

# Disordered eating in elderly



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# Overview

- Malnutrition
- Appetite regulation
- Changes in the elderly
- Eating disorder
- Screening tools
- General principles of management
- Legal issues

Protein-energy malnutrition is a frequent condition in the elderly. Low-calorie intake represents one of the main risk factors for malnutrition: this condition has been referred to as **'anorexia of aging'** (Morley, 1997)

Consistent reduction of food intake in the elderly is only partly balanced by reductions in energy expenditure, so old men and women mainly lose body weight (Baumgartner et al, 1998)

At more advanced ages, energy intake declined constantly by 13 kcal/day/year in women and 25 in men (Baumgartner et al, 1998)

Many of the social, psychological and organic conditions which aging are also recognized causes of reduced food intake and malnutrition.

Several diseases which are frequently associated with the elderly lead to weight loss, mainly by elevating energy expenditure, but also because they depress hunger sensation.

**Physical**

Dry mouth, dysphagia

**Medical**

COPD, neoplasia, stroke, heart failure

**Psychiatric**

Depression, dementia, eating disorder, anxiety

**Social**

Social isolation, loss, bereavement, family conflict, poverty

**Drugs**

Amiodarone, furosemide, digoxin, spironolactone, theophylline, levodopa  
fluoxetine, lithium, gastrointestinal H2-antagonists, PPI, antibiotics, metronidazole  
Chemotherapies, colchicine

Dysphagia and poor mastication interfere with nutritional status either directly or indirectly, by reducing taste sensation.

Many drugs, which are widely used in the elderly, may cause anorexia.

Aging is associated with an impairment in the ability to regulate body weight. (Roberts et al, 1994)

Single food-specific sensory satiety contrasts the excessive intake of a single food even in a normocaloric meal. In the elderly this kind of satiety seems to be impaired thus facilitating monotonous single food intake

(Rolls et al 1991)

Reduction in the hedonist component of eating and an elevated threshold of taste and smell restricts the pleasure of eating to only a few foods in the elderly.

# Consequences

Impairs the immune system thus increasing the frequency and severity of infectious diseases. In fact malnourished old people have particularly low levels of CD4+ T-helper cells (Thomas et al, 2002)

Anaemia, cognitive decline, osteopenia, altered drug metabolism and sarcopenia.

Higher risk of hospitalization, delayed discharge from the hospital and mortality (Chapman et al 2002)



# Central satiety regulation

**Leptin** produced by the adipose tissue and **insulin** from the pancreas rise in the blood as a long-term signal of adiposity (i.e., they refer the presence of a positive energy balance to the hypothalamus).

**Ghrelin**, a hormone produced by the stomach during fasting, stimulates NPY neurons in the ARC, potentiates hunger and triggers eating (Van der Lely, 2004)

**CCK**, produced by the intestine in the presence of lipids and amino acids in the lumen, also stimulates NTS and thus postprandial satiety.

**CCK** and **peptide YY (PYY)** produced after meals by the upper and lower intestine elicit short-term signal of satiety. Leptin, insulin, CCK and PYY inhibit **NPY/AgRP** neurons and stimulate **POMC** neurons, thus causing satiety

(Morton et al, 2006, Havel, 2001)

**Vagal nerve**, stimuli from stretching receptors of the stomach rise after gastric filling by food and reach the nucleus of the tractus solitarius (NTS). NTS evokes the sensation of satiety.

# Elderly hormonal changes

Several studies have demonstrated the presence of **higher CCK** concentrations in the blood of aged compared to young persons.

Aging is characterized by **reduced glucose tolerance and elevated insulinemia**. This condition may facilitate anorexia.

Fasting **leptin** in healthy elderly subjects was found to be elevated when compared to young persons, even after adjusting for body fat mass [48] . Serum leptin was found to be significantly higher in the elderly group after a meal.

**CCK** and **PYY** are enteric peptides involved in gastrointestinal motility in response to eating, they provide a potent anorexigenic signals to the hypothalamus.

Concurrent high concentrations of **leptin and insulin** may have been responsible for the **low sensitivity to ghrelin**.

# Peripheral satiety regulation

Taste and flavour, but also the sight of pleasant food, enhance hunger by acting on the orexigenic mediators and by cortical integration of past experience.

**Ghrelin** is the only orexigenic signal which comes from peripheral districts; it is produced in a pulsatile manner by the empty stomach.

Adiposity signals from **leptin and insulin** indicate to the central system energy storage in the adipose tissue, thus they potentiate central satiety sensation.

