

Malnutrition and nutritional supplements

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SUMMARY

Malnutrition is common in the elderly, both for those living at home and those in care. A malnutrition screening tool can be used to identify people at risk.

In addition to correcting factors that may contribute to weight loss, the first step in improving oral intake is to use real foods. Small, frequent, nutrient dense meals are recommended.

Oral nutrition supplements are a useful adjunct to increase protein, energy and nutrient intake. There are standard supplements which are usually powders, but can be premixed liquids.

An Accredited Practising Dietitian can provide expert advice to improve nutrition status. They can advise on the use of specialised supplements for patients with conditions such as cancer cachexia and renal disease.

Introduction

Weight loss is not necessarily a normal part of the ageing process. However, undernutrition and malnutrition (see Box)¹ are common in the elderly. This can result in significant morbidity and mortality, hospitalisation, pressure ulcer development, infection and an increase in falls and subsequent fractures. Unintentional weight loss can result in a reduction in the ability to care for oneself, loss of mobility and independence and a poorer quality of life. People who are poorly nourished are more likely to be hospitalised and are less likely to live independently.

The rates of malnutrition in older people living at home are estimated to be as high as 30% and in aged-care facilities can be as high as 70%.^{2,3} Weight loss in the elderly generally results in loss of skeletal muscle mass and strength (sarcopenia).⁴ Sarcopenia has huge personal and financial costs and remains largely unrecognised.

There is wide publicity about the health impact of overweight and obesity and even the frail elderly and their carers can express satisfaction that they are finally losing weight. However, this may be the result of poor dietary intake or an undiagnosed illness. It

must be remembered that obesity and malnutrition can exist simultaneously.⁵

Causes of malnutrition

There are multiple factors that may contribute to weight loss and malnutrition. These include:

- financial problems
- social difficulties
- multiple comorbidities
- respiratory difficulties (for example dyspnoea)
- dysphagia
- poor dentition
- adverse effects of drugs
- polypharmacy
- depression, bereavement
- dementia
- reduced taste and smell
- poor appetite.

Correcting malnutrition

The first step in reducing malnutrition is to identify those who are at risk. There is a variety of malnutrition screening and assessment tools that are validated in various settings.² These tools include questions about current weight, body mass index, weight change, appetite and comorbidities, and assign a score indicating level of risk. They can help to identify those who are losing weight and who are at risk, but they must be used together with a 'pathway of action'. The factors contributing to poor intake must be treated where possible. Everyone involved in the care of the person can play a part in encouraging food intake and improving nutrition. The causes of poor intake should be closely examined and corrected. In addition the

Box Definition of malnutrition¹

The British Association for Parenteral and Enteral Nutrition (BAPEN) defines malnutrition as follows:

Malnutrition is a state of nutrition in which a deficiency or excess (or imbalance) of energy, protein and other nutrients causes measurable adverse effects on tissue/body form (body shape, size and composition) and function and clinical outcome. The term malnutrition does include obesity, however BAPEN is focussed on the problem of 'undernutrition'. The term 'malnutrition' is used commonly to mean 'undernutrition'.

role of the dining environment and other social factors should not be underestimated.^{6,7} An Accredited Practising Dietitian can provide a comprehensive assessment and advise on strategies.

Most elderly people eat far less than they did when they were younger. Their energy needs are lower, but the requirements for some nutrients such as protein, calcium and riboflavin are actually higher.⁸ This means that their food must be more nutritious to meet their needs.

A variety of dietary measures can be used to improve energy and nutrient intake. While the temptation might be to reach for a commercial oral nutrition supplement as a first step, there are many approaches that can improve oral intake with regular foods. Supplements have an important role, but the first step should be to find ways to increase the intake from familiar and preferred foods. There is a large element of taste fatigue with supplements and they are potentially an expensive option.

There are three main approaches to increase the intake of protein, energy and nutrient intake from food:

- small frequent meals – encouraging snacks between meals
- increasing the nutrient density of meals by additions of milk powder, grated cheese, margarine and cream
- nourishing fluids such as milk drinks, smoothies, juice.

These strategies can increase protein and energy intake, but if the core food groups⁹ are not taken in recommended amounts, micronutrient deficiencies may develop. In this instance a multivitamin and mineral supplement may be recommended. Improvements in weight and nutrition status can be very difficult to achieve, and individual dietary advice from a dietitian may be needed. The dietitian can assess whether the use of commercial oral nutrition supplements is appropriate and which supplements may suit the individual person.

Supplements

Studies have shown that judicious use of oral nutrition supplements can improve weight, protein and energy intake, nutritional status, physical function, quality of life and length of stay in acute care.^{2,10} When a supplement is required there are a number to choose from. The most common and readily available are milk based. They vary in their taste, nutrient profile and indications for use.

Standard oral supplements

Standard supplements are suitable for people who have some oral intake, but who are struggling to

achieve adequate nutrition. These supplements are best taken as snacks between meals to complement normal meals. Most standard supplements are powder based. Some are ‘complete’, meaning that they will provide 100% of macro- and micronutrient needs if they are taken as the only form of nutrition. Some are supplemented with fibre, some are low in lactose. The standard dilution is one calorie per mL of fluid. Examples include:

- Enprocal
- Ensure Powder
- Fortisip Powder
- Proform
- Sustagen hospital formula.

Standard liquid supplements

Some supplements come premixed in a liquid form. They are particularly useful in the acute-care setting as they do not require mixing and reduce waste. Some products may be more concentrated and provide more nutrition in a smaller volume. The formulations containing two calories per mL are frequently used in a ‘med pass’ program, where 50–60 mL of the supplement is provided at the same time as the medication round dispenses medicines, three or four times a day. This results in increased acceptance and a significant boost to nutrient and energy intake. Examples of these products include:

- Ensure liquid, Ensure plus, TwoCal HN
- FMR (formulated meal replacement)*
- Fortisip
- Resource plus, Resource protein, Resource 2.0.

