Nutrition

2005

Preamble

Nutrition is the process by which food and liquids are consumed by an individual and broken down by the body into nutrients. These nutrients travel through the bloodstream to different parts of the body where they can be utilised as a type of 'fuel'.[1]

Nutrition is a serious public health issue for the Australian population, and globally.

There are an estimated 792 million people across the globe who suffer from malnutrition. [2] In contrast, it is recognised that there are more than 1 billion overweight adults worldwide.

Australian adults and their children are increasingly overweight and obese. In 1992, the direct cost of obesity in Australia was estimated at $510 million per year. As the rate of obesity has increased, so has the cost, with a greater burden on health services for the treatment and care of chronic diseases related to obesity.

Appropriate nutrition is key to the prevention of malnutrition, overweight and obesity, and is urgently required from health, social and economic perspectives. [3] [4]

What is a healthy diet?

There is much debate about what constitutes a healthy diet. Scientific research regarding food and food content is ongoing and our understanding of what constitutes a healthy diet changes as new evidence is collected.

A diet that includes a variety of foods from all food groups is really the only evidence-based healthy diet.

There is strong research evidence that the traditional Mediterranean diet - a diet based on fruits, vegetables, legumes, grains, fish and olive oil - provides an element of protection against heart disease and some cancers and increases life expectancy.

Likewise, the traditional Japanese diet has similar research-backed effects. However, it is very difficult to copy these diets effectively or to identify which elements of the diets are providing the benefits.

The recent claim that low fat diets are healthier than high fat diets was challenged when it was shown that a high fat/protein diet, as put forward by Atkins, would not increase the levels of Low Density Lipoproteins (LDL) and other unhealthy fats in the blood. [5]

With such a poor understanding of what constitutes a healthy diet, care must be taken to only promote long-term eating habits that are evidenced-based. This would mean that the traditional diet pyramid should no longer be used and there should be a focus on variety and the correct quantity of energy for an individual's requirement.

Clearly the correct quantity of micronutrients is also important, but there is still a poor evidence base of what is correct for each micronutrient. More research is needed in this specific area.

Lifecycle

Maintaining health and functional capacity of the population is crucial in reducing the demand for and cost of health services. Understanding the nutritional needs of different segments of the population and developing systems to ensure these are met is essential.

With advances in preventative medicine and the management of chronic diseases, many Australians can expect to live well into their retirement. However, poor nutritional habits and being overweight or obese can contribute to or exacerbate many health conditions, and decrease an individual's quality, if not length, of life.

It has been recently hypothesised that if rates of obesity continue life expectancy will begin to decline.

Nutritional requirements change throughout the lifecycle. It is important that all parts of the community are aware of such requirements to ensure that nutritional needs are met, particularly for those individuals who cannot choose the foods they consume, including children, people living in rural and remote areas, those who live in residential care, such as aged care facilities and those who are prisoners or detainees.

Babies and Children

Breastfeeding is the most appropriate method for feeding infants and is closely related to immediate and long-term health outcomes. [6] Australian mothers should be encouraged and supported (unless there is a medical contraindication) to solely breastfeed their babies for at least the first six months of their life. [7] [8] [9]

Weight gain and an increase in size are integral parts of normal growth and development during childhood and adolescence. At this stage of life the focus is on maintaining a rate of physical growth that is consistent with expected norms for age, sex and stage of physiological maturity. [10]

Infants and children display characteristics of being able to self regulate food intake and may naturally compensate when eating energy-dense foods by not eating as much at further meals. Over time, this natural behaviour may be negatively influenced by parents and peers, and turn into bad habits. [11]

Parents, teachers and other primary care givers play an important role in selecting and educating on food choice for toddlers and young children. Parental behaviour shapes food acceptance, and early exposure to fruit and vegetables or foods high in energy, sugar and fat is related to children's liking for and consumption of these foods. [12]

Overweight children are 50 per cent more likely to become overweight adults, and children with overweight parents have twice the risk of becoming overweight as those with parents who fall into the healthy weight category. [13]

Children often only consider short-term consequences of their behaviours, so ongoing nutrition education should not only address the immediate benefits of healthy eating, but also highlight the benefits of long-term healthy eating. This education needs to be multifaceted and have supporting resources that are suitable for Australia's multicultural environment.

