Best Practice Guidelines for the Treatment of Overweight & Obesity in Adults

While these guidelines do not replace the individual advice provided by an APD they are based on the best available knowledge and evidence to date.

These Guidelines will be due for revision in January 2008.

Dietitians Association of Australia

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The guidelines are designed to provide information to assist decision-making and are based on the best information available at the date of compilation.

It is planned to review the Guidelines in 2008.

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Foreword

DAA is the professional body for dietitians in Australia and provides leadership on issues related to dietetic practice. In 2002 DAA commissioned a project to define best practice for dietetic interventions in the management of overweight and obesity in Australia. The project aimed to provide direction for DAA of how to best support members to improve their practice in relation to obesity management. The project had four key components:

1. Conduct a literature review on effective models of dietetic treatment of overweight and obesity (1).
2. Undertake a survey of members on current dietetic services in the treatment of obesity (2).
3. Establish a contact list of members interested in the treatment of overweight and obesity and demonstrate professional support for the project concepts.
4. Draft an application for funding for a multi-centre research project in this area.

The key outcome of this project was the need for the development of Best Practice Clinical Guidelines for the Treatment of Overweight and Obesity in Australian Adults and in Children. This document is the *Best Practice Guidelines for the Treatment of Overweight and Obesity in Adults.*

Introduction

Overweight and obesity are serious health issues affecting over 60% of Australian adults (67% men and 52% women)(3-6) and up to 25% of Australian children (7). The Diabetes, Obesity and Lifestyle Study (AusDiab) estimated that in 1999-2000 up to 7.5 million Australians aged over 24 years had a BMI of 25 or greater and that over 2.6 million of these were obese (5).

The National Obesity Taskforce reported in Healthy Weight 2008 (8) that excess weight was more common among lower socio-economic and socially disadvantaged groups. There have been major increases in the proportions of overweight or obese Australians over the last 20 years. For example, the prevalence of overweight and obesity in urban women, among those aged 25 -64 years, increased from 26% in 1980 to 46% in 1995, while in urban men it increased from 47% to 66% (4). In addition, 21% of men and 28% of women aged 25–69 years were abdominally obese in 1999–2000, representing an increase since 1989, from 14% up to 21% in men and from 16% to 28% in women (9). Overweight and obesity are now common across all regions and population groups within Australia, reflecting the worldwide epidemic.

The impact of overweight and obesity on the development of debilitating and life-threatening conditions such as stroke, coronary heart disease, Type 2 diabetes, cancers, osteo-arthritis, kidney and gall bladder disease, and respiratory and musculo-skeletal problems as well as social discrimination, reduced self-esteem and mental illness is a major health, social and economic concern (6).

The price Australian society pays for this epidemic is significant in terms of the impact on individual health and costs, to an already over-burdened health care system. In Australia, obesity contributes to over 4% of the overall burden of disease (10). Together, poor nutrition, sedentary lifestyles, overweight and obesity are estimated to account for more than 10% of the burden of disease (6, 10). These now equal tobacco as the most important avoidable cause of ill-health in Australia today (6).

The latest estimate of the true costs of obesity suggests that it may be as high as $1.3 billion per year and is rising fast (6) If obesity had been reduced in Australia by 20% during the years of 1992-2000, the potential cost-saving to the health system was estimated to have been $59 million (1997 $Aust.) (6). Included in this estimate was the cost of obesity related to high blood pressure, coronary heart disease, diabetes, breast and colon cancers and gallstones. Potentially a saving of 2,300 years of life could also have been achieved (6).

Dietitians are well placed to provide a pivotal role in the management of overweight and obesity. They have unique skills in individualising a dietary plan, in demonstrating empathy and identifying practical strategies when addressing client motivation, goal setting and risk factor identification as well as in management, incorporating specific strategies to assist clients in achieving lifestyle change in liaison with GPs and other members of the multidisciplinary health care team.

These clinical guidelines are a practical guide and will support dietitians in their goal of providing an evidence-based, yet individualised, approach to obesity management.

Intent of the Guidelines

These guidelines are the result of a comprehensive assessment of current scientific literature. They provide evidence-based recommendations for dietitians and other health professionals involved in the assessment, management and monitoring of adults who are overweight or obese. They support the *Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults* developed by the NHMRC that were endorsed in September 2003 (11, 12). The aim of developing the DAA guidelines is to provide a practical document that incorporates the best evidence available specifically related to nutrition and dietetic treatments.

How to use the Guidelines

The guidelines set out evidence statements supported by critical appraisal of the literature, followed by graded recommendations for each step of dietetic management. Each section represents a stage in the sequence of treatment and rates the strength of the evidence according to the NHMRC standards, as in Table 1. These are followed by dietetic recommendations, based on this evidence. To facilitate ease of use of the guidelines, the key elements have also been summarised in a brief *10- Point Plan for the Treatment of Overweight and Obesity*. The aim is that this short version of the guidelines could be used as a prompt in clinical practice to facilitate ease of implementation of the guidelines at the individual practitioner level. Resources for both the dietitian and client have also been listed in a separate companion document to support recommendations.

Implementing these guidelines will require a review of current treatment services for overweight and obesity. An assessment of the potential organisational issues and cost implications of implementing the guidelines will be important first steps towards implementation. Issues such as staffing, equipment, resources, space, waiting lists, approach to consultation and follow-up procedures and support from employers will be important to consider. Initially, the guidelines may be used in advocating for the need to take a co-ordinated approach to weight management or for raising awareness of obesity as an important issue requiring action. The guidelines also offer the opportunity for dietitians to evaluate the effectiveness of their practice both at the procedural level and in terms of client outcomes. They may be used as the basis for a clinical audit, as the first step of a quality improvement program. Importantly, for individuals, digesting the guidelines will serve as a continuing professional development opportunity in Australia.

Table 1 Definition of Evidence Categories (13)

Evidence Category - Level	Sources of Evidence	Definition& NHMRC equivalent
A – High Substantial numbers of studies involving substantial numbers of participants.	Randomised controlled trials (rich body of data)	Evidence is from endpoints of well-designed Randomised Controlled Trials (RCTs), or trials that depart only minimally from randomisation, that provide a consistent pattern of findings in the population for which the recommendation is made. ***NHMRC Level 1***: Systematic review of RCTs
B – Medium Generally, few randomised trials, small in size, results inconsistent, or undertaken in a population that differs from the target population of the recommendation.	Randomised controlled trials (limited body of data)	Evidence is from endpoints of intervention studies that include only a limited number of RCTs, post hoc or subgroup analysis of RCTs, or meta-analysis of RCTs. ***NHMRC Level 2*** At least 1 well designed RCT ***NHMRC Level 3-1*** A pseudo-randomised RCT ***NHMRC Level 3-2*** Non-randomised CTs e.g. cohort or case - controlled studies
C – Low Some evidence to support but quality is low	Non-randomised trials; Observational studies	Evidence from outcomes of uncontrolled or non-randomised trials or observational studies ***NHMRC Level 3-3*** Controlled studies with historical control ***Level 4*** Evidence from case series, pre- test / post test
D – Opinion Category used where the provision of some guidance needed but there is a gap in research addressing the subject of the recommendation	Expert Opinion	Expert judgment based on synthesis of evidence from experimental research reported in the literature and/or derived from expert consensus based on clinical experience or knowledge that does not meet the above-listed criteria. ***NHMRC do not ascribe an evidence level to expert opinion***

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Section 1 – Assessment

1.1 Attitudes of the Dietitian

Evidence Statement	Evidence Category
A summary of research (14,15) shows negative attitudes towards obesity by a range of health professionals, including dietitians. These negative attitudes are likely to affect the counselling process and the ability of the health professional to help the client.	*Evidence category D*

Dietetic Practice Recommendations

- Provide a supportive, non-judgmental environment that gives clients the opportunity to communicate their health related problems.
- Provide an environment that shows understanding of the clients issues e.g. appropriate chairs and equipment.

Examine your own attitudes and values towards size and eating and their possible influence on your ability to provide compassionate support the client.

1.2 Anthropometric Assessment

Evidence Statement	Evidence Category
• Use Body Mass Index (BMI) to assess overweight and obesity. Body weight alone can be used to follow weight loss and to determine efficacy of therapy, although body weight and waist circumference are used to assess relative changes in body fatness over time. (1)	*Evidence Category C*
• BMI is widely used to assess obesity in populations and can be used to estimate relative risk of disease in most people. (1) Interpret BMI with caution when this is the only measure of body fatness, particularly when measuring older people, pregnant women, adolescents and muscular, mesomorphic individuals such as athletes; BMI does not distinguish fat mass from lean mass. (1)	*Evidence Category B*
• BMI does not reflect body fat distribution; this becomes important because visceral (intra-abdominal) fat is a potential risk factor for disease, independent of total body fat. BMI is based on standards for those of European descent therefore it does not describe the same degree of fatness in different populations. For example, Asians and Indians have a more centralised distribution of body fat for a given BMI and therefore can carry higher disease risk at a lower BMI. (2) In contrast, Polynesians and African-Americans tend to have a lower percentage of body fat than people of European descent, at the same BMI. (1)	*Evidence Category B*
• Available data does not give a clear indication of BMI cut-off points for all Asian population groups to define overweight and obesity. However, BMI cut-off points for observed risk varies from 22kg/m^2 to 25kg/m^2 among different Asian populations. (2) For Maori and other Pacific Islanders, the upper range BMIs for overweight and obesity are 26 and 32. (1)	*Evidence Category B*

• Waist circumference is a valid measure of abdominal fat mass and disease risk in individuals with a BMI<35 kg/m^2. If BMI is 35 or greater then waist circumference adds little further to the absolute risk assessed by BMI alone. Men from European descent should aim for waist circumference <102 cm and women <88 cm. Waist circumference will not be an accurate measure of body fat in some situations, for example, pregnancy or medical conditions where there is distention of the abdomen. (1) In Asians and Indians waist circumference targets may be 10 cm lower, and could be significantly higher in Pacific Islanders and African-Americans however an exact figure is yet to be determined. (1,2)	*Evidence Category B*

Dietetic Practice Recommendations

- When collecting anthropometric information, where possible:
  - measure height without shoes (see "equipment")
  - measure weight without shoes, jackets and heavy jewellery, pockets will need to be empty and the client in light clothing (4)
  - calculate baseline BMI
  - measure waist circumference. Waist circumference is taken at the midpoint between lower rib and iliac crest or if not obvious at the narrowest point (when looking from the front)(5). If locating the waist is still difficult using these methods, the waist circumference can also be taken at the position at which the client believes their waist to be. It is important to document in the client notes which method you have used in order to ensure consistency of measurement on subsequent follow-up appointments.