Clear liquid supplements

Clear liquid supplements have added protein and nutrients and are very useful for people who do not like milk drinks. Most are fruit flavoured. They tend to be quite sweet, but still provide significant nutrition even if they need to be diluted. They are suitable for use on a ‘clear fluid’ diet. Examples include:

- Enlive Plus
- Fortijuice
- Resource fruit flavoured beverage.

Puddings

The puddings are helpful for those who do not like milky drinks, but who are happy to take custards and milky desserts. The available products include:

- Ensure puddings
- FMR (formulated meal replacement) puddings*
- Forticreme
- Sustagen pudding powder (can be made to different thicknesses).

Supplements for diabetes

Some supplements have been developed specifically for patients with diabetes. They have a lower glycaemic load, lower carbohydrate and low glycaemic index. In practice, patients with diabetes can usually tolerate the standard supplements. Most ordinary supplements have a low glycaemic index and are taken instead of regular foods. If blood glucose concentrations are elevated on the standard supplements then diabetes-specific options may be considered. They include:

- Diasip
- Glucerna
- Resource diabetic.

Energy and protein boosters

Some products are formulated to only boost protein or energy intake. While some have other additional nutrients they cannot be seen as complete foods. They are added to regular foods or drinks.

Glucose polymers

Glucose polymers have a neutral taste and can be added to sweet or savoury foods or drinks. They provide a source of pure carbohydrate only. They are not recommended for people with diabetes as they add significantly to the glycaemic load.

Examples are:

- Carb plus
- Poly-Joule.

Protein powders

Protein powders can assist in increasing protein intake for individuals who will not eat meat or other protein foods and who do not like milk or its alternatives. The protein powders can be added into puddings, mashed potato and soups. Examples are:

- Beneprotein
- Protifar.

Fat supplements

Fat has a higher energy value per gram than protein and carbohydrate and is an excellent way of increasing energy intake in a small volume.

Benecalorie has no carbohydrate, but contains protein and fat. It can be a useful way to add extra energy in a defined dose. Calogen is a 50% fat emulsion and is often used as part of a 'med pass' program.

Biscuits, soups, desserts

The commercial supplement companies are finding increasingly diverse ways to provide supplemented nourishing products that may tempt the taste buds of those with a poor appetite. These products are particularly useful when a person does not like the milky drinks. Examples include:

- bite sized cookies and desserts*
- Resource dessert fruit.

Specialised supplements

Many specialised supplements are available for a variety of medical conditions. The need for these should be assessed by a dietitian. Examples include:

- pulmonary supplements – lower carbohydrate
- renal disease – lower protein, potassium, sodium, phosphate
- supplements for a variety of metabolic disorders
- cancer cachexia supplements
- supplements for metabolic stress
- elemental (pre-digested) formulae.

Wound management

Adequate nutrition plays an important role in prevention and treatment of wounds and pressure ulcers.¹¹ There is increasing interest in the role of specific nutrients, in particular arginine, in the healing process. A number of supplements have been designed as specific wound management support products. These include:

- Cubitan
- Recover
- Resource Arginaid.

Conclusion

The use of oral nutrition supplements can be a valuable adjunct to the nutritional management of an older person who is malnourished or at risk of malnutrition. They should not be used in isolation from other strategies to increase oral intake. The first step should always be to attempt to increase protein and energy from food, preserving the enjoyment of preferred food and maintaining quality of life. ◀

* from Flavour Creations

Conflict of interest: none declared

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Book review

Anterior eye disease and therapeutics A-Z. 2nd ed.

A Bruce, M Loughnan
 Sydney: Elsevier Australia; 2011.
 380 pages
 Also available as an ebook

The authors of this book have attempted to summarise common and important conditions affecting the anterior eye in a concise and simple-to-read format. Particular emphasis is placed on the role of therapeutics in the management of these conditions. An explanation of common office-based ophthalmic procedures is also provided.

The standardised double-page format provides an excellent summary of each condition. It is easy to read and provides the reader with an efficient way to find relevant content. The pictorial images are of high quality. Each condition has at least one large colour illustration (clinical photograph or diagram) that clearly depicts the relevant pathology. The size and weight of the book makes it ideal to carry in a handbag or briefcase. This is particularly useful for registrars to carry while on call, or read on public transport.

The summaries in the appendices covering therapeutics and office-based procedures are comprehensive and a very useful inclusion. The book is written by Australian authors so is particularly relevant

to Australian prescribers. A number of texts published overseas recommend drugs that are not available or preferred in Australia, which can lead to confusion.

However, there are downsides to the book. It only covers the anterior eye which reduces its usefulness, especially for registrars on call. While a separate book on the posterior segment is available, other similar texts manage to cover the whole eye in a single volume.

The book organises conditions in alphabetical order. This unfortunately makes the book quite difficult to read from cover to cover for study purposes. Further, unless the diagnosis is known with certainty, it makes the book less useful in looking up possible differential diagnoses or related conditions. Schematic diagrams are of limited value and the use of schematic icons throughout the book, and in particular the opening groupings of conditions, adds little to the content.

The authors are to be commended for their efforts in producing this easy-to-read, well-illustrated textbook of conditions affecting the anterior eye. Its particular strength is its relevance to an Australian readership. Many readers, however, may prefer more established manuals that have a broader coverage and are organised in an anatomical rather than alphabetical format.

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