# Involuntary Weight Loss

Christopher J. Wong, MD

**KEYWORDS**

• Involuntary weight loss • Unintentional weight loss • Unintended weight loss
• Unexplained weight loss • Malignancy • Diagnosis • Prognosis • Etiology

**KEY POINTS**

- Involuntary weight loss is a common clinical problem that frequently is a sign of underlying illness.
- The most common identified causes of involuntary weight loss are malignancy, gastrointestinal disorders, and psychiatric conditions; unknown etiologies represent a significant portion.
- Patients with normal history, physical examination, laboratory tests, and basic imaging studies are less likely to have a malignancy as the cause of involuntary weight loss; however, malignancy cannot be completely excluded.
- Treatment of involuntary weight loss is directed at the underlying causes.

## INTRODUCTION

Involuntary weight loss is truly a generalist's syndrome. There is no specialty for it, and the differential diagnosis is as broad as any. It may be present as a patient's chief complaint but also may be found by astute observation by a clinician or family member. It requires a comprehensive evaluation to determine its cause. Involuntary weight loss poses a clinical problem of opposing tensions: on one hand, the specter of malignancy urges the clinician to undertake extensive workup so as not to miss it; on the other, most patients who present with involuntary weight loss do not have a malignancy, and these patients may incur the cost of the diagnostic workup, including the risk of invasive tests and procedures that may follow incidental findings. Frequently patients with involuntary weight loss are elderly and already have comorbid medical conditions, and the prognostic implications may be serious.

## IS INVOLUNTARY WEIGHT LOSS A CONCERN? INSIGHTS FROM EPIDEMIOLOGY

It is often now presumed that intentional weight loss is desirable, whereas unintentional weight loss is a marker for serious illness. However, the relationship between

Division of General Internal Medicine, Department of Medicine, University of Washington, 4245 Roosevelt Way Northeast, Box 354760, Seattle, WA 98105, USA
*E-mail address:* cjwong@uw.edu

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weight and health has had a storied epidemiologic history. The Metropolitan Life Insurance Company was one of the early pioneers in identifying obesity as a risk factor for mortality in its actuarial life tables from the 1950s. Although there remain concerns regarding measurement standardization and smoking status in that data set,[1] the concept of obesity as a risk factor for mortality eventually became consensus. The range of body mass index at which mortality is increased is still a subject of research and controversy.[2]

The next epidemiologic question was whether *changes* in weight were associated with positive or negative health outcomes. In the 1980s and 1990s debate took place with the concern that weight loss may be harmful.[3,4] Other approaches sought to associate health risk with weight fluctuation or "weight cycling" in general.[5–7] However, studies that attempted to control for preexisting illnesses have not shown a definite risk from weight fluctuation alone.[8,9] Several studies sought to demonstrate that intentional weight loss was favorable for health outcomes, and in doing so were able to show an association between unintentional weight loss and mortality in select populations.[10,11] By contrast, a study of men in Israel beginning in the 1960s reported increased mortality with weight loss regardless of dieting status.[12] An analysis of data of the more modern era from the Iowa Women's Health Study showed that unintentional weight loss, but not intentional weight loss, of more than 20 lb (9 kg) was associated with increased mortality.[13] After adjusting for comorbid conditions, this association appeared to be present in the 55-year and older age group. Wannamethee and colleagues[14] sought to further explore intentional versus unintentional weight loss in a study of more than 4000 British men, and found that unintentional weight loss (over 4 years, mean −3.91 kg, as reported by participants) was associated with increased risk of total mortality, even after adjustment for preexisting disease. Of note, intentional weight loss was only associated with mortality if the weight loss was undertaken on the advice of a physician or if the patient was in ill health.

Finally, studies examining shorter-term weight loss are likely more relevant to the clinical problem of involuntary weight loss. In the United States, Gregg and colleagues[15] found that intentional weight loss over the preceding year was associated with a decreased mortality rate over the ensuing 9 years, whereas unintentional weight loss was associated with an approximately 30% increase in mortality. Sahyoun and colleagues[16] found an association between weight loss of 5% or more within the preceding 6 months and increased total mortality.

Thus despite the limitations in epidemiology-based methods to differentiate between voluntary and involuntary weight loss, there are at least moderate data suggesting that unintentional weight loss is harmful.

## WHAT DEFINES INVOLUNTARY WEIGHT LOSS?

These epidemiology studies suggest that unintentional weight loss may be harmful. When approaching a patient, however, there is need to have a clinical definition for use in practice. Although there is as yet no consensus definition of involuntary weight loss, certain terms may still be reasonably defined (**Table 1**).

First, the term involuntary: in the literature, "involuntary" is used interchangeably with "unintended" or "unintentional." These terms may be defined as the condition whereby the patient does not purposefully set out to lose weight for any reason, and excluding weight loss as an expected consequence of treatment of a known illness, such as diuretic therapy for heart failure. In addition, there are several terms used in the literature to describe weight loss of unknown etiology. For this review, the terms "unexplained" or "isolated" or "unknown" refer to weight loss without an