Note: The standard procedures for anthropometry outlined in the *National Health Data Dictionary* (See Appendix) (4) are recommended for sports and research dietitians and therefore a degree of accuracy that may not be achieved routinely during usual clinical practice without specific efforts to standardise the procedure. It is important however, to document how each measurement was taken in order to ensure consistency across subsequent appointments for each client and between clients.

- For people with disabilities the normal height/weight measurements may not be appropriate due to severe disability, physical deformity and muscle wasting. Use of other measures, such as visual assessment, fit of clothing, weight history and weight change over time can be used and recorded. Information may be provided by family and/or carers. (6)
- For clients with poor self-esteem, disordered eating and/or poor body image, measurement may be counter-productive. These clients can be allowed to choose whether to have measurements taken or not. (1)
- Waist circumference can be a good way of shifting focus from the scales.
- There is also a variety of non-weight and shape related measures available for assessment and monitoring purposes. (7)

Table 2 Classification of weight by BMI for Caucasian populations (1)

Classification	BMI (kg/m^2)	Risk of co-morbidities
Underweight	≤18.5	Low (but possible increased risk of other clinical problems)
Normal range	18.5-24.9	Average
Overweight	≥25.0	
Pre-obese	25.0 - 29.9	Increased
Obese I	30.0-34.9	Moderate
Obese II	35.0-39.9	Severe
Obese III	≥40.0	Very severe

BMI for older Australians, healthy weight range BMI = 22.0 - 27.0 (3)

Table 3 Waist circumferences with associated risk of metabolic complications in Caucasian men and women (1)

	Waist circumference (cm)		
Risk of metabolic complications	**Men**	**Women**	**Action Level**
Increased	>94	>80	1
Substantially increased	>102	>88	2

(Note: "Action level" refers to the importance of taking action to reduce waist size with action level 1 less important than level 2 (1).)

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1.3 Pre-Treatment Risk Factor Assessment and Identification of Co-morbidities

Evidence Statement	Evidence Category
• Use BMI to estimate relative risk for developing obesity-related medical conditions compared to normal weight. (1) An attempt at weight loss is recommended for clients meeting one of the following criteria: a) BMI ≥ 30 kg/m^2 b) BMI 25-29.9 kg/m^2 *AND* 2 or more risk factors or co-morbidities listed in Table 4. c) Waist circumference ≥88cm (females) or ≥102cm (males) *AND* 2 or more risk factors or co-morbidities listed in Table 4. While there is no direct evidence to show that managing the risk factors listed in Table 4 increases weight loss, treating the other risk factors is recommended as a strategy to assist in reducing morbidity and mortality.	*Evidence Category C*

Dietetic Practice Recommendations

- In the client record note presence of co-morbidities associated with obesity.
- If there are three or more co-morbidities this conveys high absolute risk. The dietitian can provide feedback on the risk assessment and weight management plan to both the client and the GP. Feedback to the GP will identify risk factors requiring a baseline assessment, which will facilitate the client's clinical management and achieve risk reduction.
- Other risk factors will give an additional incremental increase in absolute disease risk. These risk factors could include:
  - physical inactivity, < 60 minutes of combined incidental activity and exercise per day
  - diet high in saturated fat, >10% total kilojoules.

Table 4 Co-morbidities that increase risk of developing obesity related disease
Adapted from (1,2 &3)

Risk factors for future disease (λ)	Established disease	Obesity-associated disease
Hypertension Systolic blood pressure>140mm Hg or diastolic blood pressure > 90mmHg, or use of anti-hypertensive medication **Hyperlipidaemia** High-risk LDL–cholesterol (>4.0 mmol/L), or total cholesterol (>6.0 mmol/L) **Physical Inactivity** **Psycho-social risk factors** **Impaired Glucose tolerance** Impaired glucose tolerance (FPG <7.0 mmol/L and 2hr post glucose load ≥7.8 and ≤11.1 mmol/L) **Age** $\geq$45 years **Cigarette smoking** **Family history of premature CHD** Family history of premature CHD (defined as a definite myocardial infarction or sudden death at or < 55yr in father or other male first-degree relative, or <65 yr in mother or other female first-degree relative)	**Coronary heart disease (CHD) and other atherosclerotic diseases** **Diabetes Mellitus** Diabetes mellitus (FPG ≥7.0 mmol/L or 2hr post glucose load ≥11.1 mmol/L) **Respiratory disease**	**Gynaecological abnormalities** **Polycystic ovarian syndrome** **Osteoarthritis** **Gallstones & their complications** **Stress incontinence** **Lymphoedema /cellulitis** **Gastro-esophageal reflux** **Sleep apnoea**

(λ) Risk Factors in this column may be the first indication that these are associated with the development of further disease.

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1.4 Readiness to Change

Evidence Statement	Evidence Category
• Client motivation is a key component for success in a weight loss program. (1,2)	*Evidence Category B*
• Assessing the client's motivation to enter weight loss therapy and assessing his or her readiness to implement the plan is important before appropriate steps to motivate the client for treatment can be undertaken. (2)	*Evidence Category C*

Dietetic Practice Recommendations

When assessing motivation to address weight and lifestyle issues, record the client's:

- 'stage of change'
- reasons and motivation for making lifestyle changes
- previous history of successful and unsuccessful weight loss attempts
- social support, i.e. family, friends and work-site
- understanding of the causes of obesity
- understanding of how obesity contributes to disease risk
- attitude toward physical activity
- capacity to engage in physical activity
- time availability for making lifestyle changes
- financial considerations

1.5 Pre-Treatment Nutrition Intake

Evidence Statement	Evidence Category
• Although it is unlikely that an accurate food intake can be determined in a clinical setting, it is important for the development of weight loss programmes that a comprehensive assessment is carried out. (2,3)	*Evidence Category C*

Dietetic Practice Recommendations

Assess the client's:

Food intake and any dietary advice already received for current or pre-existing conditions to estimate:

- total energy intake
- comparison with Australian Guide to healthy eating
- comparison with the recommendations in the Dietary Guidelines for Australians
- macro and micro nutrient composition
- major sources of macronutrients
- source of previous advice
- recent or past changes
- cooking and food purchasing habits

Eating behaviours such as:

- episodes of eating in response to hunger, satiety/ or emotional/habit/environmental cues
- extent of restrained eating, including skipping meals, chronic energy restriction, fasting, yoyo dieting, avoidance of specific foods or food groups
- eating-out episodes and choices
- use of purging e.g. use of laxatives, diuretics, vomiting etc
- use of supplements or preparations provided by other practitioners
- any weight loss drugs or over the counter medications

Eating attitudes such as:

- eating associated with guilt and anxiety
- fear of being deprived of food or food choice
- black and white attitudes to foods e.g. seeing foods as "good" or "bad"
- feeling encouraged to eat a variety of foods.
- ability to enjoy and taste food
- willingness to be flexible with eating e.g. quantity, types, frequency, variety
- feeling out of control with food and eating.

1.6 Pre-Treatment Physical Activity

Evidence Statement	Evidence Category
• Physical activity can be difficult to measure accurately and recording bias may be seen particularly in the obese. (2,4,5)	*Evidence Category C*
• A negative attitude towards exercise can develop when exercise is associated with the following situations: dieting, attempting to meet ideal body image, punishment in response to eating or other activities, evoking memories of bad past experiences (6).	*Evidence Category D*
• It is important that overweight weight or obese clients be assessed by a medical doctor for fitness to undertake the activity before he or she commences exercise or increases physical activity. (7)	*Evidence Category C*

Dietetic Practice Recommendations

- Request the client seek medical advice to determine capacity for increasing physical activity
- Assess the category and type of both planned and incidental physical activity. Record baseline levels of both.
- Explore the client's perceptions and beliefs regarding activity and any possible "resistance to exercise"
- Consider barriers to sustainable activity and record how to address these barriers, such as:
  - physical limitations e.g. mobility, medical conditions
  - social/emotional factors and history with activity
  - current social support
  - financial and transport issues
  - lack of motivation
  - limitations placed through body image

1.7 Other Factors:

1.7.1 Body Image

Evidence Statement	Evidence Category
• Negative body image may cause continuing unhelpful behaviour such as dietary restraint/bingeing cycles or failing to set achievable and reasonable goals for health or weight. Negative body image may also be a reason for low levels of physical activity in a client. For some "at risk" individuals (for example adolescents with diabetes) assessment of body image is important to identify risk of disordered eating. (8,9)	*Evidence Category D*

Dietetic Practice Recommendations

- Assess the client's attitude toward body image
- Explore how this might impact on eating behaviours, attitudes to physical activity, and ability to set realistic goals.

1.7.2 Socio-economic factors

Evidence Statement	Evidence Category
The prevalence of overweight and obesity is greater in those of lower socio-economic status (SES) (2). In addition the proportion of overweight and obesity is increasing faster in this group than in people of higher SES (10). People in lower SES spend a higher proportion of their income on food, reducing the amount of expendable cash remaining. Issues that are important to consider are time, money, support, food purchasing, including access to transport, food storage, cooking facilities and culinary skills. These may need to be established and addressed before recommendations are made.	*Yet to be assigned*

1.7.3 Mental Health

Onset and experience of mental illness may have significant lifestyle effects that may promote weight gain, including: • Interruption of acquisition of self care skills, including knowledge of healthy eating; food preparation skills • Altered sleep/wake cycle & associated night eating • Decreased physical activity • Financial & accommodation insecurity • Periods of reduced self-care • Institutional care Moderate to marked weight gain as an unwanted effect of some psychotropic medication is the most notable cause of weight gain in mental illness (12). This is a significant cause of body image concerns, distress and non compliance in those prescribed these medications (13). Additionally there is an increased risk of hypertension, altered lipid profiles and impaired glucose tolerance.	*Yet to be assigned*

Psychotropic medications most commonly associated with weight gain are: • Antipsychotics; olanzapine, clozapine, risperidone, thioridazine, quertiapine and chlorpromazine, and • Antidepressants; mirtazapine and amilitryptiline and mood stabilising agents lithium and valproate (12, 14-16) *(see Appendix I).* Mechanisms by which these drugs affect weight include stimulation of appetite, alteration of glucose tolerance and increased insulin resistance. They may also have secondary effects through stimulation of thirst and a tendency to cause drowsiness & subsequent reduced physical activity.	

