

# Pillars of Obesity Management: *What can we learn from other National Guidelines?*

Clare Collins

Laureate Professor  
Nutrition and Dietetics

Director of Research, School of  
Health Sciences  
College of Health, Medicine &  
Wellbeing  
The University of Newcastle

 @ProfCCollins

Rebecca Haslam

Accredited Practising  
Dietitian

Casual Academic  
College of Health, Medicine &  
Wellbeing  
The University of Newcastle

 @becwilliams\_uon



Understand the evidence hierarchy for research

Understand the latest evidence for obesity management strategies

Be aware there is no one size fits all approach to obesity management

Understand the role of the dietitian in team care management of overweight/obesity

Learning  
goals

# A United Front: What do nutrition experts agree on?

- ✓ Dietitians are essential health care team members
- ✓ Nutrition practice should be evidence-based
- ✓ Dietitians support people to improve nutrition-related health and well being
- ✓ Nutrition interventions should meet clients needs
- ✓ Do no Harm



# My role today...

Show you the Evidence

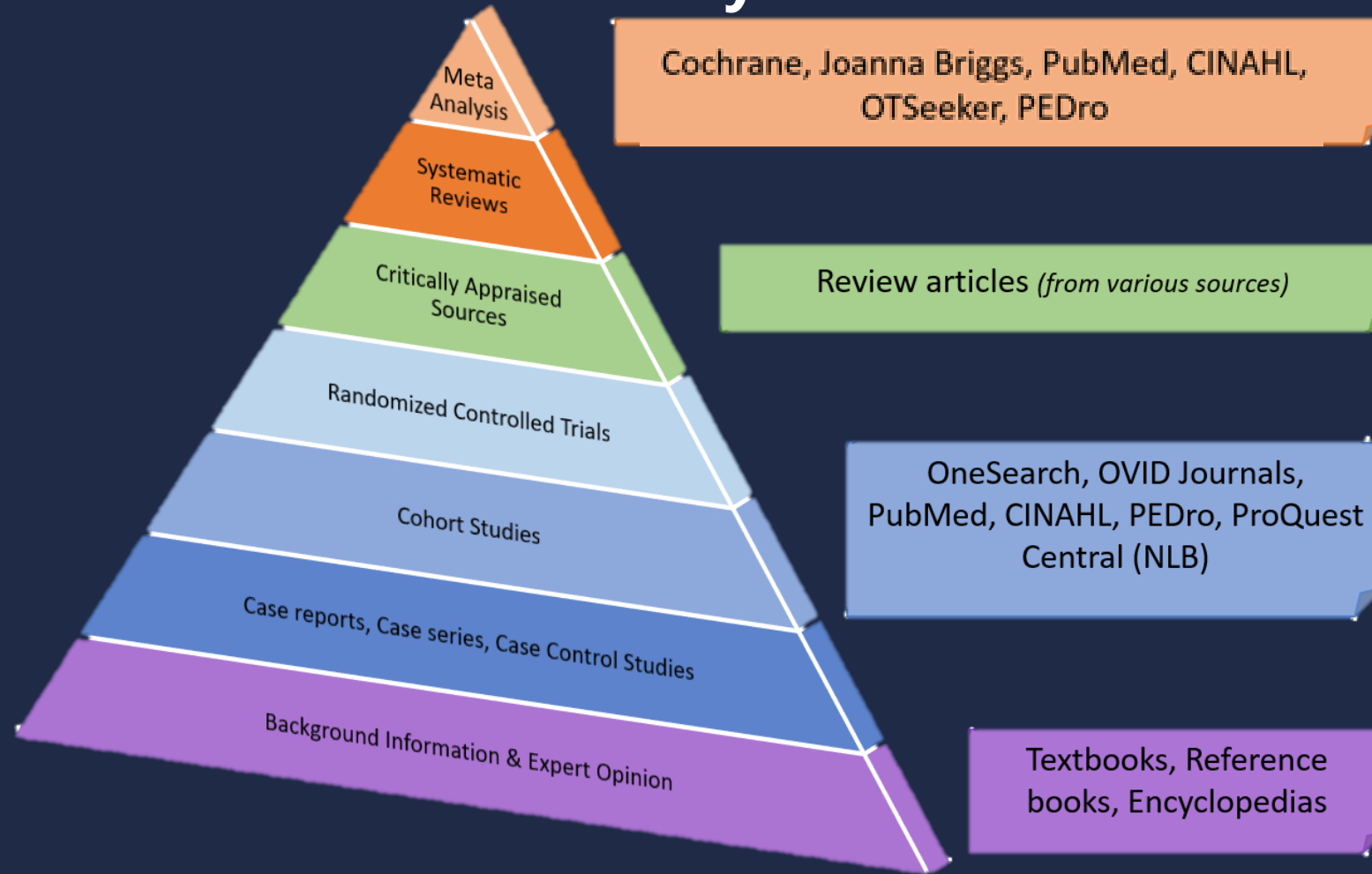


Give you some homework



Evidence-informed practice

# Research Evidence Hierarchy



levelsEvidence.png (1286 × 821) (libapps-au.s3-ap-southeast-2.amazonaws.com)

Step 1: Category of research evidence →

#### Category of evidence

- Level 1a: Evidence from meta-analysis of randomized controlled trials (RCTs)
- Level 1b: Evidence from at least 1 RCT
- Level 2a: Evidence from at least 1 controlled study without randomization
- Level 3: Evidence from nonexperimental descriptive studies, such as comparative studies, correlation studies and case-

**EVIDENCE-BASED PRACTICE SHOULD BE BASED ON LEVEL 1 GRADE A RESEARCH – KEEP YOUR EYE OUT FOR THESE**

Step 2: Strength of recommendation →

#### Strength of recommendation

- Grade A: Directly based on level 1 evidence
- Grade B: Directly based on level 2 evidence or extrapolated recommendation from category 1 evidence
- Grade C: Directly based on level 3 evidence or extrapolated recommendation from level 1 or 2 evidence
- Grade D: Directly based on level 4 evidence or extrapolated recommendation from level 1, 2 or 3 evidence

Adapted with permission from BMJ Publishing Group Limited. Shekelle PG, Woolf SH, Eccles M, et al. Developing clinical guidelines. *West J Med* 1999;170:348-51.