Children can become weight conscious at a young age. The stigma associated with being overweight and strict dieting may be barriers to healthy weight maintenance by children and young people. *For information on body image issues please refer to the AMA's Position Statement on Body Image and Health 2002.*

In Australia, school canteens are not largely responsible for what children and young people eat, but the food on offer may effectively undermine the school's health and nutrition curriculum. [14] The WHO has noted the school environment as one of the most obvious venues for child and adolescent education on nutrition. [15]

Today, many school canteens are required to be economically viable, causing tension between what foods should be offered to students and what foods can be offered, taking into account the costs, shelf life and preparation times. While guidelines provide an important framework for school canteens to operate under, comprehensive information, training and support should be provided to all canteen managers and their staff. There may also be a role to identify 'best practice' or 'what works' canteens, which can be showcased as leaders or provide mentoring to other school's and their canteens.

Vending machines often provide access to poor nutritional choices including chocolates, crisps, lollies and soft drinks. Schools should carefully consider their policy on installing machines, with the only appropriate options being a vending machine that only stocks bottled water or no vending machines at all.

Many schools, through necessity, are also engaged in fundraising to support student and staff activities. Much of the fundraising is centred on the sale of chocolate and lollies. This type of fundraising should cease and be replaced by healthier fundraising options. These options should be the only ones supported by schools and Government. [16] It is increasingly recognised that food consumption prior to and during school hours will affect a student's ability to concentrate and learn - hence there are additional reasons for schools to get the nutritional environment right.

Adults

There is a steady rise in the proportion of men and women who are overweight or obese. This peaks between ages 45-64 where it is estimated 50 per cent of men and 36 per cent of women are defined as overweight, and 25 per cent of both men and women can be defined as obese. [17]

As the population ages, caloric requirements generally drop as does participation in high impact physical activity (due to sarcopenia, a decline in muscle mass and strength).

Nutrition and lifestyle education should continue through the lifecycle to help individuals to enjoy, maintain or improve their quality of life at any age. [18]

A reduction in socio-economic status because of reduced earning capacity can put older people at increased risk of malnutrition. Malnourished older people are at increased risk of falls, hospitalisation, institutionalisation, postoperative complications and even death. It is interesting to note that it has been suggested people over the age of 85 may benefit from being moderately overweight. [19] Overall, there is limited evidence around nutrition interventions in the aged. More focus on this is needed, including national population surveys, to understand what the nutritional status of older people is, what older people are eating, and how this could be improved. This should cover both elderly living at home and those in residential care settings.

It has been projected that the proportion of older Australians will increase from 13 per cent of total population in 2002 to 30 per cent in 2051. [20] There is currently a global focus on the ability of health systems to cope with an increasingly ageing population. Getting the nutrition for older people right is an imperative for health services.

Micronutrients

Specific dietary requirements change throughout the lifespan, especially micronutrient requirements such as minerals and vitamins. These changes need to be well publicised. For example, the specific dietary needs of a child are far different from those of an adult and the elderly.

At times, it may be advisable to fortify foods to encourage increased consumption of a particular micronutrient. This has been recently seen in Canada where folate fortification in breads, cereals and flour has reduced the incidence of neural tube defects. Likewise, the fortification of salt with iodine would ensure children are not born with cretinism or less severe forms of disability that can be caused by iodine deficiency.

Convenient, highly processed foods often lack any micronutrient content. There is an observed decline in levels of micronutrients in today's fruits and vegetables as they are often planted and harvested out of season or on soil that does not contain high levels of micronutrients.

Obesity

At a basic level, obesity is a direct result of energy intake exceeding energy expenditure over a period of time. There are a number of contributing factors including genetics, dietary and physical activity, psychological factors, and environmental and cultural factors. The rise has been too rapid to indicate

that genetic factors are the primary cause. It is more likely that this epidemic reflects changes in eating patterns and physical activity. [21] Prevention of obesity is the best intervention.

It is recognised that there is a limited range of metabolic conditions that may cause someone to become overweight or obese, but in the majority of cases overweight and obesity is related to dietary intake and moderate levels of physical activity. Often with the most effective approach being one that is consistent and sustained. In appropriate cases, medication and surgery may be considered to assist individuals achieve weight-loss.

Being overweight or obese has its own associated psycho-social concerns. [22] It also increases the risk of chronic diseases - including type 2 diabetes, CVD, high blood pressure, high cholesterol levels, gall bladder disease, some cancers, osteoarthritis, sleep apnoea, respiratory and skin problems, and reproductive disorders, including infertility. Some of these diseases are now being identified in children and young people, which highlights the need for prevention.