1.7.4 Intellectual or physical disability

• Intellectual or physical disability can include sensory disability, acquired brain injury, neurological impairment, dual disability or any combination of these. It is recognised that people who have an intellectual disability have a significantly lower life expectancy than the general population (17). Many medical conditions are undiagnosed or inadequately managed in this group (18) and obesity prevalence is up to three times that of the general population. (19)	*Evidence Category C*

Dietetic Practice Recommendations

Although the same basic strategies to treat obesity apply, assessment and management may require a longer intervention time and involve other significant people such as family or carers.

1.7.5 Culturally and Linguistically Diverse Communities

Evidence Statement	**Evidence Category**
Obesity is not limited to any cultural and linguistically diverse community so it is likely that people from many different ethnic backgrounds will seek treatment for obesity. As part of the food intake assessment *(see Section 1.5),* questions need to focus specifically on types of foods, meal preparation, family dynamics, religious practices and ideas around body image. Although the same basic strategies to treat obesity apply and therefore general resources can be used *(see Section 2),* culturally appropriate resources may facilitate compliance.	*Evidence Category D*

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Section 2 – Management and Treatment

2.1 Goal Setting for Management of Overweight and Obesity

Evidence Statement	Evidence Category
• Goal setting is an important part of the management of overweight and obesity. The ultimate goal for any interaction between a dietitian and the client is to improve health and wellbeing (1). However, clients' expectations of weight management strategies are often unrealistic. (2) Table 5 provides some estimates derived from the evidence base, which may help when determining realistic goals for weight loss.	*Evidence Category C*
• Rates of weight loss vary amongst individuals and will depend on a variety of factors, for example: personal and genetic characteristics, ethnicity, age, gender and previous weight loss. (2)	*Evidence Category B*
• The environmental changes wrought by the industrial and technological revolutions have increased the chances of energy imbalance in a larger percentage of the population (3). We now live in what is commonly considered an "obesogenic environment" with reduced opportunities for physical activity and an increased availability of high kilojoule foods. (3)	*Evidence Category C*
• For some clients, especially those with a history of repeated weight loss failure, weight cycling or where weight loss is difficult, it may be more appropriate and beneficial to focus on other non-weight related goals and measures (4) and aim for weight stabilization. (5)	*Evidence Category C*

• Other goals may include:
  • empowering the client to make realistic progressive changes to eating, consistent with the Dietary Guidelines for Australian Adults (DGA) (6), and the Australian Guide to Healthy Eating (AGHE) (7).
  • improvement in non-weight related measures (as identified in the Section 2: Assessment)
  • increased opportunities for regular, enjoyable, physical activity
  • enhanced self-esteem and attitudes to self care
  • reduced weight preoccupation and improved body and self-image. (1)
  • A loss of between 5 and 10% of original weight can produce significant improvements in cardiovascular and metabolic health.
This could be identified through the following:
• a decrease in hypertension (8), dyslipidaemia and hypertriglyceridaemia (9)
• reversal in the risk of and the pathology of Type 2 diabetes (10)
• reduced sleep apnoea.
	Evidence Category D
	
	Evidence Category A

• A long-term weight loss of greater than 10% provides further health benefits but is less commonly achieved. (8)	*Evidence Category A*

• Successful weight loss is not a function of the rate or the amount of weight lost but of the clinically significant improvements from long-term weight maintenance. (8)	*Evidence Category B*
• A greater initial weight loss as the first step of a weight management program has been shown to result in improved sustained weight maintenance. (11)	*Evidence Category B*
• The changes in body composition accompanying progressive weight loss induce a change in substrate metabolism, slowing loss of fat. Less body weight reduces resting metabolic rate and hence reduces energy requirements. This will contribute to a plateau in weight loss. At this point, weight loss strategies need to be revised and/or the goal revised to establish weight maintenance. (12)	*Evidence Category B*
• Treatment of overweight and obesity demands long-term commitment to lifestyle change involving vigilance to food intake and physical activity. Weight regain can have a negative impact on risk factors following intensive weight loss programs. The client may not have maintained food-related changes or may be unaware of the need to integrate physical activity and other lifestyle change with dietary modification. Close, frequent supervision is essential for long-term successful weight management. (11)	*Evidence Category B*
• For a person with a disability, the level of awareness and understanding by family and carers, and their ability to commit their support will be very important to a successful program for weight reduction. Slower weight loss of approximately 1 kg/month or even weight maintenance may be the appropriate goal for a person with a disability, depending on their physical activity level. Monitoring of weight is very important.	*Evidence Category D*

Dietetic Practice Recommendations

- If assessment shows the client is not ready to change, provide education related to relative risks associated with obesity. Encourage client to seek and accept treatment for risk factors and/or co-morbidities Encourage client to aim for weight maintenance and to return or seek help for weight management when ready to make changes. Communicate risk factor profile and plan with GP if referred.
- If assessment shows the client is ready to change, work in partnership with client to set short and long term goals (including non weight related goals) for weight management.
- Help clients to address unrealistic expectations of weight loss by:
    - Explaining that weight loss progress and outcomes vary between individuals and can be affected by factors such as life-stage, ethnicity, gender and previous attempts at weight loss.
    - Emphasising that small changes in weight will produce health benefits.

(The summary of realistic goals for weight and weight loss is provided in Table 5)

- For those with disordered eating patterns and poor body image, constantly readjust focus away from weight loss and emphasise non-weight outcomes such as those related to lifestyle and health benefits and the importance of maintaining these in the long-term.
- Clients with a disability may not be able to verbalise their goals; small steps may be necessary.
- Discuss with client the importance of developing and/or maintaining a healthy relationship with food and eating (avoiding food deprivation and risk of bingeing or developing fear of particular foods as a result of excessive and inappropriate dietary restraint.
- Discuss and clarify with the client the duration and frequency of consultations. Weight loss therapy ideally spans a period of 6 months initially followed by a weight maintenance program that may continue indefinitely. Clients may need to be monitored intensively (weekly initially, then monthly) for first 2-3 months and then less frequently (3 to 6 monthly) but with regular monitoring in the long-term (e.g. to 2 years or longer). Utilise phone or e-mail follow-up if appropriate.
- Discuss with the client the issue of weight plateau, its probable cause and possible strategies to deal with this. Discuss with the client the need to develop skills to remain on track in relation to lifestyle goals that have been set.
- Discuss with the client sources of additional support for the weight management plan such as participation in a weight loss group or physical activity program.
- Discuss with the client the need for long-term strategies and support to achieve a successful outcome in the long term. It may be necessary to clarify the client’s perception of a successful outcome to explain that improvements in cardiovascular and metabolic health and positive lifestyle changes are all important factors of a successful outcome.

Table 5 Realistic goals for weight and weight loss (2)

Duration	Weight	Waist circumference
Short term	**1-4 kg per month**	**1–4 cm/month**
Medium term	**≥10% of initial weight**	**5% after 6 weeks**
Long term (1-5 years)	**10-20% of initial weight**	**80 - 88 cm (females) 94 - 102 cm (males)**

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2.2 Evidence Based Optimal Treatment Features

Evidence Statement	Evidence Category
• Successful weight loss and weight maintenance therapy employs a range of methods. These methods employ a combination of both dietary and physical activity strategies to effect a state of negative energy balance, while behaviour therapy strategies are used in concert to facilitate change (1). The scientific evidence base indicates what weight loss may be expected with different dietary approaches. However, this varies significantly among individuals and is influenced by numerous factors including readiness for change, past dieting history, food preferences, financial circumstances, lifestyle and social and cultural background. This section is to be considered in conjunction with Sections 1.4 *Readiness to Change* and 2.1 *Goal Setting*.	*Evidence Category A*

2.3 Diet Therapy

Evidence Statement	Evidence Category
• The over-riding aim of diet therapy is to establish a long term eating patterns that support optimal health guided by the Dietary Guidelines for Australian Adults (DGA) (2). When planning short and long term diet therapy, care needs to be taken to ensure micronutrient needs are met and non-nutritive benefits of foods are considered. (3)	*Evidence Category C*
• The main requirement of a dietary approach to weight loss is a reduction in total energy intake. (1,4)	*Evidence Category A*
• Stabilisation of, or reduction in total energy intake can be achieved in a number of ways and the approach chosen will be done in consultation with the client, with consideration of their needs, background, preferences and lifestyle. The approach that is chosen may change depending on whether the individual is currently in a weight loss or weight maintenance phase of treatment or if other circumstances have changed for the client. (1)	*Evidence Category D*

2.4 Levels of energy restriction

Evidence Statement	Evidence Category
• A "reduced-energy diet" (RED) aims to create a 2000 to 4000 KJ/day deficit in daily energy intake, using initial energy intake as baseline. Studies performed under controlled and 'real life' conditions indicate this approach can be expected to produce a gradual reduction in weight of 0.5 to 1.0 kg/week (1).	*Evidence Category A*
• Actual rate and duration of weight loss varies between individuals and re-establishing an energy deficit is required for continued weight loss once weight stabilises or slows for further weight loss to occur (1).	*Evidence Category D*