## Recommendations for weight management in adults

RECOMMENDATION	GRADE	SECTION
<b>Ask about and assess weight</b>		
1 Use BMI to classify overweight or obesity in adults.	B	4.2
2 For adults, use waist circumference, in addition to BMI, to refine assessment of risk of obesity-related comorbidities.	C	4.3
3 For adults who are overweight or obese, discuss readiness to change lifestyle behaviours.	D	4.4.5
<b>Advise adults about the health benefits of lifestyle change and weight loss</b>		
4 Adults who are overweight or obese can be strongly advised that modest weight loss reduces cardiovascular risk factors.	A	5.1 Appendix C
5 Adults with prediabetes or diabetes can be strongly advised that the health benefits of modest weight loss include prevention, delayed progression or improved control of type 2 diabetes.	A	5.1 Appendix C
6 Adults with kidney disease or sleep apnoea can be advised that improvements in these conditions are associated with a 5% weight loss.	B	5.1 Appendix C
7 Adults with musculoskeletal problems, gastro-oesophageal reflux or urinary incontinence can be advised that weight loss of 5% or more may improve symptoms.	C	5.1 Appendix C
8 Adults who are overweight or obese can be advised that quality of life, self-esteem and depression may improve even with small amounts of weight loss.	C	5.1 Appendix C
<b>Assist adults to lose weight through lifestyle interventions</b>		
9 For adults who are overweight or obese, strongly recommend lifestyle change—including reduced energy intake, increased physical activity and measures to support behavioural change.	A	6.1 Appendix C
10 For adults who are overweight or obese, design dietary interventions that produce a 2500 kilojoule per day energy deficit and tailor programs to the dietary preferences of the individual.	A	6.1.1
11 For adults who are overweight or obese, prescribe approximately 300 minutes of moderate-intensity activity, or 150 minutes of vigorous activity, or an equivalent combination of moderate-intensity and vigorous activities each week combined with reduced dietary intake.	CBR	6.1.2 Appendix C
<b>Assist adults who require additional intensive intervention</b>		
12 For adults with BMI $\geq 30$ kg/m <sup>2</sup> , or adults with BMI $\geq 27$ kg/m <sup>2</sup> and comorbidities, orlistat may be considered as an adjunct to lifestyle interventions, taking into account the individual situation.	A	6.2.2 Appendix C
13 For adults with BMI $> 40$ kg/m <sup>2</sup> , or adults with BMI $> 35$ kg/m <sup>2</sup> and comorbidities that may improve with weight loss, bariatric surgery may be considered, taking into account the individual situation.	A	6.2.3 Appendix C
<b>Develop an appropriate weight loss program</b>		
14 For adults, include a self-management approach in weight management programs.	C	6.3.4 Appendix C
15 For active weight management in adults, arrange fortnightly review for the first 3 months and plan for continuing monitoring for at least 12 months, with additional intervention as required.	B	6.3.5 Appendix C
<b>Long-term weight management</b>		
16 For adults who achieve initial weight loss, strongly recommend the adoption of specific strategies, appropriate to their individual situation, to minimise weight regain.	A	7.2 Appendix C

- When patient ready – attempt weight loss
- Aim for 10% weight loss initially
- Success defined as keeping off 5% body weight, improved health, QoL
- Decrease energy intake
- Aim for ↓ 2500 kJ/ day

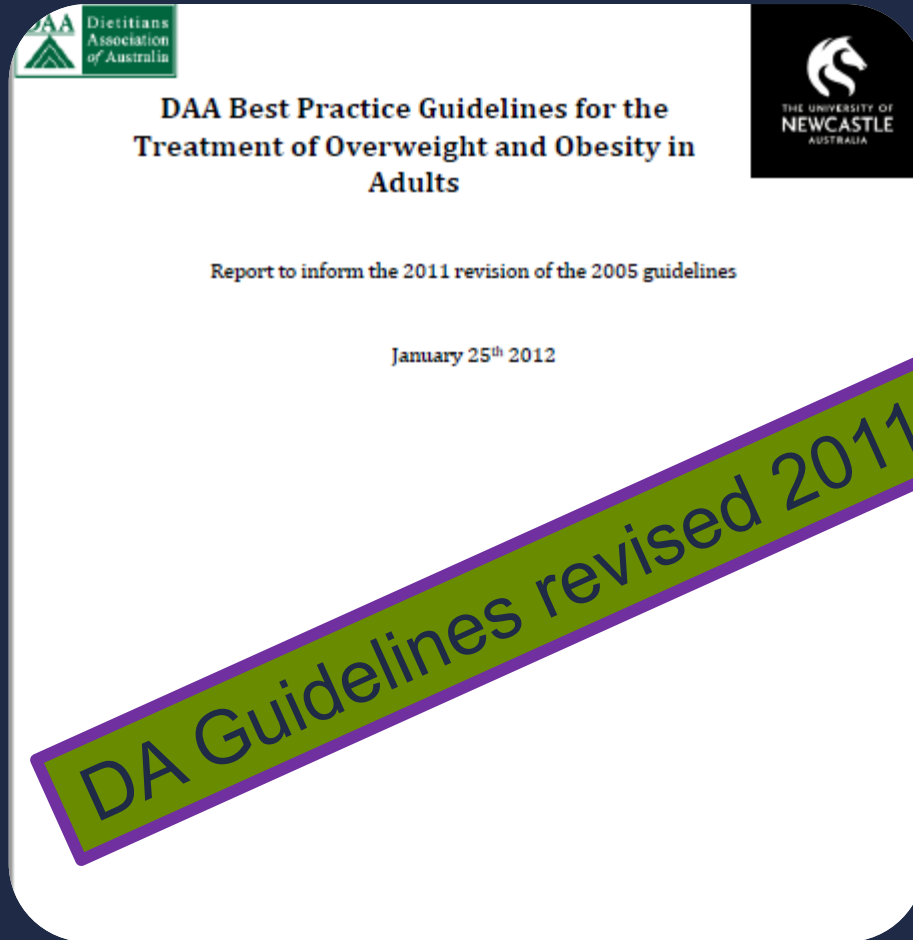
# NHMRC guidelines



[www.nhmrc.gov.au/guidelines/publications/n](http://www.nhmrc.gov.au/guidelines/publications/n)

57







# National Obesity Strategy

<https://www.health.gov.au/resources/publications/national-obesity-strategy-2022-2032>

National obesity strategy – Consultation report

Have your say on a national obesity strategy  
Consultation report

## SUMMARY

November 2020

Action is needed to address the current levels of obesity in Australia.

Released March 2022



are either **OVERWEIGHT** or **OBESITY**

IT HAS A **HIGH COST**

**INCREASES THE RISK**  
of a range of **CHRONIC**  
**HEALTH CONDITIONS**<sup>xii</sup>



**\$11.8b**  
**COST OF**  
**OBESITY**  
in Australia  
in 2018<sup>xiii</sup>

**\$5.4b** **DIRECT**  
**HEALTH COSTS**  
(from disability and hospitalisation)

**\$6.4b** **INDIRECT**  
**COMMUNITY COSTS**  
(lost quality of life and wellbeing, premature  
death and productivity losses)