Physical Activity and the Obesogenic Environment

There only needs to be a slight imbalance between energy intake and energy output over a period of time to have a significant impact on an individual's weight.

It has been observed that it is often difficult for an individual to make good food and exercise choices all of the time. The present social and physical environment has been called obese promoting or an 'obesogenic environment'. This environment makes unhealthy choices easier by default resulting in increased consumption of energy-dense foods and reductions in levels of physical activity. Such factors can be grouped according to whether they can be changed or influenced by the individual - such as where they live, work and study - and those that can't, including town planning and transport systems. [23]

Socio economic status

Excessive weight is more common among people in lower socio-economic categories and socially disadvantaged groups. [24] [25]

At an individual or family level, it is generally easier to substitute specific foods and beverages to create a more balanced diet. Recent data indicates that substitution of healthier options may prove to be a costly exercise. [26]

It is increasingly recognised that there are a number of social determinants of health, including housing, employment, cultural background, and socio-economic status. This needs to be kept in mind when developing education material and interventions on nutrition and obesity.

Aboriginal and Torres Strait Islanders

Aboriginal and Torres Strait Islander adults are more than twice as likely to be obese as non-Indigenous Australians. [27] [28]

Historical factors, including the removal of children from their families (which has occurred since the first Europeans arrived in Australia, and only ended in the 1980s) have led to a generation of mothers with limited knowledge of traditional childrearing and feeding practices. Some Aboriginal and Torres Strait Islander communities also suffer from a lack of access to appropriate foods and educational resources around nutrition.

Malnutrition (or under-nourishment) in remote Aboriginal and Torres Strait Islander communities is of great concern in a developed country such as Australia. Although most Aboriginal and Torres Strait Islander babies are solely breastfed for at least the first six months of life, they are at risk of malnutrition due to their initial Low Birth Weight (LBW) and the high load of infections.

The nutritional status of Aboriginal and Torres Strait Islander mothers also affects the infant. A recent study of Aboriginal and Torres Strait Islander mothers having routine deliveries found that 28 per cent

of LBW babies could be attributed to maternal malnutrition. [29] Besides increasing infant mortality, LBW is associated with increased childhood ill-health, including respiratory illnesses, impaired growth after birth, and brain development problems. These complications increase in frequency with decreasing birth weight. Even children at the upper end of the LBW range, who require no intensive care, have poorer outcomes than children with normal birth weight. [30]

The low initial birth weight and a failure to thrive increase the chances of obesity in adolescence and adulthood. There is growing supportive evidence that the medium to long term effects of LBW may be significant in a wide range of chronic diseases, including obesity, high blood pressure, heart attack, stroke, renal failure, type 2 diabetes, thyroid disease and depression.

Nutritional Literacy

Diet and nutrition information appears to be widely available from a range of popular and accessible sources. Unfortunately much of this information is fad-based and its accuracy untested. There is an overall lack of evidence-based information available on what constitutes good nutrition and a healthy diet. [31]

A recent study comparing a number of popular weight loss diets has highlighted that adherence to any eating plan is the biggest contributor to weight loss. [32]This would indicate that eating programs most similar to current food preferences may be the most appropriate weight loss diet for any particular individual.

The complexity of nutritional information, especially on food labels, may seem confusing to the public. The goal of such labels is to better inform consumers as to the content of the food.

Energy and fat content is the most common reference point on food labels. It is still important for other information contained on the labels to be understood by consumers. For this reason, food labelling needs to be constantly reviewed in very practical terms and should consider what people need to know about the foods they consume and how to know if they are eating the right quantity for their needs.

Role of Doctors

General Practitioners and other medical professionals are well placed to identify, educate and support patients on nutrition, in particular if they are malnourished, overweight or obese.

For doctors, identification and education may require an opportunistic approach, especially in relation to overweight or obese children who may present for immunisation or developmental checks.

As evidence around nutrition and diet is constantly changing, it is important that all medical professionals keep their knowledge up to date. This requires Government and education provider support. Medical professionals should be able to access timely and appropriate resources for themselves and their patients to support discussions around nutrition.

Popular media sources often overwhelm the general public with information around nutrition and weight-loss diets (this is not surprising with current rates of overweight and obesity). Much of this information lacks a solid evidence base. Fortunately, in most cases such information generically recommends that before starting on any given regime people should consult with their doctor or health professional. This may provide an opportunity for education on nutrition.

Government

While it appears the State and Federal Governments have a level of commitment to addressing the current obesity epidemic with various summits and reports, the level of investment in prevention and nutritional literacy education is remarkably low given the scale of the epidemic and the rising trends. [33] A clearer commitment from governments is needed.