Insulin inhibits ghrelin and leptin enforces the **CCK signal** and vice versa.

# Elderly peripheral feedback

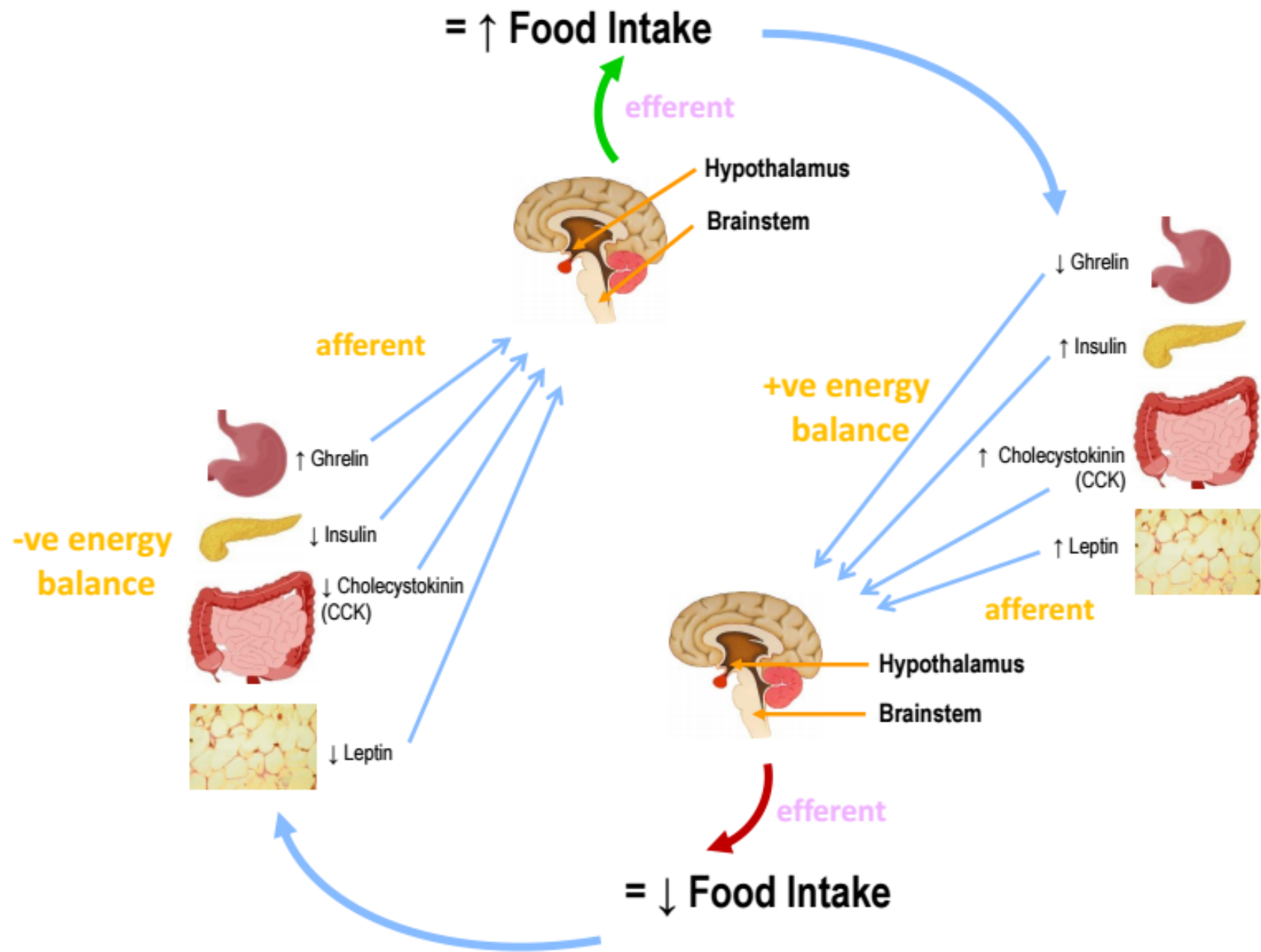
**Elderly have a reduced sensor-specific satiety.** As a consequence they may consume a large amount of a single food, but, on the other hand, they may feel satiety for any food after a single food ingestion.