## National Obesity Strategy

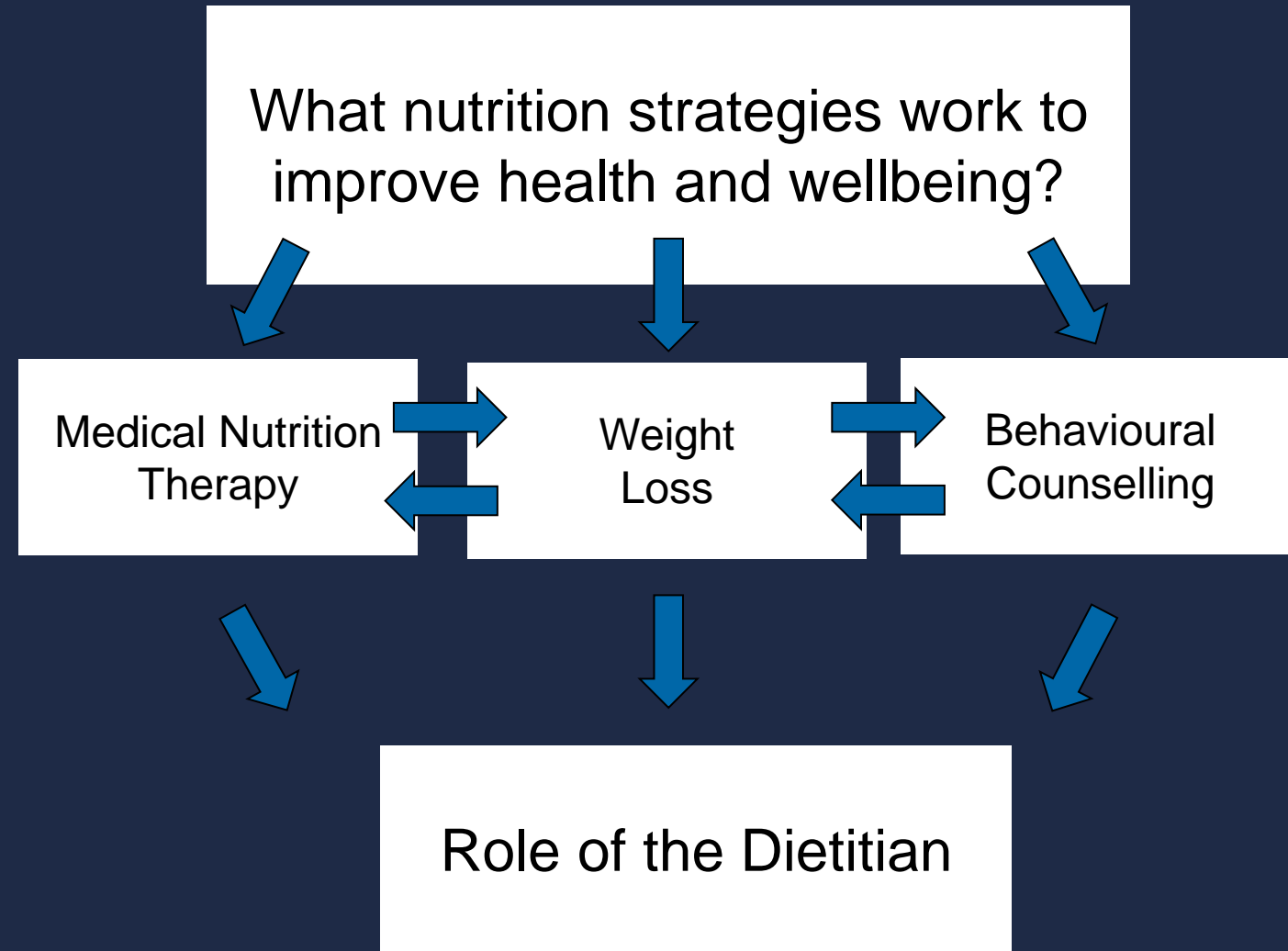
2022-2032

Enabling Australians to eat well and be active

[National Obesity Strategy - Australian Government Department of Health - Citizen Space](#)

Health Ministers' Meeting

# What nutrition strategies work for obesity and chronic disease management?





<https://obesitycanada.ca/guidelines/> Search dates were January 2006 to June 2018.

Recommendations		Category of evidence and strength of recommendation†
<b>Medical nutrition therapy in obesity management</b>		
19	We suggest that nutrition recommendations for adults of all body sizes be personalized to meet individual values, preferences and treatment goals to support a dietary approach that is safe, effective, nutritionally adequate, culturally acceptable and affordable for long-term adherence.	Level 4, grade D
20	Adults living with obesity should receive individualized medical nutrition therapy provided by a registered dietitian (when available) to improve weight outcomes (body weight, BMI), waist circumference, glycemic control, established lipid, and blood pressure targets.	Level 1a, grade A
21	Adults living with obesity and impaired glucose tolerance (prediabetes) or type 2 diabetes may receive medical nutrition therapy provided by a registered dietitian (when available) to reduce body weight and waist circumference and improve glycemic control and blood pressure.	Level 2a, grade B
22	Adults living with obesity can consider any of multiple medical nutrition therapies to improve health-related outcomes, choosing the dietary patterns and food-based approaches that support their best long-term adherence. (Full recommendation and category and level of evidence available in the chapter titled “Medical nutrition therapy in obesity management.”)	See recommendation
23	Adults living with obesity and impaired glucose tolerance (prediabetes) should consider intensive behavioural interventions that target a 5%–7% weight loss, to improve glycemic control, blood pressure and blood lipid targets (level 1a, grade A) and reduce the incidence of type 2 diabetes (level 1a, grade A), microvascular complications (retinopathy, nephropathy and neuropathy) (level 1a, grade B), and cardiovascular and all-cause mortality (level 1a, grade B).	See recommendation
24	Adults living with obesity and type 2 diabetes should consider intensive lifestyle interventions that target a 7%–15% weight loss, to increase the remission of type 2 diabetes and reduce the incidence of nephropathy, obstructive sleep apnea and depression.	Level 1a, grade A
25	We recommend a nondieting approach to improve quality of life, psychological outcomes (general well-being, body image perceptions), cardiovascular outcomes, body weight, physical activity, cognitive restraint and eating behaviours.	Level 3, grade C

# Level 1 - Body of evidence can be trusted to guide practice

Category of evidence and strength of recommendation†

## Medical nutrition therapy in obesity management

19	We suggest that nutrition recommendations for adults of all body sizes be personalized to meet individual values, preferences and treatment goals to support a dietary approach that is safe, effective, nutritionally adequate, culturally acceptable and affordable for long-term adherence.	Level 4, grade D
20	Adults living with obesity should receive individualized medical nutrition therapy provided by a registered dietitian (when a lipid, and	Level 1a, grade A
21	Adults living with obesity and pre-diabetes should consider intensive behavioural interventions targeting 5-7% wt loss to improve a range of outcomes	Level 1a, grade B
22	Adults living with obesity and T2DM should consider intensive behavioural interventions targeting 7-15% wt loss to increase T2DM remission and improve a range of outcomes	Level 1a, grade B
23	Adults living with obesity and impaired glucose tolerance (prediabetes) should consider intensive behavioural interventions that target a 5%–7% weight loss, to improve glycemic control, blood pressure and blood lipid targets (level 1a, grade A) and reduce the incidence of type 2 diabetes (level 1a, grade A), microvascular complications (retinopathy, nephropathy and neuropathy) (level 1a, grade B), and cardiovascular and all-cause mortality (level 1a, grade B).	See recommendation
24	Adults living with obesity and type 2 diabetes should consider intensive lifestyle interventions that target a 7%–15% weight loss, to increase the remission of type 2 diabetes and reduce the incidence of nephropathy, obstructive sleep apnea and depression.	Level 1a, grade A
25	We recommend a non-dieting approach to improve quality of life, psychological outcomes (general well-being, body image perceptions), cardiovascular outcomes, body weight, physical activity, cognitive restraint and eating behaviours.	Level 3, grade C



# EDMONTON OBESITY STAGING SYSTEM (EOSS Staging Tool)

## 5A's management model

### CLASSIFICATION OF BMI

Category	BMI (kg/m <sup>2</sup> )
Obesity Class 1	30-34.9
Obesity Class 2	35-39.9
Obesity Class 3	40-49.9
Obesity Class 4	50-59.9
Obesity Class 5	≥ 60

### STAGE 0

- **NO** sign of obesity-related risk factors
- **NO** physical symptoms
- **NO** psychological symptoms
- **NO** functional limitations

#### Case Example:

Physically active female with a BMI of 32 kg/m<sup>2</sup>, no risk factors, no physical symptoms, no self-esteem issues, and no functional limitations.