• A RED provides a flexible dietary approach to achieve gradual change and when monitored to lower kJ intake is likely to be more effective in maintaining weight loss than more prescriptive energy levels or restrictive diets (1, 3, 6).	*Evidence Category B*
• Additional benefits of RED include focussing on promoting client's knowledge and skill in selecting and preparing appropriate food which may assist long term weight maintenance.	*Evidence Category B*
• A nutritionally-balanced "low energy diet" (LED) containing 4200 to 5000KJ/day can be expected to give an average weight loss of 0.3-0.5 kg/week over a period of 6 months, with significant loss of abdominal fat. However, unless combined with lifestyle changes that assist with long-term weight maintenance, this weight loss is unlikely to be sustained, with half of the weight lost regained after one to two years of treatment (1)**.**	*Evidence Category A*
• Very low energy diets (VLED), which use full meal replacements to limit energy intake to 1800 to 2500 KJ/day, are useful for initiating rapid weight loss of ~2kg/week over four weeks and ~1-1.5kg/week over 20 weeks (7).	*Evidence Category A*
• VLED can be considered for use in the obese (BMI >30) or for those with a BMI >27 plus co-morbidities or rapid weight loss is required for surgery (1).	*Evidence Category B*
• Unless short-term treatments are followed by a weight management program, long-term (>1 yr) weight loss is not different from the results with a LED (7). Weight management therefore needs to include lifestyle interventions involving nutrition education, dietary change, behaviour therapy and/or increased physical activity.	*Evidence Category A*
• For people with disabilities VLED are not recommended, except in people with specific genetic conditions, such as Prader-Willi Syndrome. VLED would usually only be possible for those people living in supported accommodation or with supportive families or carers and requires comprehensive management and support.	*Evidence Category D*
• There is a risk of developing binge eating, for some individuals when following energy restricted diet therapy.	*Evidence Category D*
• When discussing the use of energy-restricted diets with clients it is important to convey the use of them as a structure to guide eating rather than absolute "rules" to adhere to. For any diet therapy, progression to a sustained eating pattern in line with the Dietary Guidelines for Australian Adults (2) is the ultimate aim as the client progress towards the weight maintenance stage. (1).	*Evidence Category B*
• The effect of limiting alcohol intake is to lower kJ intake which can achieve weight loss over time. The majority (90-98%) of ingested alcohol is oxidized to carbon dioxide and water in the liver, with the remainder excreted through the lungs and kidneys. While alcohol is not converted to fat and stored in the human body, short-term studies show that consumption of alcohol in excess of energy needs can predispose to increased fat storage through preferential metabolism of alcohol and displacement of metabolism of protein, fat and carbohydrate and hence increased fat storage *de novo* (1,3).	*Evidence Category C*

2.5 Changing Macronutrient and Micronutrient Composition

2.5.1 Established Approaches

Evidence Statement	Evidence Category
• Reducing overall food intake, manipulating fat, carbohydrate, protein or alcohol intake, changing food patterns (e.g. portion sizes, eating in front of TV, skipping breakfast, increasing fruit and vegetable intake) can all achieve an energy deficit as part of a RED or LED (1,3). Combining these strategies may achieve improved results and allow diet therapy to be tailored to the client's needs and stage of management.	*Evidence Category D*
• Reducing dietary fat produces weight loss primarily through decreasing energy intake. Low-fat *ad libitum* energy diets, that reduce daily energy intake by 2000-4000KJ/day, can lead to weight loss of 2-6kg and a waist-circumference loss of 2-5cm after one year (6).	*Evidence Category A*
• Reducing fat intake as part of a RED or LED is a common and practical way to reduce kilojoule intake and may be in the form of a low fat diet (20-25% energy intake) or reduced fat diet (25-30% energy intake). However, reducing dietary fat alone without reducing kilojoules is not sufficient for weight loss (5,6).	*Evidence Category A*
• Meal replacements may be used as part of a RED or LED. They can either replace all meals and snacks (full meal replacements) or be used in conjunction with low energy meals and snacks (partial meal replacements). Use of meal replacements for one to two years can produce weight losses of 3.0-9.5 kg, with significant improvements in co-morbidities in overweight and obese people (1).	*Evidence Category B*
• Meal replacements may be used as part of a RED or LED. They can either replace all meals and snacks (full meal replacements) or be used in conjunction with low energy meals and snacks (partial meal replacements). Use of meal replacements for one to two years can produce weight losses of 3.0-9.5 kg, with significant improvements in co-morbidities in overweight and obese people (1).	*Evidence Category B*

2.5.2 Emerging Approaches

Evidence Statement	Evidence Category
Glycaemic Index • Use of low Glycaemic Index (GI), modified fat and modified protein diets have recently shown promise as effective dietary approaches to weight loss in short-term studies but at present no long-term evidence is available (1, 3). Long-term evidence is required to assess usefulness in long-term weight loss. Low GI diets have been proposed to facilitate weight loss by increasing satiety and therefore facilitating the achievement of an energy-restricted diet. It is important to consider total energy intake, the GI of the included carbohydrate and the overall glycaemic load (the product of the foods' specific GI and the total carbohydrate content provided by the specific amount of the food) of the diet when using this dietary approach.	*Evidence Category D*
Moderate protein low fat, moderate carbohydrate diets • Moderate protein (25-30%), low fat (25-30%), moderately low carbohydrate (40-45%) diets have been proposed as an effective dietary approach to achieve energy restriction, improved lipid and insulin profiles, satiety and client satisfaction. Long-term results using this approach are not yet available but remain promising.	*Evidence Category D.*
Mediterranean Diets • Modified fat diets, based on the Mediterranean approach and containing approximately 30-40% energy from fat, low saturated fat (~7%) and with preferential use of monounsaturated oil have been trialled under research conditions (5). This approach has been found to produce weight loss similar to that achieved with lower fat diets, with better lipid profiles after weight loss compared to other approaches (5). However, it is not known whether similar results would be seen if saturated fat was substituted with either mono- or polyunsaturated fat.	*Evidence Category D*
High Dairy and Calcium Diets • Epidemiological studies have demonstrated an association between dietary calcium intake and a reduction in risk of weight gain (9). • Recent, evidence suggests that at least in the short-term, a high (1200-1300mg/day) dietary calcium (dairy product) intake is associated with greater loss of body weight and body fat (9). A recent study has highlighted that calcium absorption may be reduced in the presence of energy restriction (10) it therefore seems prudent to evaluate the clients dietary calcium intake as part of management, to ensure intakes are optimised.	*Evidence Category C* *Evidence Category B*

Popular diets • There is currently no long-term evidence supporting the use of 'popular' diets, for example, low-carbohydrate and single-food diets over RED. Assessment of 20 popular diet books ranked 11 of these books as *not recommended* when assessed against quality criteria, including nutritional adequacy, promises made for rate of weight loss, use of special supplements, ability to follow diet long term, physical activity recommendations and scientific evidence. Low scoring dietary regimes included no fat, low carbohydrate, high protein, blood type and liver cleansing diets (11).	*Evidence Category D.*
Weight Maintenance • For long-term success it is important for the individual to maintain healthy lifestyle changes established during weight loss phase (1,3, 4,6).	*Evidence Category B*
• If a client resumes old habits weight regain is likely. Following a highly restricted diet eg LED or VLED a person needs ongoing support and instructions to help adjust back to the increased food intake and continue with their treatment plan (1,3,7).	*Evidence Category B*
• It is generally recommended that food is increased slowly until the individual is eating a wide variety of food based on the Australian Guide to Health Eating (AGHE) and the Dietary Guidelines for Australian Adults (DGA), without causing weight gain (2,12).	*Evidence Category C*
• Most people reach a level of change in their diet that they can maintain in the long term and so may dictate their own weight maintenance programme	*Evidence Category D*

Dietetic Practice Recommendations

If assessment reveals the client regularly displays restrained eating, bingeing and/or frequent eating in response to non-physical hunger cues then work with the client to set progressive achievable goals to normalise eating by:

- increasing awareness of eating behaviour
- cessation of dieting and reduction in the amount of restrained eating.
- being flexible with eating rather than having 'black and white' attitudes to food
- learning to distinguish between physical hunger and eating in response to emotions, habits and environmental cues
- eating with awareness by eating slowly and focussing on taste and food enjoyment
- reducing frequency and severity of bingeing and emotional eating episodes
- eating moderated quantities from a wide variety of foods to meet physical, social and emotional needs
- incorporating strategies to improve body image for clients who are very concerned about their physical appearance.
- check for the nutritional adequacy of the clients diet with regards to both the macronutrients

and micronutrients as “Dieters” may cut whole core food groups from their intake.
- equip clients with the skills to assess the adequacy of a “proposed” food intake, consistent with AGHE. Encourage food variety and balance as indicated by AGHE.

Once eating has been normalised, work with the client to improve the diet towards the DGA (2) using the AGHE (12).

If assessment indicates it is appropriate to commence diet therapy:
Client-centred diet management involves the client in the choice of method of achieving an energy deficit and may enhance initial and long-term adherence. Different methods may be chosen as therapy progresses and the client is ready to change different aspects of their food intake

Plan the diet to create an individual daily energy deficit of 2000-4000KJ/day. It is more effective, in the long term, to work with the client’s existing diet than to prescribe a meal plan that is unrelated to existing eating habits.

Aim to tailor dietary goals to bring the eating pattern in line with the AGHE (12). This is likely to reduce both total energy and fat intake while improving dietary quality, and facilitating the adoption of dietary patterns that are less susceptible to relapse and that are realistic as part of long-term maintenance. The AGHE framework enables therapy to be based on food rather than nutrient recommendations and food variety. The AGHE can be adapted and tailored to needs of individual clients as necessary such as emphasising low GI products within food groups or manipulating protein or carbohydrate intake.

A reduced fat intake to between 20 and 35% energy intake (13) may be achieved through use of a fat counter booklet (17) or through education about how to recognise and reduce fat through shopping, recipe modification and in food selection (19,20). A specific focus on a reduction in sources of saturated fat, such as the NHFA food based guidelines (13), will be beneficial in improving or maintaining the lipid profile.

Other strategies to be employed depending on their appropriateness for the client may include:
- Reduced portion sizes
- Reduction in the energy density of foods
- Reduction in the frequency of meals/snacks
- Normalised meal and snack patterns
- Label reading
- Eating in only one location in the home
- Increasing serves sizes, variety and frequency of fruit and vegetable consumption
- Ensuring achievement of a high dietary calcium intake of at least three serves of fat reduced dairy foods daily
- Increased water and low-kilojoule beverages
- Addressing non-hungry eating can also be used to support energy intake reduction

Any approach required checking the nutritional adequacy of the clients diet with regards to both the macronutrients and micronutrients. Equip clients with the skills to assess the adequacy of a “proposed” food intake, consistent with AGHE. Encourage food variety and balance as indicated by AGHE.

Special consideration needs to be given in the following situations:

- Use of VLEDs needs to be undertaken with the supervision of a medical practitioner and are not recommended for extended periods. Blood electrolyte, renal function and liver function all be monitored regularly, particularly in the first month of use (7,14).
- For clients with diabetes, use of VLEDs needs to be undertaken with the support and input of a medical specialist as rapid changes in blood sugars will occur on VLEDs and medication may need to be adjusted (14).
- When chosen as an approach to treatment, use meal replacements in conjunction with education on healthy eating to inform client what foods to choose when meal replacement use ceases.

For clients who wish to consume alcohol, recommend intake in line with NHMRC Australian Alcohol Guidelines: no more than 2 for women and 4 standard drinks/day for men respectively with 2 alcohol-free days/week. A standard alcoholic drink contains 10g alcohol (15,16). It may be beneficial to discuss consequences of binge drinking and importance of alcohol free days.