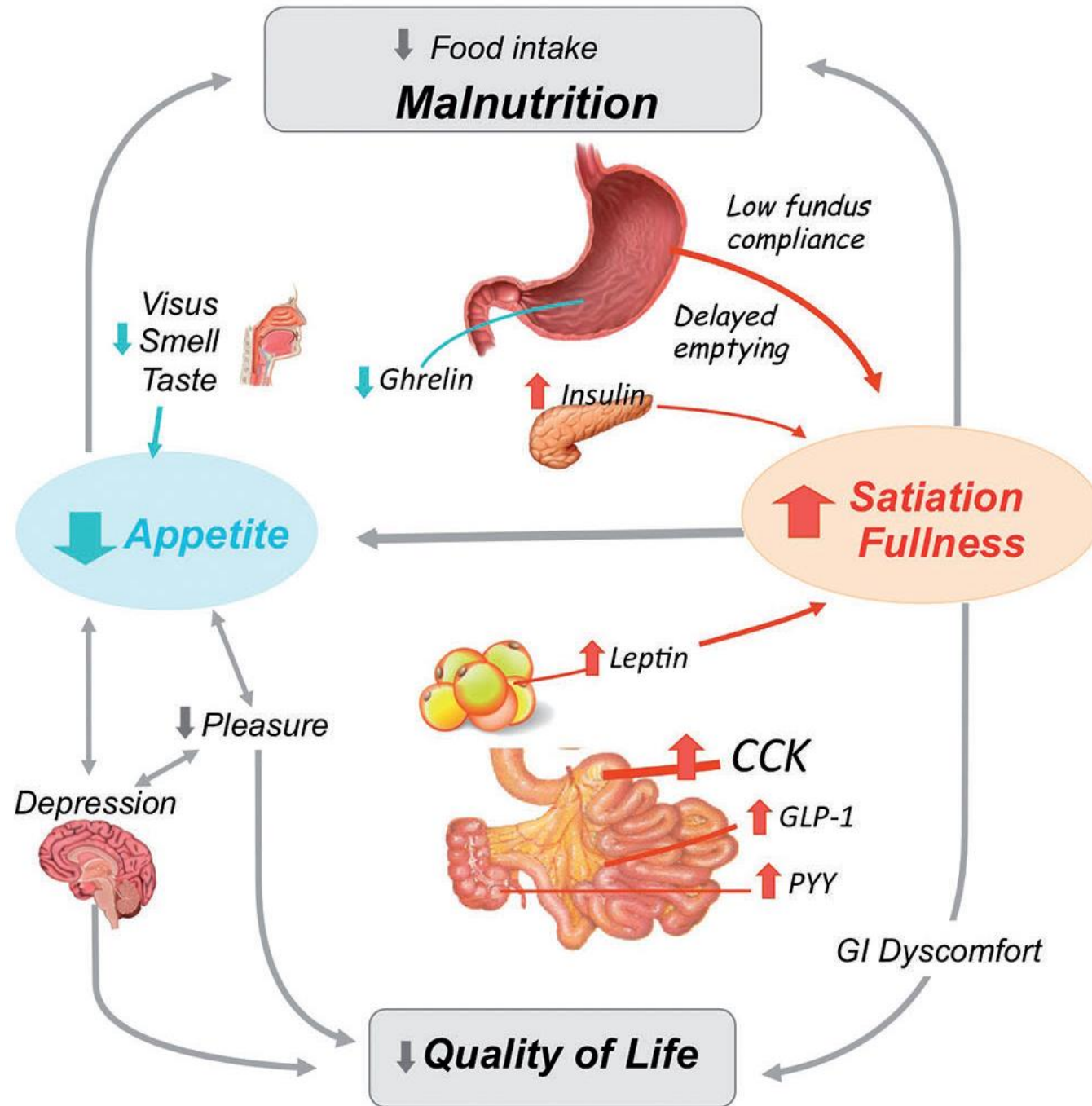
**Taste is impaired with aging.** Fukunaga et al. found higher thresholds for recognizing sweet, bitter, salty and acid in the elderly as compared with young controls.

**Delayed gastric emptying** may cause prolonged postprandial satiety.

Abnormalities in gastric motility may cause early satiation due to **reduced fundus compliance**, and prolonged satiety caused by slower gastric emptying.