*Class I, Stage 0 Obesity*

EOSS Score  
WHO Obesity Classification

### STAGE 1

- Patient has obesity-related **SUBCLINICAL** risk factors (borderline hypertension, impaired fasting glucose, elevated liver enzymes, etc.) - *OR* -
- **MILD** physical symptoms - patient currently not requiring medical treatment for comorbidities (dyspnea on moderate exertion, occasional aches/pains, fatigue, etc.) - *OR* -
- **MILD** obesity-related psychological symptoms and/or mild impairment of well-being (quality of life not impacted)

#### Case Example:

38 year old female with a BMI of 59.2 kg/m<sup>2</sup>, borderline hypertension, mild lower back pain, and knee pain. Patient does not require any medical intervention.

*Class III, Stage 1 Obesity*

### STAGE 2

- Patient has **ESTABLISHED** obesity-related comorbidities requiring medical intervention (HTN, Type 2 Diabetes, sleep apnea, PCOS, osteoarthritis, reflux disease) - *OR* -
- **MODERATE** obesity-related psychological symptoms (depression, eating disorders, anxiety disorder) - *OR* -
- **MODERATE** functional limitations in daily activities (quality of life is beginning to be impacted)

#### Case Example:

32 year old male with a BMI of 36 kg/m<sup>2</sup> who has primary hypertension and obstructive sleep apnea.

*Class II, Stage 2 Obesity*

### STAGE 3

- Patient has **significant** obesity-related end-organ damage (myocardial infarction, heart failure, diabetic complications, incapacitating osteoarthritis) - *OR* -
- **SIGNIFICANT** obesity-related psychological symptoms (major depression, suicide ideation) - *OR* -
- **SIGNIFICANT** functional limitations (eg: unable to work or complete routine activities, reduced mobility)
- **SIGNIFICANT** impairment of well-being (quality of life is significantly impacted)

#### Case Example:

49 year old female with a BMI of 67 kg/m<sup>2</sup> diagnosed with sleep apnea, CV disease, GERD, and suffered from stroke. Patient's mobility is significantly limited due to osteoarthritis and gout.

*Class III, Stage 3 Obesity*

### STAGE 4

- **SEVERE** (potential end stage) from obesity-related comorbidities - *OR* -
- **SEVERELY** disabling psychological symptoms - *OR* -
- **SEVERE** functional limitations

#### Case Example:

45 year old female with a BMI of 54 kg/m<sup>2</sup> who is in a wheel chair because of disabling arthritis, severe hyperpnea, and anxiety disorder.

*Class III, Stage 4 Obesity*

	Recommendations	Category of evidence and strength of recommendation†
<b>Medical nutrition therapy in obesity management</b>		
19	We suggest that nutrition recommendations for adults of all body sizes be personalized to meet individual values, preferences and treatment goals to support a dietary approach that is safe, effective, nutritionally adequate, culturally acceptable and affordable for long-term adherence.	Level 4, grade D
20	Adults living with obesity should receive individualized medical nutrition therapy provided by a registered dietitian (when available) to improve weight outcomes (body weight, BMI), waist circumference, glycemic control, established lipid, and blood pressure targets.	Level 1a, grade A
21	Adults living with obesity and impaired glucose tolerance (prediabetes) or type 2 diabetes may receive medical nutrition therapy provided by a registered dietitian (when available) to reduce body weight and waist circumference and improve glycemic control and blood pressure.	Level 2a, grade B
22	<b>Adults living with obesity can consider any of multiple medical nutrition therapies to improve health-related outcomes, choosing the dietary patterns and food-based approaches that support their best long-term adherence. (Full recommendation and category and level of evidence available in the chapter titled “Medical nutrition therapy in obesity management.”)</b>	See recommendation
23	Adults living with obesity and impaired glucose tolerance (prediabetes) should consider intensive behavioural interventions that target a 5%–7% weight loss, to improve glycemic control, blood pressure and blood lipid targets (level 1a, grade A) and reduce the incidence of type 2 diabetes (level 1a, grade A), microvascular complications (retinopathy, nephropathy and neuropathy) (level 1a, grade B), and cardiovascular and all-cause mortality (level 1a, grade B).	See recommendation
24	Adults living with obesity and type 2 diabetes should consider intensive lifestyle interventions that target a 7%–15% weight loss, to increase the remission of type 2 diabetes and reduce the incidence of nephropathy, obstructive sleep apnea and depression.	Level 1a, grade A
25	We recommend a nondieting approach to improve quality of life, psychological outcomes (general well-being, body image perceptions), cardiovascular outcomes, body weight, physical activity, cognitive restraint and eating behaviours.	Level 3, grade C



## Recommendations

Category of evidence  
and strength of  
recommendation†

### Medical nutrition therapy in obesity management

19 We suggest that nutrition recommendations for adults of all body sizes be personalized to meet individual values, preferences and treatment goals to support a dietary approach that is safe, effective, nutritionally adequate, culturally

Level 4, grade D

- Adults living with obesity can consider any of multiple medical nutrition therapies to improve health related outcomes, choosing the dietary patterns and food-based approaches that support their best long term adherence

reduce the incidence of type 2 diabetes (level 1a, grade A), microvascular complications (retinopathy, nephropathy and neuropathy) (level 1a, grade B), and cardiovascular and all-cause mortality (level 1a, grade B).

24 Adults living with obesity and type 2 diabetes should consider intensive lifestyle interventions that target a 7%–15% weight loss, to increase the remission of type 2 diabetes and reduce the incidence of nephropathy, obstructive sleep apnea and depression.

Level 1a, grade A

25 We recommend a nondieting approach to improve quality of life, psychological outcomes (general well-being, body image perceptions), cardiovascular outcomes, body weight, physical activity, cognitive restraint and eating behaviours.