Review diet therapy goals as weight loss is achieved and reset goals for weight maintenance, including working with the client to maintain an intake consistent with the AGHE.

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2.6 Physical Activity

Evidence Statement	Evidence Category
• In the absence of dietary change, moderate to vigorous exercise at the level usually prescribed (3 to 5 hours a week) produces a modest weight loss of about 2 kilograms over one year, although there can be significant individual differences. Exercise is likely to be more effective when combined with energy restriction, leading to a further 3-6 kilograms of weight loss with a greater loss of abdominal fat than *ad libitum* low-fat diets or exercise alone over one year (1).	*Evidence Category A*
• Weight loss can be expected to increase as the volume of physical activity increases. Even in the absence of weight loss, physical activity can improve metabolic health and protect against specific co-morbidities and premature mortality (1,2).	*Evidence Category B*
• Physical activity appears to be associated with a greater reduction in abdominal fat while generally preserving fat-free mass (1,3).	*Evidence Category B*
• There is no single best exercise for weight loss. Resistance training may provide benefits in terms of retention of lean body mass, but it offers no apparent extra advantages, for weight or fat loss, over accumulated aerobic activity. Lifestyle based increases in physical activity, as opposed to a structured exercise program, are likely to be more successful for weight loss in the long term (4).	*Evidence Category B*
• Long-term studies, of more than two years, have demonstrated that physical activity limits regain of fat mass and total body weight more effectively than diet only. There is an inverse relationship between the volume of physical activity and weight regain. For example, with 30 minutes of daily, moderate activity, weight regain can be up to 40% after one year but regain is reduced to less than 15% with 80 minutes or more of daily physical activity. Therefore, an activity level equivalent to about 45 kilojoules per kilogram / day (~ 80 minutes/day) is probably the minimum required for effective weight maintenance long-term (1).	*Evidence Category B*

Dietetic Practice Recommendations

- Physical activity is an essential part of the weight maintenance program.
- Recommend physical activity and energy restriction, ***together*** they are essential components of an effective weight loss program.
- Seek clearance from a medical practitioner if the client is male and aged >35 years or female and aged >40 years, or if indicated by the client's history.
- If the client currently has an inactive lifestyle and/or occupation, encourage him/her to start their physical activity program very slowly and increase activity above their baseline levels as fitness and confidence increases, in order to avoid injury. Refer to a physiotherapist or an exercise physiologist when further advice and/or assessment are required.
- Aim for 3-5 hours moderate to physical activity per week or up to 60 minutes per day. Aim to continue this in the long term to limit weight regain, where up to 80 minutes per day may be required (1).
- Advise how to avoid dehydration and loss of electrolytes. Recommend drinking 150 ml cool water for every 15 minutes of heavy activity or exercise. Sports drinks and electrolyte replacement may be needed for heavy or endurance exercise and in hot weather. Refer to a sports dietitian (5).
- Base your recommendations on the National Physical Activity Guidelines for Australians (6).
- ***Think of movement as an opportunity, not an inconvenience***. Recommend physical activity that best fits into the person's lifestyle. This is likely to be a combination of lifestyle activities such as gardening and housework as well as exercise such as walking, swimming and cycling.
- ***Be active every day in as many ways as you can.*** Advise the client there is no single best form of exercise and that people respond differently to set amounts of physical activity. Even without weight loss, increases in physical activity will lead to risk factor reduction, decreased morbidity and improve health and well-being.
- ***Put together at least 30 minutes of moderate-intensity physical activity on most, preferably all, days.*** But if moderate–intensity physical activity is beyond a client, recommend at least 30 minutes of accumulated physical activity on most, if not all days of the week.
- ***If you can, also enjoy some regular, vigorous exercise for extra health and fitness***. To avoid resistance to physical activity, consider the client's preferred recreational and relaxation activities, including types, frequency, duration, degree of enjoyment and sustainability and build on these.

Special consideration

- For a person with a disability, physical activity needs to be appropriate for their age and specific disability. The client may need to be supported by carers or family to complete physical activity programs. People with disabilities may lack motivation to complete physical activity programs on their own. Organisations and services may be enlisted to support people to access services.

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2.7 Behavioural Change and Psychological Interventions

Food choice and eating is a complex human behaviour and where change has not occurred from adequate information and education alone other approaches may be of benefit. Assistance with body image, self esteem, relationship skills, problem solving skills, or emotional concerns may ultimately facilitate the individual to implement desirable lifestyle changes that can be more readily sustained. A behavioural approach can be integrated into other models of treatment or can be followed as the major form of therapy.

Behavioural strategies that consider the links between thoughts, feelings and behaviour can assist the dietitian and their clients towards gaining insight into non-hunger influences on eating and can benefit the process of changing these behaviours. Whether this can be undertaken by the dietitian as the sole therapist, or is provided in conjunction with treatment by a psychologist or other counsellor, will be determined by the degree of experience, skills and qualifications of the dietitian, the difficulty of the issues encountered and local access to counseling and dietetic services.

Various styles of behavioural and other therapies can be utilized to assist with weight loss. Cognitive behavioural therapy (CBT) has been well studied in treatment of eating disorders, depression and anxiety. The aim is the development of more reasonable, flexible and useful beliefs, less intense negative feelings and an ability to make life-style changes.

Other therapies such as interpersonal therapy, narrative therapy, motivational enhancement therapy or brief therapies such as solution-focused therapy are possibilities to consider. The decision to move to more therapeutic psychological approaches will usually be a joint decision between the patient, dietitian and other members of the management team. Assisting the patient to recognise that this may be of benefit may become a major component of dietary treatment in order to effect a reduction in energy intake. However, reassurance of ongoing nutrition and dietetic support as required will continue to be important in facilitating long-term changes.

If the dietitian has no training in the above mentioned techniques then it is recommended that they refer to other professionals such as appropriately trained psychologist or counsellor..

Evidence Statement	**Evidence Category**
• Behavioural therapies used in combination with other weight loss therapies have been found to induce a mean weight loss of about 3-5kg during treatment *(1, 2)*.	*Evidence Category A*
• Three to five years after intervention ceases, weight loss from baseline falls to about 3kg (0-10kg) *(3)*.	*Evidence Category B*
• Long-term (more than one year) behaviour therapy used in combination with other weight-loss interventions can be associated with improved dietary intake, physical activity levels and reduction in abdominal fat, even in the absence of weight loss *(4, 5)*.	*Evidence Category B*
• Behavioural therapy can:	
• improve compliance with dietary and physical activity requirements *(6)*.	*Evidence Category B*
• reduce blood pressure *(7)*.	*Evidence Category B*
• improve psychological function *(8)*.	*Evidence Category C*

• No one behaviour therapy appears to be superior to any other in its effect on weight loss. Multi-modal strategies appeared to work best and those interventions with the greatest intensity appeared to be associated with the greatest weight loss *(9)*.	*Evidence Category B*
• Increased duration of treatment increases the likelihood of maintaining weight loss. Long-term follow-up of clients undergoing behaviour therapy shows a return to baseline weight in the great majority of subjects in the absence of continued behavioural intervention *(4, 10, 11)*.	*Evidence Category B*

Dietetic Practice Recommendations

- Behavioural techniques are recommended to help clients achieve their nutritional and physical activity goals. One or more interventions may be used simultaneously or sequentially throughout the course of treatment. Negotiate with client which technique will be most suitable at any given time.
- Behavioural change techniques that promote appropriate diet and exercise patterns follows:
  - Self monitoring is when the client records food, eating and physical activity with related thoughts or feelings, then reviews their notations to develop self awareness of patterns, triggers and helpful or unhelpful behaviours. It also may be used to monitor progress and goals.
  - Help the client identify personal or external beneficial changes that have occurred due to the interventions implemented. This allows reinforcement of changes.
  - Help client to establish an environment that supports their new dietary and activity habits e.g. involve other family members.
  - Stimulus control is a technique that helps to reduce factors that trigger inappropriate eating or inactivity eg reducing exposure to food, avoiding high risk situations, removing the television from the bedroom, excessive weighing, food restriction, becoming overly hungry or eating in response to environmental food cues such as watching television.
  - Identify poor body image, by asking questions about how the client feels about their own body. Help the client to understand the impact poor body image could have on making change e.g. decrease self worth leading to a "*why bother*" attitude etc. Attempt to implement better body image strategies (see resource list for this section in the companion resource document, particularly Whole Women Workshop programme (12).
  - Help client to overcome barriers to adherence to their diet therapy and / or physical activity. This may be achieved through teaching the client brainstorming and problem solving techniques. Problem solving techniques include identifying problem behaviours, working through solutions and alternatives, identifying more successful behaviours and ways of reinforcing and maintaining these.
  - Encourage client to reward oneself with non-food methods when goals are achieved.
  - Discuss alternative intervention strategies to use for when the routine is disrupted.
  - Cognitive restructuring is a technique that helps the client to identify unhelpful thought patterns and develop and practice thoughts that will reinforce their newly learnt behaviours.

- Encourage client to establish and utilise social support systems eg. group, peers, family.
- Encourage client to learn relaxation skills and stress reduction/management techniques such as meditation, listening to music, breathing classes, yoga, listening to relaxation tapes.
- Refer to other health professionals/support groups as appropriate.
- Identify complex emotional concerns that may be hampering intervention strategies.
- Consider referral to other health professionals experienced in psychological matter eg clinical psychologist/counsellor.

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2.8 Adjunctive Therapy

2.8.1 Drug Therapy

Weight loss drugs may be used as part of a comprehensive weight loss program that includes diet and physical activity for clients with a BMI of ≥30 or for clients with a BMI of ≥27 with concomitant obesity-related risk factors or diseases (1).

Common weight-loss medications currently available include:

A Fat-Blocker such as Orlistat (Xenical™) which blocks absorption of ingested fat by inhibiting pancreatic lipase, promotes weight loss as a consequence of a reduction of kilojoules absorbed. Ten percent of Orlistat-treated patients have reported adverse side effects, such as oily spotting, oily or liquid stools and increased or urgent defaecation. Dosage is 120 mg x 3/day with meals (1,2).

Appetite Suppressants such as the adrenergic agents Phentermine (Duromine) and Diethylpropion (Tenuate) suppress appetite and increase energy expenditure by stimulating dopaminergic neurotransmitter pathways. The increase in energy expenditure may assist compliance to a weight loss program. Possible side effects include insomnia, nervousness, euphoria, hypertension, tachycardia and dry mouth. These preclude long-term use; thus their approval is for short-term use only (up to 3 months). Duromine dosage is 15-40 mg/day, Tenuate dosage is 75 mg/day (1,2,3).