**Olfactory deficit** has been demonstrated in the elderly and this may also reduce hunger.





# Anorexia nervosa in elderly



## DSM-5 and ICD-10 Criteria for Anorexia Nervosa

### DSM-5

- **Restriction of energy intake** relative to requirements, leading to a significantly low body weight in the context of age, sex, developmental trajectory, and physical health.
- Intense **fear of gaining weight or becoming fat**, or persistent behaviour that interferes with weight gain, even though at significantly low weight.
- Disturbance in the way one's body shape or weight is experienced, undue influence of body weight and shape on self evaluation. (**Body Image disturbance**)

### ICD-10

- Body weight is maintained at least 15% below that expected or Quetelet's body mass index is 17.5 or less
- The weight loss is self-induced by **avoidance of "fattening foods"** and one or more of the following: self-induced vomiting; self-induced purging; excessive exercise; use of appetite suppressants and/or diuretics
- There is **body-image distortion** whereby a dread of fatness persists as an intrusive, overvalued idea and the patient imposes a low weight threshold on himself or herself
- A widespread **endocrine disorder involving the hypothalamic-pituitary-gonadal axis** is manifest in women as amenorrhoea and in men as a loss of sexual interest and potency



# Anorexia nervosa in the elderly

The mean age was 68.6 years (range 50–94), and the majority (88%) of cases were females. The majority (81%) of cases had anorexia nervosa, and 10% had bulimia nervosa. Late onset eating disorders were more common (69%) than early onset. Comorbid psychiatric conditions existed in 60%, most commonly major depression. Management with a combination of behavioral and pharmacologic interventions was most successful, although only 42% were treated successfully. Mortality was high (21%) secondary to the eating disorder and its complications. (Lapid et al, 2010)



# Anorexia nervosa in the elderly

Older adults suffering from eating disorders fall mainly into the following three categories:

- those who have suffered from an eating disorder in the past and went untreated;
- those whose eating disorder went into remission and resurfaced later in life; and
- those whose disorder emerged later in life “tardive” anorexics (controversial)

Older women's stressors include such things as empty nest, divorce, loss of parents, widowhood, retirement, chronic illness/disability, death of an adult child, and growing old/facing mortality

Lack of enthusiasm for life; attempts to get attention from family members; protest against living conditions, such as in a nursing home; economic hardship; and medical problems.

# Anorexia in the elderly

A way of coping with something else that the person finds extremely difficult to express, feel, or control. In this way, the role of the eating disorder is much like alcohol for an alcoholic. Both serve the same purpose—to avoid, numb, and cope

Less like to experience disturbed body image and preoccupation with weight, eating, and shape, and more likely to exhibit persistent depressed mood

Cardiac arrhythmia, heart failure, aspiration pneumonia, respiratory failure, pancytopenia, renal failure, hypoglycemia, hypercortisolism, thyroid abnormalities, osteoporosis, hepatitis, pancreatitis, constipation, and cerebral atrophy.

# Screening

Malnutrition – MUST  
Malnutrition Universal Screening Tool

Eating disorder - SCOFF

Depression – Geriatric Depression Scale (GDS)  
Hospital Anxiety and Depression Scale (HADS)

**Table 2.** SCOFF screening questionnaire for eating disorders\*  
**100% sensitive if two or more positive:**

Do you make yourself **S**ick because you feel uncomfortably full?

Do you worry you have lost **C**ontrol over how much you eat?

Have you recently lost more than **O**ne stone (14 pounds)\* in a 3-month period?

Do you believe yourself to be **F**at when others say you are too thin?

Would you say that **F**ood dominates your life?

\*6.36 kg

Reproduced from the SCOFF questionnaire: assessment of a new screening tool for eating disorders (Morgan *et al.*, 1999)

# Management – general principles

Treat the underlying cause - often multifactorial

Identify and treat depression, eating disorders

Stop anorexigenic medication

Small meals, improved appearance, flavour, texture etc

Lack of evidence for appetite stimulants and adverse effects

Eating disorders – therapy focussed on loss, bereavement, adjusting to age

Artificial feeding – PEG (physical cause prevention oral intake) Ng (if there is a treatable or reversible cause)

PEGs and NGs not recommended in dementia as there is no evidence to support their use.

Excessive CCK signal may be reduced by limiting the intake of CCK-stimulating foods such as fats and proteins.

# Legal issues

In the UK it is the case that an adult person living in the community, with full mental capacity, has the right to choose whether to eat or not.

However, if the patient is detained under the Mental Health Act 1983 s/he cedes a range of autonomies that may include the autonomy to refuse food or fluid. Section 63 (medical treatment) allows intervention against the patients will if food refusal is a symptom, consequence or prevents treatment of the mental disorder.

Similarly, if a patient lacks the capacity to refuse food or fluid, s/he will ordinarily cede this specific autonomy under Mental Capacity Act 2005 powers. However, there are exceptions to this (eg a valid Advance Decision to refuse food/fluids). DoLS may be required in this case.

Physical restraint may need to be used as a last resort.

The management of fluid and food refusal is potentially very complicated - senior, legal and advice from medical indemnity may be required.

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