Level 3, grade C

22. Adults living with obesity can consider any of multiple medical nutrition therapies to improve health-related outcomes, choosing dietary patterns and food-based approaches that support their best long-term adherence:
- a. Calorie-restricted dietary patterns emphasizing variable macronutrient distribution ranges (lower, moderate, or higher carbohydrate with variable proportions of protein and fat) to achieve similar body weight reduction over 6–12 months (Level 2a, Grade B)
  - b. Mediterranean dietary pattern to improve glycemic control, HDL-cholesterol and triglycerides (Level 2b, Grade C), reduce cardiovascular events (Level 2b, Grade C), reduce risk of T2DM; (Level 2b, Grade C), and increase reversion of metabolic syndrome (Level 2b, Grade C) with little effect on body weight and waist circumference (Level 2b, Grade C)
  - c. Vegetarian dietary pattern to improve glycemic control, established blood lipid targets, including LDL-C, and reduce body weight, (Level 2a, Grade B), risk of T2DM (Level 3, Grade C) and CHD incidence and mortality (Level 3, Grade C)
  - d. Portfolio dietary pattern to improve established lipid targets, including LDL-C, apo B, and non-HDL-C (Level 1a, Grade B), CRP, blood pressure, estimated 10-yr CHD risk (Level 2a, Grade B)

22. Adults living with obesity can consider any of multiple medical nutrition therapies to improve health-related outcomes, choosing dietary patterns and food-based approaches that support their best long-term adherence:

- e. Low-glycemic index dietary pattern to reduce body weight (Level 2a, Grade B) glycemic control (Level 2a, Grade B), established lipid targets, including LDL-C (Level 2a, Grade B), blood pressure (Level 2a, Grade B), T2DM risk (Level 3, Grade C) and CHD (Level 3, Grade C)
- f. Dietary Approaches to Stop Hypertension (DASH) dietary pattern to reduce body weight and waist circumference (Level 1a, Grade B), improve blood pressure (Level 2a, Grade B), established lipid targets, including LDL-C (Level 2a, Grade B), CRP (Level 2b, Grade B), glycemic control (Level 2a, Grade B), and risk of T2DM, CVD, CHD, stroke (Level 3, Grade C)
- g. Nordic dietary pattern to reduce body weight (Level 2a, Grade B), body weight regain (Level 2b, Grade B) improve blood pressure (Level 2b, Grade B), established lipid targets, including LDL-C, apo B, (Level 2a, Grade B), non-HDL-C (Level 2a, Grade B) and reduce risk of CVD and all-cause mortality (Level 3, Grade C)
- h. Partial meal replacement (replace 1 to 2 meals/day as part of kJ-restriction) to reduce body weight, waist circumference, blood pressure, improve glycemic control (Level 1a, Grade B)

22. Adults living with obesity can consider any of multiple medical nutrition therapies to improve health-related outcomes, choosing dietary patterns and food-based approaches that support their best long-term adherence:

- i. Intermittent or continuous kJ restriction achieved similar short-term weight reduction (Level 2a, Grade B)
- j. Pulses (i.e. beans, peas, chickpeas, lentils) to improve body weight (Level 2, Grade B) improve glycemic control, (Level 2, Grade B), established lipid targets, including LDL-C, (Level 2, Grade B), systolic BP (Level 2, Grade C), and reduce risk of CHD (Level 3, Grade C)
- k. Vegetables & fruit to improve diastolic BP (Level 2, Grade B), glycemic control (Level 2, Grade B), reduce risk of T2DM (Level 3, Grade C) and CVD mortality (Level 3, Grade C)
- l. Nuts to improve glycemic control, (Level 2, Grade B) established lipid targets, including LDL-C (Level 3, Grade C), and reduce risk of cardiovascular disease (Level 3, Grade C)
- m. Wholegrains (esp. oats & barley) to improve lipids, including TC & LDL-C (Level 2, Grade B)
- n. Dairy foods to reduce body weight, waist circumference, body fat & increase lean mass in kJ-restricted, but not unrestricted diets (Level 3, Grade C), reduce risk of T2DM and CVD (Level 3, Grade C)

# Medical Nutrition Therapy - Obesity Canada

	Hunger, satiety	Blood pressure	Blood lipids	Weight	Waist circumference	Body composition	CVD, CHD morbidity, mortality	Risk CVD	Glycemic control	Risk T2DM	Metabolic Syndrome	Quality of life	Depression
Medical Nutritional Therapy (RD)	■	■	■	■	■				■				
Intensive lifestyle interventions	NR	■	■	■			■		■		■		
Calorie restriction		■	■	■		■			■	■			
Lower carbohydrate				■									
Dietary fibre (25–29 g)		■	■	■		■	■		■				
Low-calories sweeteners				■			■						
Higher protein (25–40%)	■		■	■		■							
Increased protein + calorie restriction			■	■		■							
Whey protein supplement		■	■	■		■			■				
Replace fat or carb with protein					■								
Lower fat				■									
Mediterranean			■	■			■		■	■	■		
Vegetarian			■	■			■		■	■			
Portfolio		■	■				■						
Low glycemic index			■	■			■			■			
DASH			■	■	■		■		■	■			
Meal replacements		■		■					■			■	
Intermittent fasting				■									
Pulses		■	■					■	■				
Vegetables and fruits		■					■		■	■			
Nuts			■				■		■				
Whole grains			■										
Dairy				■	■	■				■			
HAES®	■		■									■	■
Mindfulness-based approaches				■					■				

Figure 2 summarises various nutrition interventions used to influence weight change, health and quality of life indicators

The best nutrition approach is one an individual can maintain long term to achieve health-related and/or weight-related outcomes

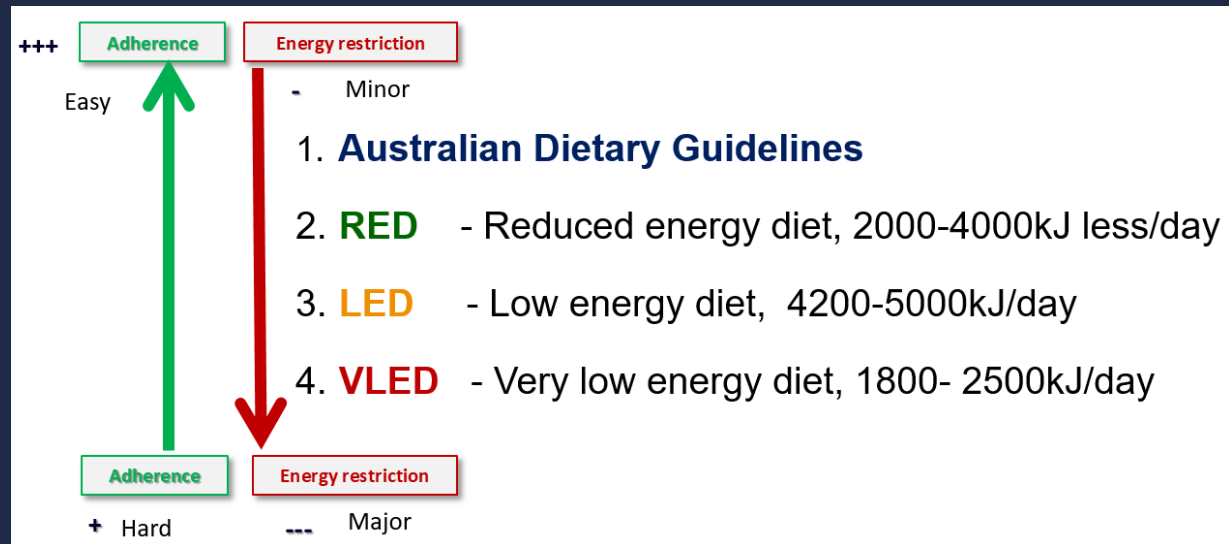
*(Collins: This may change over time)*

# Medical Nutrition Therapy - Obesity Canada

	Hunger, satiety	Blood pressure	Blood lipids	Weight	Waist circumference	Body composition	CVD, CHD morbidity, mortality	Risk CVD	Glycemic control	Risk T2DM	Metabolic Syndrome	Quality of life	Depression
Medical Nutritional Therapy (RD)	■	■	■	■	■				■				
Intensive lifestyle interventions	NR	■	■	■			■		■		■		
Calorie restriction		■	■	■		■			■	■			
Lower carbohydrate				■									
Dietary fibre (25–29 g)		■	■	■		■	■		■				
Low-calories sweeteners				■			■						
Higher protein (25–40%)	■		■	■		■							
Increased protein + calorie restriction			■	■		■							
Whey protein supplement		■	■	■		■			■				
Replace fat or carb with protein					■								
Lower fat				■									
Mediterranean			■	■			■		■	■	■		
Vegetarian			■	■			■		■	■			
Portfolio		■	■				■						
Low glycemic index			■	■			■			■			
DASH			■	■	■		■		■	■			
Meal replacements		■		■					■			■	
Intermittent fasting				■									
Pulses		■	■					■	■				
Vegetables and fruits		■					■		■	■			
Nuts			■				■		■				
Whole grains			■										
Dairy				■	■	■				■			
HAES®	■		■									■	■
Mindfulness-based approaches				■					■				