Sibutramine (Reductil™), a serotonin and norepinephrine re-uptake inhibitor, induces weight loss by increasing satiety. Side effects may include high blood pressure, headache, insomnia, dry mouth and constipation. Dosage is 5-10-20 mg/day (1,2,3).

Older generation appetite suppressant medications, such as the fenfluramines, exhibited dangerous side effects, such as the heart condition, anorexiant-induced valvulopathy and are withdrawn from use (1,2).

Evidence Statement	Evidence Category
• Orlistat (Xenical™) combined with a low-energy, low-fat diet can lead to a weight loss of 6-13kg or 10%, and improve some co-morbid factors after 1-2 years of treatment. Two-thirds of this weight loss is the result of diet modification. The safety of prolonged (more than 2 years) therapeutic use of Orlistat has however, not been demonstrated (1,2).	*Evidence Category A*
• Orlistat reduces absorption of some fat-soluble vitamins. Clients taking Orlistat are more likely to require vitamin supplements than those who are not (1,2).	*Evidence Category B*
• Some adrenergic agents (such as Duromine™) can produce effective short-term weight losses of about 3-4 kg, but their potential for adverse side effects precludes long-term use (1,2).	*Evidence Category B*
• Sibutramine (Reductil™) can lead to a weight-loss of between 4-8kg, or 6%, and improve some co-morbid factors within 1-2 years of treatment. If preceded by or combined with lifestyle and dietary modifications weight loss in some individuals can almost double to 5-17kg or > 10% (2,3). *Evidence Category A*	
• The safety of prolonged (more than 2 years) therapeutic use of	*Evidence Category A*

Sibutramine has however, not been demonstrated. Longer and more methodologically rigorous studies, that are empowered to examine end-points such as mortality and cardiovascular morbidity, are required (3, 4).	

Dietetic Practice Recommendations

- All medication, even if it is available without prescription, should be discussed with and under the supervision of GP or specialist.
- If weight loss medication is recommended by doctor, help the client understand how medication may assist with compliance to a weight-loss program and how to utilise short-term benefits and the limitations with long-term use.
- Determine if the patient has been on weight loss medication in the past and what their perceived outcome was from its use. This information may influence compliance to any new drug regime.

Orlistat (Xenical™)

- Orlistat is available from pharmacies, without prescription.
- Orlistat is suitable for obese (BMI>30) or overweight (BMI>27) with co-morbidities. It is not suitable for clients with malabsorptive symptoms or during pregnancy and lactation (2, 3, 7).
- Orlistat reduces absorption of dietary fat by inhibiting lipase, and helps the user to identify high fat food. Counsel client on low-fat eating.
- Warn of the side-effects to Orlistat, such as diarrhoea, particularly when high fat foods are eaten (see product information for more side effects).
- Educate client on the fat content of foods and beverages
- Consider reduced absorption of fat-soluble vitamins - liaise with client's GP. A supplement containing Vitamins A, D, E and K may be appropriate, particularly if Orlistat is taken for an extended period (2).
- If weight loss over 3 months is less that 5%, continuation of the medication may not be of any benefit to the client.
- Encourage the client to utilise affiliated support program (Roche)(5)
- Long-term advice: continue to follow a low-fat (particularly low saturated fat), reduced-kilojoule, eating plan

Appetite Suppressants e.g. Sibutramine (Reductil™), Phentermine (Duromine™)

- Appetite Suppressants are available by prescription only (see product information for mechanism of action).
- Appetite suppressants may be helpful for clients who report a high physical hunger. It is reported to help the client to reduce snacking and meal size.
- Encourage clients not to skip meals and to avoid establishing bad habits.
- Encourage the client to utilise affiliated support programs (eg Abbott for Sibutramine (6)).
- Long-term: encourage the client to continue with changed eating patterns - smaller meal sizes, less frequent snacking.

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2.8.2 Obesity Surgery

Obesity Surgery, also known as Bariatric Surgery, may be used as an adjunctive to lifestyle changes to aid weight loss in the obese. It is designed to produce reduced energy intake or various degrees of malabsorption of nutrients or both. It is the most effective treatment currently available for the morbidly obese where lifestyle measures alone have been insufficient to achieve long-term weight loss (1).

There are a number of types of obesity surgery available, the most common currently used are either restrictive or diversion (malabsorptive) forms of surgeries.

Restrictive Surgery involves an adjustable band (eg Lapband™ or Swedish adjustable gastric band SAGB) placed around the cardiac region of the stomach to create a small pouch of approximately 15-30ml. The placement of band is usually done laparoscopically, which is less invasive than other procedures and is the most common. The reduced stomach size thereby reduces food intake, and promotes early satiety. The band that is placed around the stomach contains an inner tube that is inflatable via the injection of saline. The gastric band is connected via a thin tube to a port which is placed under the skin. Saline enters the tube via a subcutaneous port that is palpable but not seen in the abdomen region. The band may be adjusted to make the restriction greater or lesser as required. Adjustment is by adding or removing fluid from a sub-cutaneous port and does not require further surgery. The procedure is fully reversible (1).

Diversion surgery involves either surgical gastric reduction and/or intestinal diversion, bypassing some of the absorptive region of the small intestines. For example, Bilio-Pancreatic Diversion (BPD) consists of a distal gastrectomy with a Roux en Y reconstruction, anastomosing the proximal gastric segment to a jejunal loop, creating a small upper pouch in the stomach with a narrow outlet. This limits digestion and induces malabsorption as food passes through the stomach and distal ileum without being digested. The common channel of 50cm where the enteric limb meets the bilio-pancreatic limb is where the digestion and absorption of nutrients occur (1).

Evidence Statement	**Evidence Category**
• Weight loss surgery is an option in carefully selected clients with clinically severe obesity (BMI ≥40 kg/m2 or >35 kg/m2 with co-morbid conditions), when less invasive methods of weight loss have failed and the client is at high risk for obesity-associated morbidity or mortality (2).	*Evidence Category B*
• Surgical procedures in motivated, morbidly obese patients can result in substantial weight loss (10 to 159 kg over 1 to 5 years) or 16-43% of excess body weight (pre-surgery body weight minus Ideal Body Weight (BMI 25)) that is well maintained over 3-8 years. Evidence from case series suggests that such loss can be achieved in patients with multiple co-morbid conditions (2).	*Evidence Category B*
• Surgically induced weight loss results in marked reduction in the incidence and severity of some of the co-morbidities associated with obesity – particularly diabetes – and improved quality of life (3,4,5).	*Evidence Category C*
• Weight loss and improved lifestyle and co-morbidities were maintained at 10 years post-surgery compared to lifestyle interventions alone (6).	*Evidence Category C*
• In patients with acceptable operative risks, mortality from bariatric	*Evidence Category C*

surgery is low (7, 8). Malabsorptive forms of surgery are often associated with impaired absorption of micronutrients, which requires lifelong monitoring and often supplementation (1).	
• Elevated homocysteine levels have been found commonly during active weight loss, after Lapband surgery. Higher levels of folate and Vitamin B12 are required to maintain homocysteine levels and a multiviatamin and mineral supplement containing at least 400ug folate is recommended (9).	*Evidence Category C*
• Malabsorptive forms of surgery reduce absorption of many micronutrients (10).	*Evidence Category C*

Dietetic Practice Recommendations

Currently there are no standardised nutritional guidelines for bariatric surgery and limited published research on dietetic recommendations following bariatric surgery. Further studies are being conducted that will help to determine best practice in nutrition post surgery. Unless otherwise indicated, the following are a guideline, rather than research-based recommendations (11,12).

Pre-surgery Restrictive and Diversion Surgery

- Support the client's decision to use adjunctive therapy.
- Liase with the surgeon or referring practitioner to negotiate your role pre-operatively and post operatively and to understand the protocol preferred by the individual surgeon, which varies considerably.
- Assess the client's eating problem areas (eg. compulsive overeating, excessive alcohol intake, binge eating) and health (eg diabetes), and plan to address these issues with the reintroduction of food.
- Assist the client to develop a realistic picture of what their life will be like after surgery and assess his or her understanding of the nutritional and long-term food implications of the procedure eg there may be some foods that they are no-longer able to eat.
- Refer the client for psychological assessment and management if appropriate.
- Some surgeons request pre-surgery weight loss to reduce hepatomegaly and visceral fat (13) and thereby the reduce risk of surgical complications. Most commonly the method used to achieve this is a VLED. (See VLED recommendations – Section 2.4).

Post Surgery - Restrictive Surgery

Fluid Phase

- Discuss with client importance of fluid phase (12). This being the time needed for the stomach to form adhesions to the band to reduce slippage.
- Duration of this phase varies (liase with the surgeon).
- Provide advice on suitable fluids. Focus on providing adequate nutrition and hydration. A protein-energy supplement (eg Sustagen) or a VLED (eg Optifast) may be recommended to encourage adequate micronutrients and protein. Note that to avoid confusion the VLED may be preferred as patients are expected to limit energy-rich fluids.

Puree Phase

- Focus on small (eg 1/2cup) regular meals and snacks
- Offer advice about suitable textures (smooth puree, no lumps), and practical ways to achieve adequate nutrition with puree food and supplements (12), e.g. multivitamin and minerals. See resources listed for this section in the companion resource document.
- Avoid carbonated drinks.
- The band does not restrict fluids therefore, ensure fluids consumed away from foods to prevent fluid from 'washing' food through the band (and thus reducing sensation of satiety).
- Encourage the client to establish patterns of eating slowly and relaxed.

Long-term management

- Long-term encourage the client to:
  - eat slowly and in a relaxed manner; stop eating when feeling comfortable, i.e. satisfied not full or overfull or eating over a period of 20-30 minutes.
  - chew all food extremely well.
  - separate fluids from foods, to prevent fluid from 'washing' food through the band
  - ensure adequate fluids and these will usually be low-joule.
- Textural tolerance is similar to post-fundoplication (see glossary). Some foods (generally those that are difficult to chew finely) may be a problem after surgery. This varies between individuals, but some common 'problem foods' include white bread, dry-cooked meats (especially red meats), stringy/fibrous foods. (2,14).
- Help client to choose healthy diet in line with normal healthy eating guidelines.
- Emphasise good quality nutrition, as portion sizes are smaller.
- Assist the client to change behaviours with the eating process
- Assist the client to alter their personal concept of hunger and satisfaction
- Advise on appropriate nutrients and supplementation. A multi-vitamin and mineral supplement containing Vitamin B12, B6 and 400µg folate is recommended. Discuss sources of fibre and fibre supplements.
- Interpret blood results especially for folate, Vitamin B12, homocysteine and iron studies (9, 10). If concerned consult with doctor.