A lack of Australian data makes debate around nutrition and the related health concerns difficult. The Federal Government needs to commit to a more regular and appropriate form of national nutrition survey to allow patterns of food consumption to be monitored and studied more regularly. The most recent available data is ten years old and there is currently no Government commitment to collect this information in the near future to allow trends to be identified and action taken on real problem areas. [34] [35]

Standardised food labelling is legislated in Australia, but the nutritional information available on such labels is not easy to decipher, especially for people with limited knowledge and where little community education has been provided on how to use these labels. Much focus is placed on fat grams and sugar content, but it is essential for consumers to understand other information on these labels if they are to make an informed choice.

The Federal Government needs to legislate a more effective form of food labelling and to provide an education package to the whole community about food labelling and how it can be better utilised to help people make better nutrition decisions.

The Government also plays a role in the registering and monitoring of 'therapeutic' or 'functional' foods. As has been highlighted in the herbal supplements industry, such claims need to be closely monitored and investigated.

Food Industry

Never before has there been such competition for the consumer dollar. People are exposed to large amounts of food advertising and marketing on a daily basis through various forms of media, sometimes covertly. The food industry has a level of responsibility for and a large role to play in finding a suitable solution to the current obesity epidemic.

Food advertising to children

Food advertising and marketing is effective in influencing the choices that people make. Unfortunately the nutritional quality of certain foods often fails to fulfil the requirement of a healthy diet. [36] It is recognised that children (especially those under the age of 12) are not able to discern the difference between promotional advertising material and educational information that they are bombarded with via media and entertainment sources, including the television and internet.

A 13-nation study of advertising viewing times found that Australia recorded the highest number of food advertisements per hour. A more recent study found that during a six-week school holiday period, a child who watched two and a half hours of television per day would be exposed to 406 advertisements encouraging them to consume junk food. This is equivalent to one-and-a-half full length movies. [37]

Other avenues for possible inappropriate food advertising include celebrity endorsements, sponsorship of education materials, point of sale promotion, vending machines and voucher schemes. [38]

As a member of the Coalition Against Food Advertising to Children the AMA calls for an immediate ban on all forms of food advertising to children, including sporting sponsorship and the use of promotional toys.

Summary

The AMA is committed to reducing the incidence of overweight and obesity, particularly in Australian children and young people. If the current Australian epidemic is not addressed, the AMA believes there will be inherent long term negative economic and social implications for Australian society.

The AMA Recommendations:

Aboriginal and Torres Strait Islanders

1. Calls for increased understanding that due to geographical isolation in some Aboriginal and Torres Strait Islander communities there are cases of malnutrition that need to be addressed urgently, with a particular focus on pregnant women and young children.

2. Calls on the Federal Government to investigate and fund a program to improve the nutritional status of Aboriginal or Torres Strait Islander women who are assessed to be at risk. All women in the following categories should be assessed: those under the age of 20; pregnant; breastfeeding or postpartum; and those with children under five years of age.

Children

3. Recognises the important role primary care givers have in making food choices for children, young people, the elderly and incapacitated.

4. Recommends that all Australian mothers be encouraged and supported (unless there are medical contraindications) to solely breastfeed their babies for the first six months of life.

5. Calls for a commitment from all levels of government to act to reduce rates of overweight and obesity, specifically targeting children.

Elderly

6. Recognises that maintaining the health and functional capacity of the increasing elderly population will be a crucial factor in reducing the demand for and cost of health services, and that good nutrition is a key requirement to maintaining health.

7. Calls on the Federal Government to set national standards for the nutrition of the elderly in residential aged care facilities.

Medical profession

8. Recognises that GPs and other medical professionals are well placed to identify, educate and support patients who are overweight or obese.

9. Encourages medical professionals, particularly GPs, to keep their understanding of evidence-based nutritional information up to date in order to support their patients.

10. Calls for ongoing support for Australian research in the fields on nutrition and obesity.

11. Calls for the provision of accessible evidence-based dietary information for GPs and other medical professionals.

12. Acknowledges the role of allied health professionals in identifying and providing management support to medical practitioners in this area.

Food and Diet Industry

13. As a member of CFAC, calls for a ban on all junk food advertising to children because it is not developmentally appropriate.

14. Believes that food producers and retailers have a responsibility to ensure nutritional labelling of products is quickly identifiable and easy to understand, and that various portion sizes are available.