With any dietary intervention, the best approach may change over time due to:

- Stage of change
- Priorities
- Progress
- Ability to maintain / level of adherence







... but wait there's more

- Many systematic reviews published since 2018



# Low carbohydrate diets for type 2 diabetes (2021)

**Evidence Summary** \* Low carbohydrate diet defined as <130g carbohydrates/day or <26% of a 2000kcal/day diet

Component	Notes
Evidence base	23 randomised controlled trials
Clinical impact	1. <b>Low carbohydrate diets* increased remission by 32% where Type 2 diabetes remission was classified as HbA1c &lt;6.5% at 6 months</b> and was 10% at 12 months
Grade #	<b>Conclusion: Moderate level evidence supporting adherence to a low carbohydrate diet with concurrent weight loss is effective for T2DM remission at 6 but not 12 months.</b>
	<b>12 months</b> 3. Low carbohydrate diet and weight loss – <b>Moderate level of evidence at 6 and 12 months</b> 4. Low carbohydrate diet and HbA1c - <b>High at 6 months</b> and <b>moderate at 12 months</b>
Conclusion	Moderate evidence level supporting adherence to low carbohydrate diets* for 6 months and low level at 12 months for greater remission rate of Type 2 diabetes compared to control diets

Goldenberg et al. Efficacy and safety of low and very low carbohydrate diets for T2DM remission: systematic review and meta-analysis of published and unpublished RCT data. BMJ (2021) # based on Cochrane GRADE system

# Carbohydrate quantity in management of type 2 diabetes (2019)

**Evidence Summary** \*Low carbohydrate diet = <40% energy from carbohydrate

Component	Notes
Evi Clin	<p>Conclusion: Moderate level of evidence for no difference between low and higher carbohydrate diets for weight loss, HbA1c management or triglycerides.</p>
Gra	<p>Energy balance appears to be the cornerstone of dietary advice for the management of diabetes.</p> <p>4. No difference between low carbohydrate diet and blood pressure – <b>low level evidence</b></p>
Conclusion	The proportion of total energy from carbohydrate is not major determinant of response to dietary management, especially in trials $\geq 12m$

Korsmo-Haugen et al. Carbohydrate quantity in the dietary management of type 2 diabetes: a systematic review and meta-analysis. Diabetes Obes Metab (2019).  
# based on Cochrane GRADE system

# Weight-neutral vs traditional weight-loss approaches for weight, health and wellbeing (2020)

## Evidence Summary

Component	Notes
Evidence base	2 randomised controlled trials, 5 pseudo-RCTs, 3 comparative studies (no control)
Clinical impact	<ol style="list-style-type: none"> <li>1. <b>Significant improvement in bulimia in weight neutral compared to weight loss group, mean difference -0.65 (p=0.02)</b></li> <li>2. No differences significant differences between weight neutral and weight loss groups for binge eating, mean difference 1.68 (p=0.22)</li> </ol>
	<ol style="list-style-type: none"> <li>9. No mean difference improvement in fasting glucose 0.31 (p=0.31) and HbA1c 0.15 (p=0.41) between weight loss and weight neutral group</li> <li>10. No mean difference improvement in drive for thinness -0.41 (p=0.13), body dissatisfaction -0.37 (p=0.27) in weight neutral vs weight loss group</li> </ol>
Grade #	<ol style="list-style-type: none"> <li>1. Eating behaviour, self-esteem and binge eating outcomes – <b>low level of evidence</b></li> <li>2. Depression, physical activity and quality of life outcomes – <b>very low level of evidence</b></li> <li>3. Weight and BMI outcomes – <b>low level of evidence</b></li> <li>4. Lipids, Glycaemic control and blood pressure outcomes – <b>low level of evidence</b></li> <li>5. Diet quality outcomes – <b>low level of evidence</b></li> </ol>
Conclusion	No strong evidence for weight neutral approaches compared to other approaches, except for bulimia with weight-neutral approach.

**Conclusion: There is no strong level of evidence for weight neutral over other weight management approaches, except for in patients with bulimia.**

Dugmore et al. Effects of weight-neutral approaches compared with traditional weight-loss approaches on behavioural, physical, and psychological health outcomes: a systematic review and meta-analysis. Nutrition Reviews (2020) # based on Cochrane GRADE system

# Health at every size® interventions for weight, health and wellbeing (2018) + 1 additional RCT

## Evidence Summary

Component	Notes
Evidence Clinical	<b>Conclusion: HAES®-based interventions effective in improving some cardiovascular outcomes, e.g. total and LDL cholesterol. However, no significant differences identified <i>between groups</i> in included studies. Therefore one approach is not significantly better than another.</b>
Grade	1. Dietary intake outcome – <b>very low level of evidence</b> 5. Physical activity outcome – <b>low level of evidence</b>
Conclusion	HAES®-based interventions effective in improving <b>some cardiovascular outcomes</b> , e.g. total and LDL cholesterol. However, <b>no significant differences identified <i>between groups</i> in included studies.</b>

Ulian MD et al. Effects of health at every size® interventions on health-related outcomes of people with overweight and obesity: a systematic review (2018) Obesity Reviews + **Additional reference:** Ulian et al. Effects of a new intervention based on the Health at Every Size approach for the management of obesity: the "Health and Wellness in Obesity" study. [PLOS ONE \(2018\)](#) [#PLOS ONE \(2018\)](#) the GRADE system

# Maintenance of lost weight

## Evidence Summary

**Conclusion:** Health professionals need to advise clients that a specific WLM strategy is needed following initial weight loss. Further evidence is required in terms of which intervention components are most effective, this review suggests that strategies that achieve a reduction in energy intake are most effective.