Post Surgery - Diversion Surgery

- Provide advice on suitable textures (fluids, purees) and adequate nutrition post-surgery (as per restrictive surgery (14). Duration of this phase varies (liaise with the surgeon).
- As the surgery reduces fat and protein absorption, a strong emphasis on low fat and high protein (14) is required to reduce loss of muscle and improve wound healing.
- Dumping syndrome can occur initially after surgery. Dumping Syndrome is a sympathetic vasomotor response following a meal. It is a consequence of hypertonicity in the jejunal contents with rapid inflow of carbohydrate-rich fluids into the small bowel (jejunum). Symptoms are nausea, diarrhoea, abdominal pain, sweating, and weakness. It is important to educate the patient on how to prevent Dumping Syndrome through avoiding high sugar containing foods, to eat small meals, to separate fluids from solids and to include dietary protein at each meal.

Long-term

Encourage the patient to:

- choose a diet high in protein and micronutrients (14).
- use vitamin supplements to overcome absorptive deficits after surgery and prophylactically to prevent deficiencies. Regular blood tests are also required to monitor levels. Vitamins A, D, E, and K are at particular risk as well as calcium, iron, zinc, magnesium, selenium, Vitamin B12 and folate (10).
- to drink adequate low-kJ fluids, to eat slowly and relaxed, to chew all food extremely well and to separate fluids from solid foods.

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Section 3 - Documentation, Evaluation, Monitoring and Follow Up

Documentation

Evidence Statement	Evidence Category
• The dietetic/medical record must contain sufficient information to maintain optimal and continuity of care and provide legal protection for the Dietitian (1,2).	*Evidence Category C*

Dietetic Practice Recommendations

The records may include information on the following, where relevant to the client:

- diagnosis and recommended therapy
- relevant assessment data.
- care plan, including referrals to other agencies and resources provided.
- client goals and objectives.
- progress/monitoring including problems faced by client.
- discharge and follow-up arrangements.
- dietitian's perception of appropriateness of weight reduction as a goal (when an inappropriate referral has been made).
- correspondence outlining nutrition care plan to be sent to appropriate health professional (in cases where medical history is not used for communication purposes).

Evaluation and Monitoring

Dietetic Practice Recommendations

- Record sequential anthropometric, clinical and biochemical variables (eg. blood pressure control, blood glucose levels, lipid profile, insulin, liver function tests, thyroid function test, uric acid levels, weight)
- Record changes in symptoms, risk factors, metabolic fitness and medication.
- Record achievement of client objectives, including diet, physical activity and behavioural strategies.
- Record and discuss objective and subjective changes made in the behavioural strategies listed under section 3.4.3.
- Record and discuss behavioural and attitudinal changes, including eating and activity attitudes and behaviours, enhanced self-esteem and self image.

Follow Up

Dietetic Practice Recommendations

- Ensure continuity of care and consistency of approach by liaison and communication with other services/health workers.
- Establish a timetable for ongoing monitoring of progress and support
- Review of food, physical activity and behavioural goals at each session
- Review of risk factors and anthropometry
- Discuss the role and perception of "relapses" or setbacks. Set-backs are to be expected, planned for and viewed as a normal part of the change process.
- Provide frequent reinforcement regarding any positive sustained changes.

- Successful long-term weight control relies on constant vigilance in monitoring behaviours, food intake and physical activity (3).
- For clients with a history of restrained eating, be aware of common difficulties in changing long established patterns, for example fears that may arise such as weight regain and bingeing; possible sabotage by self and others; loss of safety and familiarity that old patterns provided. It is important to provide opportunities to explore and air these fears and reinforce that they are natural, and that anxiety is a part of change.

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Glossary

Ad libitum	A Latin word meaning as much as one desires. *(Websters Medical Dictionary)*
AGHE	Australian Guide to Healthy Eating
AIHW	Australian Institute of Health and Welfare
Anorexiant	A drug that suppresses appetite. (*Websters Medical Dictionary)*
APD	Accredited Practicing Dietitian
Bariatric surgery	Any surgery on the stomach and or intestines to help a person with extreme obesity lose weight *(Websters Medical Dictionary)*
Baseline	The client's initial information at diagnosis, shortly before treatment or before starting a clinical trial. Baseline data is subsequently compared with later tests to indicate change.
Bias	When a point of view prevents impartial judgment on issues relating to the client. Or in a clinical setting when the truth and/or results have been affected by something or someone *(Websters Medical Dictionary)*
BMI	Body Mass Index
Body Image	Body image refers to the picture that a person forms of their body in their mind. A person's body image is influenced by his or her own beliefs and attitudes, as well as ideals in society. One's body image does not remain the same but changes in response to lifestyle events; puberty, pregnancy, disability, illness, surgery, menopause and even different stages in the menstrual cycle. *(Womens Health Queensland)*
Body Mass Index(BMI)	BMI is a key index for relating a person's bodyweight to their height, where weight in kilograms is divided by height in metres squared (kg/m2). BMI it is not gender-specific but the cut-offs that predict health risks is dependent on ethnicity. Although BMI does not directly measure percent of body fat, it is considered a acceptable surrogate and is a more accurate indicator of overweight and obesity than relying on weight alone. (for WHO BMI cut-off values see overweight and obesity).
BPD	Bilio-Pancreatic Diversion. A type of bariatric surgery. See Section 3.6
Brief Therapy	A short-term (usually 10-20 sessions) therapy focussed on helping a person to resolve or effectively manage a specific problem or challenge or to make a desired change. Brief therapy looks more at the here and now rather than the historical aspect of a problem. *(Cognitive Therapy Association)*
Burden of disease	A measure of health status that looks at more than just death rates, it also takes into account the impact of premature death and both physical and mental disability. It is the total significance of disease for a society or population beyond the immediate cost of treatment. It is measured in Disability Adjusted Life Years (DALY) which is the years of life lost to ill health.
Case controlled study	A type of observational analytical study, where all enrolling subjects with the disease (case) are matched to a person with similar profile but without the disease (control) and then compared.

CBT	Cognitive Behavioural Therapy. This is a problem-solving therapy. It is a method that identifies and helps a person to correct specific errors in what he or she is thinking that produces negative or painful feelings. *(Cognitive Therapy Association)*
Cohort studies	An observational study in which outcomes are compared in a group of subjects that received an intervention with a similar group (i.e., a cohort) that did not receive the intervention. In an adjusted-cohort (or matched-cohort) study, investigators make statistical adjustments to provide a cohort group that has similar characteristics (e.g., age, gender, disease severity) to the intervention group.
Co-morbidities	Concurrent chronic conditions often made worse or caused by the underlying condition, which will affect the prognosis and management strategies. A few examples of the co-morbidities associated with obesity are; diabetes, cardiovascular disease, sleep apnoea and osteoarthritis.
DAA	Dietitians Association of Australia
DGA	Dietary Guidelines for Australian Adults
DHHS	Department of Health and Human Services
Diagnosis	The process of identifying a disease by the signs and symptoms.
DINER	Dietetic Information and Nutrition Education Resources. A database of nutrition education resources managed by DAA.
Disordered Eating	Disordered eating entails a broad range of irregular and inappropriate eating habits that can include an excessive restraint of food consumed; unpleasant feelings associated with eating such as guilt, anxiety and feeling out of control; and bingeing and purging behaviours.
Evidence Based	An approach to health care practice in which the clinician is aware of the evidence in support of his/her clinical practice, and the strength of that evidence.
Fundoplication	A surgical procedure involving the insertion of tucks in the fundus of the stomach around the lower end of the esophagus. The operation is used in the treatment of gastric acid reflux into the oesophagus. (*Websters Medical Dictionary)*
GP	General Practitioner
HDL	High Density Lipoprotein. A type of molecule that transports cholesterol from the tissues back to the liver so it can be excreted in the bile. It is considered “good” cholesterol. *(Websters Medical Dictionary)*
Health	Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. *(WHO)*
Interpersonal Therapy	A form of psychotherapy in which the focus is on a patient’s relationships with peers and family members and the way they see themselves. It is based on exploring issues in relationships with other people. The goal is to help people to identify and modify interpersonal problems, to understand and to manage relationship problems. *(Websters Medical Dictionary)*
LDL	Low Density Lipoprotein. A type of molecule that transports cholesterol in the blood from the liver to the tissues of the body. It is considered “bad” cholesterol. *(Websters Medical Dictionary)*

LED	Low Energy Diets
Mesomorphic	Muscular body build
Metabolic complications	A secondary disease or negative reaction occurring from the disruption of the metabolism or its related hormones.
Moderate Activity	Activity that expends energy at a rate between 3.5-7kcal/min. For example walking at about 5.5 - 7.5 km/hr (or at 65% of the person's maximum heart rate) on a level surface. Walking while still able to maintain a conversation with only a few extra breaths.
Motivational Enhancement Therapy	Seeks to evoke from clients their own motivation for change and to consolidate a personal decision and plan for change. The approach is largely client centred, although planned and directed. *(US Department of Health and Human Services)*
Narrative Therapy	Helps people resolve problems by enabling them to separate their lives and relationships from those knowledge and stories that they judge to be making their life worse, assisting them to challenge the ways of life that they find they have no control over, and encouraging persons to rewrite their own lives according to alternative and preferred stories of identity and according to preferred ways of life. *(Dulwich Centre Adelaide)*
National Health Data Dictionary	The National Health Data Dictionary, Version 9 updates the data definitions recommended for use in Australian health data collections. Use of the Dictionary will help ensure that the data are uniform and of high quality. The format for data definitions continues to be based on the international standard for defining data elements issued by the International Organization for Standardization. Version 9 data definitions are organised according to their alignment to entities in the National Health Information Model.
NHMRC	National Health and Medical Research Council
NHF	National Heart Foundation of Australia
NIH	National Institute of Health *(USA)*
Non-Hungry Eating	Any eating that is done when the individual is not physically hungry.
Obesogenic society	A society that promotes obesity. This is a society where there is a high availability and consumption of energy rich, extremely palatable food and where very little activity is needed for daily living.
Overweight and obesity	A condition of abnormal or excesses fat accumulation to the point where health may be impaired *(WHO)*. The best way to determine overweight or obesity is to measure a person's percentage body fat. However, this is not always practical and BMI definitions and waist circumferences are often used as surrogates, as they have both been found to have strong correlation with total body fat. The WHO has defined overweight as a BMI > 25 kg/m2 and obese as >30kg/m2. In some cases, people can have a high BMI and not be overweight or obese. This can occur in individuals who have a high lean muscle mass and low total body fat e.g. elite athletes.
Pedometer	A small device that is often worn on the belt and predominantly counts the steps a person walks. It can be used as a surrogate for the level of activity. It is generally recommended to maintain health that people

