess of fat tissue and a deficiency of muscle tissue (sarcopenic obesity) is associated independently with adverse effects,^{9,10} such as disabilities in activities of daily living.¹¹ This finding helps to explain the demonstrated benefits of exercise programs in elderly people, particularly those that increase muscle mass and function.

CONSEQUENCES OF WEIGHT LOSS IN OLDER PEOPLE

As previously indicated, weight loss is more common than weight gain among the elderly. Additionally, (1) weight loss among the elderly is often associated with adverse effects, particularly if the weight loss is unintentional; (2) ideal weight ranges for survival are higher in older adults than in young adults; and (3) undernutrition, most obviously manifesting as both low body weight and weight loss, is common in older people and is associated with significant adverse effects.

Adverse Effects of Weight Loss in Older People

Numerous studies have shown that weight loss in the elderly is associated with reduced survival, certainly if the weight loss is involuntary but possibly even when deliberate. In the prospective Cardiovascular Health Study,¹² for example, of subjects older than 65 years, those who lost 5% or more of their initial body weight in the 3 years after study entry had twice the death rate ($2.09 \times \uparrow$ [95% confidence interval

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