Collins et al. Effectiveness of interventions with a dietary component on weight loss maintenance: a systematic review. JBI Evidence Synthesis (2013) on Cochrane GRADE system

# Effectiveness of dietitians in weight management (2019)

## Evidence Summary

Component	Notes
Evidence base	14 Randomised Controlled Trials
Clinical impact	<b>Conclusion: Individualised consultations with a dietitian achieved significantly greater impact on weight control than usual care.</b>
Grade	
Conclusion	Individualised consultations with dietitian achieved significantly greater impact on weight control

Williams LT et al. How effective are dietitians in weight management? A systematic review and meta-analysis of RCTs (2019) Healthcare  
# based on Cochrane GRADE system

# How do you incorporate this evidence in medical nutrition therapy practice?

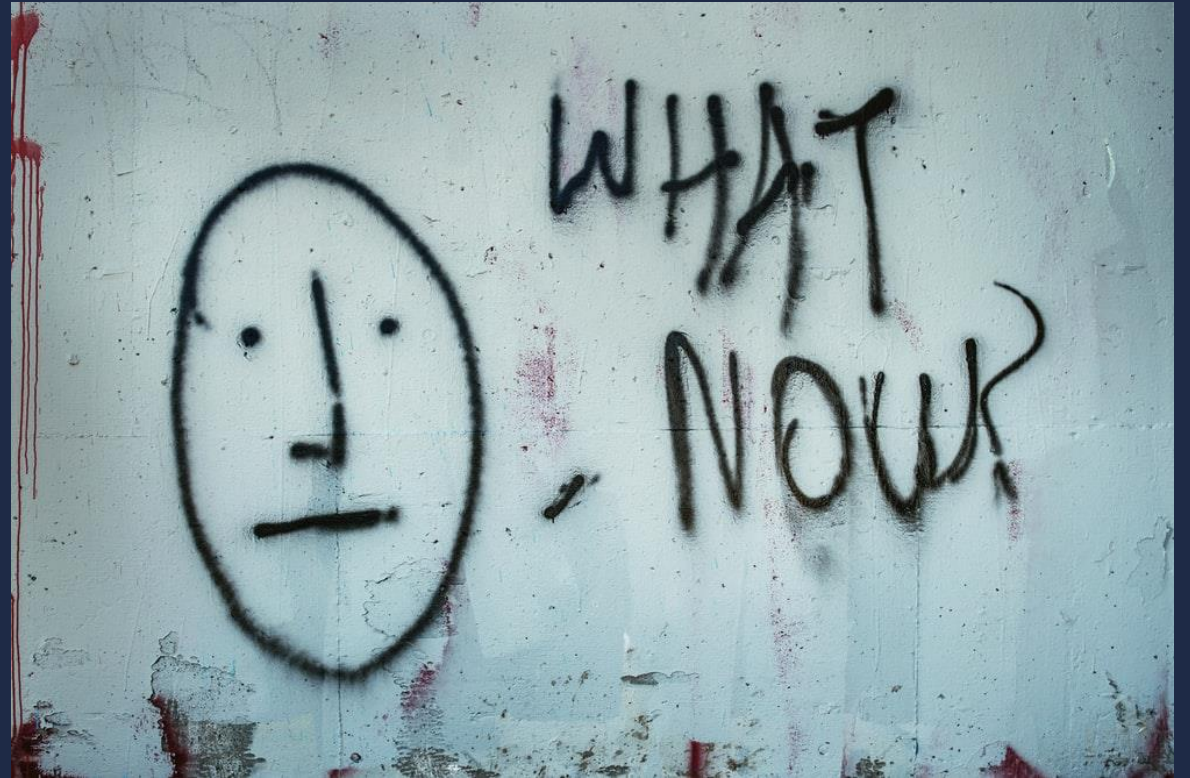


Photo by Tim Mossholder on Unsplash

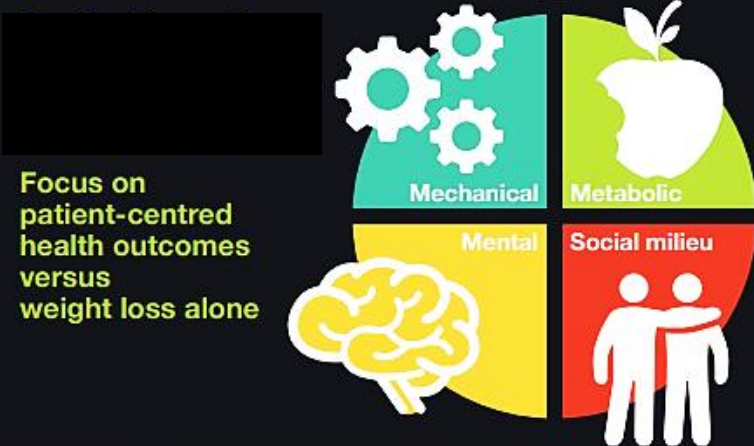


# 5A's management model

## THE PATIENT JOURNEY IN OBESITY MANAGEMENT



### Treat Root Causes of Obesity Using 4M Framework



CPG-Quick-Guide-English.pdf  
 (obesitycanada.ca)

# EDMONTON OBESITY STAGING SYSTEM (EOSS Staging Tool)



**CLASSIFICATION OF BMI**

Category	BMI (kg/m <sup>2</sup> )
Obesity Class 1	30-34.9
Obesity Class 2	35-39.9
Obesity Class 3	40-49.9
Obesity Class 4	50-59.9
Obesity Class 5	≥ 60

**STAGE 0**

- NO** sign of obesity-related risk factors
- NO** physical symptoms
- NO** psychological symptoms
- NO** functional limitations

Case Example:  
 Physically active female with a BMI of 32 kg/m<sup>2</sup>, no risk factors, no physical symptoms, no self-esteem issues, and no functional limitations.

*Class I, Stage 0 Obesity*

EOSS Score

WHO Obesity Classification

---

**STAGE 1**

- Patient has obesity-related **SUBCLINICAL** risk factors (borderline hypertension, impaired fasting glucose, elevated liver enzymes, etc.) - **OR** -
- MILD** physical symptoms - patient currently not requiring medical treatment for comorbidities (dyspnea on moderate exertion, occasional aches/pains, fatigue, etc.) - **OR** -
- MILD** obesity-related psychological symptoms and/or mild impairment of well-being (quality of life not impacted)

Case Example:  
 38 year old female with a BMI of 59.2 kg/m<sup>2</sup>, borderline hypertension, mild lower back pain, and knee pain. Patient does not require any medical intervention.

*Class III, Stage 1 Obesity*

**STAGE 2**

- Patient has **ESTABLISHED** obesity-related comorbidities requiring medical intervention (HTN, Type 2 Diabetes, sleep apnea, PCOS, osteoarthritis, reflux disease) - **OR** -
- MODERATE** obesity-related psychological symptoms (depression, eating disorders, anxiety disorder) - **OR** -
- MODERATE** functional limitations in daily activities (quality of life is beginning to be impacted)

Case Example:  
 32 year old male with a BMI of 36 kg/m<sup>2</sup> who has primary hypertension and obstructive sleep apnea.

*Class II, Stage 2 Obesity*

---

**STAGE 3**

- Patient has **significant** obesity-related end-organ damage (myocardial infarction, heart failure, diabetic complications, incapacitating osteoarthritis) - **OR** -
- SIGNIFICANT** obesity-related psychological symptoms (major depression, suicide ideation) - **OR** -
- SIGNIFICANT** functional limitations (eg: unable to work or complete routine activities, reduced mobility)
- SIGNIFICANT** impairment of well-being (quality of life is significantly impacted)

Case Example:  
 49 year old female with a BMI of 67 kg/m<sup>2</sup> diagnosed with sleep apnea, CV disease, GERD, and suffered from stroke. Patient's mobility is significantly limited due to osteoarthritis and gout.