	achieve around 10,000 steps per day.
Physical Activity	Physical activity is any movement of the body. There are two main types incidental (which occurs from daily living) and planned or formal activity which is done to expend energy above that of daily living eg going for a walk with no other purpose.
Post -fundoplication	After Fundoplication surgery (*See Fundoplication)*
Prader Willi Syndrome (PWS)	A complex genetic disorder resulting from a defect on chromosome 15. PWS includes short stature, mental or learning disabilities, incomplete sexual development, characteristic behaviour problems, low muscle tone, and an involuntary urge to eat constantly, which coupled with reduced need for calories leads to obesity. *(PWS Association)*
Proforma	A document already compiled that allows the therapist or client to focus on the appropriate issues.
Randomised Controlled Trials (RCTs)	A true prospective experiment in which investigators randomly assign an eligible sample of patients to one or more treatment groups and a control group and follow patients' outcomes.
RCT	Randomised controlled trial
RED	Reduced Energy Diet
Relapses/setbacks	When an individual returns to old habits or does things that are not conducive to weight management.
Resistance training	Often used interchangeably with weight training or strength training. It refers to doing exercises against a "resistance" (normally a weight of some kind).
Restrained Eating	Refers to a eating style that is highly restrictive, that is the person deliberately restricts their intake. People with high levels of restraint often have little control over their eating and display an "all or nothing" pattern of thinking around food.
Risk Factor	A risk factor is something that increases a person's chance of developing a disease. *(Webster's Medical Dictionary)*
Self Esteem	What a person's unconscious believes to be true about how worthy, lovable, valuable and capable they are. It can be thought of as global, which is what they think about their life as a whole, or it can be divided into domains which reflect different aspects of their life such as social aspects, appearance, job competency etc
SES	Socio-Economic Status
SMART	Is an acronym for a goal setting frame work, where the goal uses the following criteria; Specific, Measurable, Attainable, Realistic, Time Specific.
Stadiometer	Instrument to measure height and weight.
Subcutaneous Fat	Fat layer between the muscles and the skin.
Systematic Review	A review of the evidence on a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise relevant primary research, and to extract and analyse data from the studies that are included in the review. Statistical methods (meta-analysis) may or may not be used.
Valvulopathy	Disease of the cardiac valve. (*Websters Medical Dictionary)*
Vigorous Activity	An activity that expends greater energy than 7kcal/min eg race-walking or aerobic walking – 8km/hr or faster (at greater than 75% of

	the person's maximum heart rate), jogging or running, walking briskly up a hill. *(Center for Disease Control, CDC)* Walking so that the individual is no-longer able to maintain a full conversation without extra breaths.
Visceral Fat	Intra-abdominal fat mass; below the muscle layer and surrounding the organs.
VLED	Very Low Energy Diet
Waist Circumference	Valid measure of abdominal fat mass and disease risk in individuals with BMI less than 35. It is measured half way between the bottom of the last rib and the top of the iliac crest.
Weight cycling	A repeated loss and then regain of body weight, which usually occurs when people go on and off diets that change their energy intake. This can also be termed yo-yo dieting.
WHO	World Health Organisation

Appendix I

Medications whose side-effects may include an increase in body weight. Source: Coleman, Y. 2004. Drug - Nutrient Interactions The Manual. Nutrition Consultants Australia: Melbourne (reprinted with permission of the author).

FUNCTION	GENERIC NAME
Adrenal steroid hormone	BETAMETHASONE
	CORTISONE ACETATE
	FLUDROCORTISONE
	METHYLPREDNISOLONE
	PREDNISOLONE
	PREDNISONE
	TRIAMCINOLONE
Alzheimer's disease	DONEPEZIL
Analgesic	ALKA – SELTZER (oedema)
Antacid	DEXSAL (oedema)
	ENO (oedema)
	GAVISCON (oedema)
	MYLANTA DOUBLE STRENGTH (oedema)
	MYLANTA HEARTBURN RELIEF (oedema)
	MYLANTA ORIGINAL (oedema)
	SODIUM BICARBONATE (oedema)
Anti-allergy	CETIRIZINE
Anti-angina antihypertensive	DILTIAZEM
Antianxiety	BUSPIRONE
	ALPRAZOLAM
	CLOBAZAM
	LORAZEPAM
Anti-anxiety/Tranq (benzodiazepine)	CHLORPROMAZINE
	FLUPENTHIXOL
Anti-arrhythmia	AMIODARONE
	DISOPYRAMIDE
Anticonvulsant	CARBAMAZEPINE
	CLONAZEPAM
	GABAPENTIN
	PHENOBARBITONE
	PHENYTOIN
	PRIMIDONE
	SODIUM VALPROATE
Antidepressant	AMITRIPTYLINE
	CITALOPRAM
	CLOMIPRAMINE
	DOTHIEPIN
	DOXEPIN
	FLUOXETINE

FUNCTION	GENERIC NAME
	IMIPRAMINE
	MIANSERIN
	MIRTAZAPINE
	NORTRIPTYLINE
	PAROXETINE
	SERTRALINE
	TRIFLUOPERAZINE
	VENLAFAXINE
Antidiarrhoeal	MERACOTE (oedema)
Anti-epileptic	VIGABATRIN
Antihistamine	CYPROHEPTADINE*e*
	LORATADINE
	METHDILAZINE
Antihypertensive	AMLODIPINE
	ATENOLOL
	AVAPRO HCT
	CARVEDILOL
	CLONIDINE
	HYDRALAZINE
	IRBESARTAN
	KARVEZIDE
	METOPROLOL
	MINOXIDIL
	MONOPLUS
	NIFEDIPINE
Antihypertensive (ACE inhibitor)	FOSINOPRIL
Antimigraine	PIZOTIFEN
Antineoplastic	AMINOGLUTETHIMIDE
	BICALUTAMIDE
	GOSERELIN
	LETROZOLE
	TOREMIFENE
Antiparkinson	KINSON
	LEVODOPA
	MADOPAR
	SINEMET
	SINEMET CR
Antipsychotic	CLOZAPINE
	OLANZAPINE
	PERICYAZINE
	QUETIAPINE
	RISPERIDONE
Antipsychotic (MAOI)	PHENELZINE
	TRANYLCYPROMINE
Antipsychotic (phenothiazine)	FLUPHENAZINE

FUNCTION	GENERIC NAME
	PROCHLORPERAZINE
	THIORIDAZINE
Antipsychotic (phenothiazine-like)	HALOPERIDOL
Antituberculotic	ISONIAZID
Antiviral	EFAVIRENZ
	INDINAVIR
	SAQUINAVIR
Bladder function disorders	FINASTERIDE
	TAMSULOSIN
	TERAZOSIN
Corticosteroid	HYDROCORTISONE
	HYDROCORTISONE SODIUM SUCCINATE
COX-2 inhibitor	ROFECOXIB
Cytotoxic	PROCARBAZINE
	TRETINOIN
For Manic Depressives	LITHIUM CARBONATE
For peptic ulcer disease	KLACID HP 7
	LOSEC HP 7
Gonadal hormone	GESTRINONE
	BRENDA-35 ED
	CLIMEN
	CLIMEN 28
	CYPROTERONE
	DANAZOL
	DIANE 35
	DYDROGESTERONE
	ESTALIS CONTINUOUS (SEQUI)
	ETHINYLOESTRADIOL
	FEMOSTON
	KLIOGEST
	KLIOVANCE
	MEDROXYPROGESTERONE
	OESTRADIOL
	OESTRIOL
	OESTROGEN
	PIPERAZINE
	PREMIA CONTINUOUS (5)
	PROVELLE
	TIBOLONE
	TRISEQUENS (FORTE)
Hormonal antineoplastic	MEGESTROL
Hormone (corticosteroid)	DEXAMETHASONE
Hypolipidaemic	CHOLESTYRAMINE
Immunomodifier	GLATIRAMER
Movement disorders	TETRABENAZINE

FUNCTION	GENERIC NAME
Multiple Sclerosis	INTERFERON BETA-1B
Muscle relaxant	BACLOFEN
NSAID	CELECOXIB
	KETOPROFEN
	KETOROLAC
	PIROXICAM
	TIAPROFENIC
Oestrogen modulator	RALOXIFENE
OHA (sulfonylurea)	GLIBENCLAMIDE
	GLIPIZIDE
Oral antidiabetic	PIOGLITAZONE
	ROSIGLITAZONE
Oral contraceptive agent	BREVINOR
	ETONOGESTREL
	FEMODEN ED
	IMPROVIL 28 DAY
	LEVLEN ED
	LEVONORGESTREL
	LOCILAN 28
	LOETTE
	LOGYNON ED
	MARVELON
	MICROGYNON 20 ED
	MICROGYNON 30
	MICROGYNON 50
	MICROLEVLEN ED
	MINULET 28
	MONOFEME
	NORDETTE 28
	NORETHISTERONE
	NORIMIN
	NORIMIN-1
	NORINYL-1
	SEQUILAR ED
	SYNPHASIC 28 DAY
	TRIFEME 28
	TRI-MINULET 28
	TRIPHASIL
	TRIQUILAR
Pituitary hormone	CLOMIPHENE
	FOLLITROPIN ALFA
	LEUPRORELIN
Proton pump inhibitor	OMEPRAZOLE
	RABEPRAZOLE
Respiratory	BUDESONIDE

FUNCTION	GENERIC NAME
Sedative	FLUNITRAZEPAM
	MIDAZOLAM
	OXPENTIFYLLINE
Tranquilliser (benzodiazepine)	OXAZEPAM

Additional resources

- *www.clininfo.health.nsw.gov.au* (this can be accessed by public hospital workers through their own hospital id and password).
- The Australian Prescription Products Guide website *www.appco.com.au/appguide*. Requires free registration.

Appendix 2

Consultation Responses

Consultation First Draft

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Consultation Second Draft

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