15. Calls for the food industry to become more socially responsible in the presentation and marketing of foods and drinks.

16.Calls for a national accreditation system of all weight loss programs, centres and resources to identify those that are evidence-based.

Government

17. Calls for the Federal Government to ensure every Australian has access to affordable fresh fruits and vegetables, even if it contradicts market demand.

18. Calls for the Government to model the expected economic, social and health implications of increased rates of overweight and obesity.

19. Recognises that there is an overall lack of solid evidence-based research and information about what constitutes a healthy diet, and therefore calls on the Federal Government into support basic research on what is a healthy, diet including micronutrients.

20. Calls for the full investigation by the appropriate authorities of the claims made by therapeutic foods.

21. Calls for food fortification, where necessary, to reduce health problems associated with specific micronutrient deficiencies once appropriate checks have been conducted, evidence collected and full consultation with the medical profession and community has been completed.

22. Calls for the Federal Government to actively support public health programs which inform, educate and support people around evidence based good nutrition.

23. Calls for the Federal Government to work with the food industry to modify food labelling to increase its usefulness to the general public, and to fund a comprehensive education program.

24. Calls for the Federal Government to invest in the ongoing collection of data and surveying including blood and urine samples to measure Australia's current nutritional status, and continue to identify trends.

GLOSSARY

Calorie
A calorie is the amount of energy or heat needed to increase the temperature of one gram of water by one degree Celsius. For many years this has been the measure that has been used to calculate the energy content of food, and many Australians have some understanding of how to use it to calculate the correct energy intake for their needs.

Kilojoules
One calorie is the equivalent to 4.286 kilojoules (kJ). This measurement is now the standard legislated measure of the energy value of food in Australia and must be displayed on food labels. It is not clear that the general public has much understanding of the measure or ability to use it.

Micronutrients
A general term for vitamins, minerals and enzymes found in foods that are essential for proper bodily function.

Portion
As the variety in a diet increases, it is important to reduce serving sizes and the amount of each food eaten to avoid over-consumption of energy (and thus avoid obesity). [39] Until recently, dietary guidelines recommended a number of portions of each food group be consumed daily.

Acceptable portion size varies between different types of food. Information on this can be difficult to locate on packaging and there is a general move away from specific portion size recommendations to more general comments such as 'eat more' of certain foods such as fruits and vegetables and eat less of foods such as fats. There may be more than one portion in some packaged food. In Australia, this can be seen with individual yoghurt cartons, which are often two serves.

Basal Metabolic Rate
Basal Metabolic Rate (BMR) is the amount of energy that is used by a person at rest. It is proportional to body weight and can be affected by body size, age, gender, amount of lean muscle tissue and hormonal and nervous control. This measurement can assist in the calculation of an individual's daily energy needs simply by adding the BMR to the amount of energy expended on exercise. Energy expenditure can be assessed as minimal, moderate or high to allow a rough daily need to be established.

Increasingly, National Guidelines in other OECD countries are moving away from recommending a number of portions of each food group that an individual should consume to providing tables allowing individuals and their nutritional advisers to calculate their actual daily energy requirement, either in terms of calories or kilojoules.

Body Mass Index
Overweight and obesity is commonly defined by calculating an individual's Body Mass Index (BMI). BMI is calculated by measuring an individual's weight in kilograms and dividing it by the square of the height in metres (kg/m2).

For adults, a BMI measurement between 18.5 – 25 is considered to be within a healthy weight range, 25-30 is considered overweight and a BMI 30 and over is considered obese. [40] As BMI increases, so do the associated health risks. BMIs under 18 may also pose various health concerns. The BMI definitions of underweight, overweight and obese varies with the age and sex of a child. Boy and girl BMI charts are used to calculate if a child is either over or under weight.

Much research on the health impacts of obesity has been undertaken using BMI as the measurement of obesity. Increasingly, BMI is being replaced with girth or waist - hip ratio as being more strongly correlated with the negative health impacts of obesity.

Girth and hip waist ratio
Girth, waist circumference and the related abdominal obesity is increasingly highlighted as an independent risk factor for conditions such as Type 2 Diabetes, CVD and other health problems. A waist circumference of more than 102cm in men and 88cm in women is deemed to be obese, with a measurement of more than 94cm in men and 80cm in women to be overweight. [41] Waist hip ratio is calculated by dividing the waist measurement by the hip measure to form a ratio. A ratio of more than 1.0 for men and 0.9 for women is classed as a high risk category. This measurement is not ideal for use with children.

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