*Class III, Stage 3 Obesity*

---

**STAGE 4**

- SEVERE** (potential end stage) from obesity-related comorbidities - **OR** -
- SEVERELY** disabling psychological symptoms - **OR** -
- SEVERE** functional limitations

Case Example:  
 45 year old female with a BMI of 54 kg/m<sup>2</sup> who is in a wheel chair because of disabling arthritis, severe hyperpnea, and anxiety disorder.

*Class III, Stage 4 Obesity*



# 5A's management model



## 3 ADVISE ON MANAGEMENT

### Medical nutrition therapy

- Personalized counselling by a registered dietitian with a focus on healthy food choices and evidence-based nutrition therapy

### Exercise

- 30-60 min of moderate to vigorous activity most days

### 3 Pillars To Support Nutrition & Activity



#### Psychological

- Cognitive approach to behaviour change
- Manage sleep, time and stress
- Psychotherapy if appropriate



#### Medications

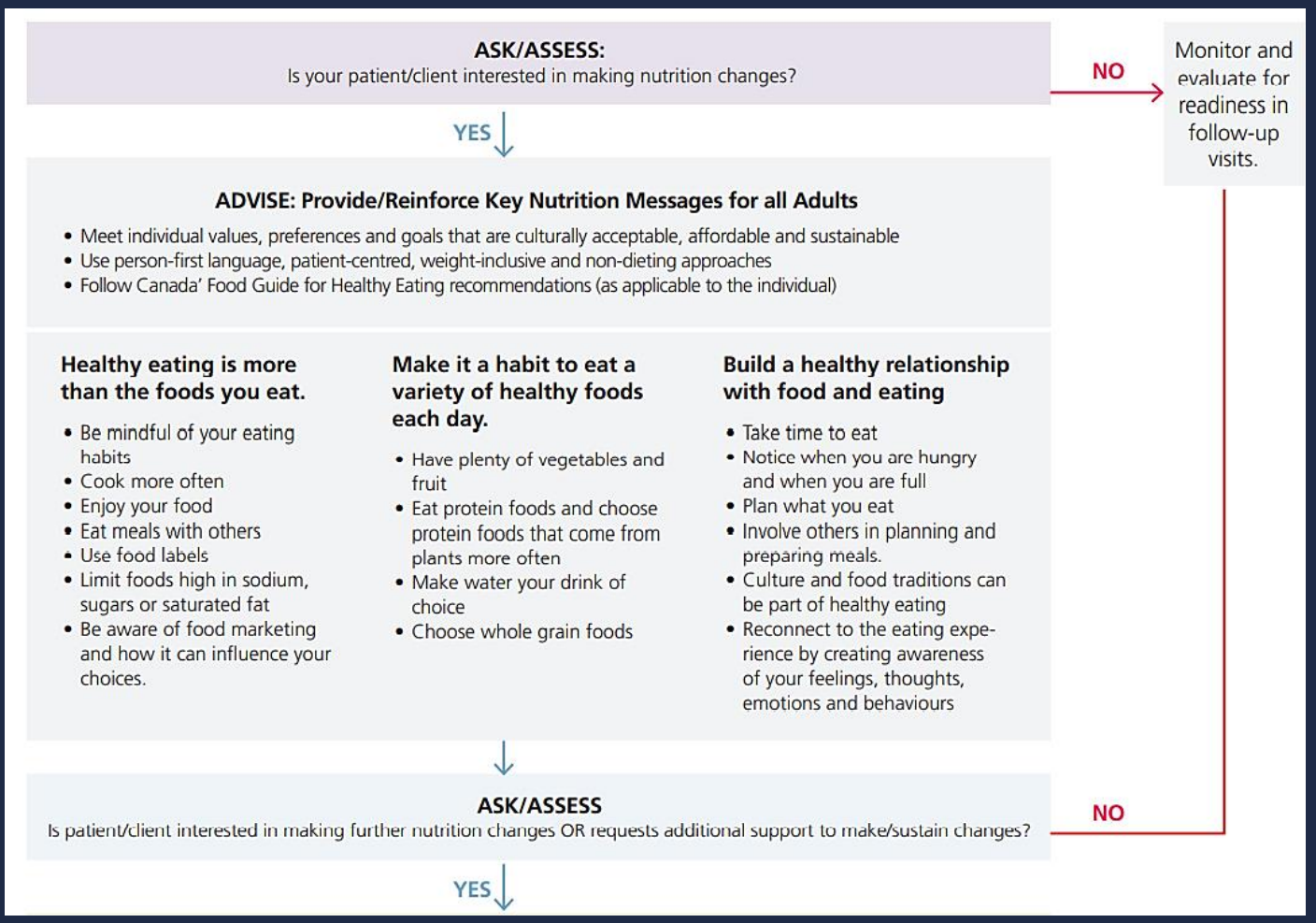
- For weight loss and to help maintain weight loss



#### Bariatric surgery

- Surgeon-patient discussion

# Medical Nutrition Therapy for Obesity Management



# Medical Nutrition Therapy for Obesity Management

YES ↓

## **AGREE AND ASSIST: Explore Options, Collaborate Care**

Refer to a Registered Dietitian (RD)

### **Food Based Approaches**

- Pulses
- Vegetables and fruit
- Nuts
- Whole grains
- Dairy foods

### **Dietary Patterns**

- Calorie-restricted patterns with variable macronutrient ranges
- Mediterranean
- Vegetarian
- Portfolio
- Low glycemic index
- DASH
- Nordic
- Partial meal replacements
- Intermittent fasting

### **Intensive Lifestyle Interventions with a Multidisciplinary Team**

- Behaviour modification
- Nutrition (RD)
- Partial meal replacements
- Physical activity
- Education
- Self-monitoring/self-care
- Medications
- Frequent follow-up visits



### **Monitor and Evaluate Health-Related Outcomes\*, including:**

Health behaviours, Nutrition status, Quality of life, Mental health, Cardiovascular, Metabolic, Functional status, Body



**Reassess** intervention, plan, readiness, barriers and supports

# 5A's management model



	Hunger, satiety	Blood pressure	Blood lipids	Weight	Waist circumference	Body composition	CVD, CHD morbidity, mortality	Risk CVD	Glycemic control	Risk T2DM	Metabolic Syndrome	Quality of life	Depression
Medical Nutritional Therapy (RD)	■	■	■	■	■				■				
Intensive lifestyle interventions	NR	■	■	■			■		■		■		
Calorie restriction		■	■	■		■			■	■			
Lower carbohydrate				■									
Dietary fibre (25–29 g)		■	■	■		■	■		■				
Low-calories sweeteners				■			■						
Higher protein (25–40%)	■		■	■		■							
Increased protein + calorie restriction			■	■		■							
Whey protein supplement		■	■	■		■			■				
Replace fat or carb with protein					■								
Lower fat				■									
Mediterranean			■				■		■	■	■		
Vegetarian			■	■			■		■	■			
Portfolio		■	■				■						
Low glycemic index			■	■			■			■			
DASH			■	■	■		■		■	■			
Meal replacements		■		■					■			■	
Intermittent fasting				■									
Pulses		■	■					■	■				
Vegetables and fruits		■					■		■	■			
Nuts			■				■		■				
Whole grains			■										
Dairy				■	■	■				■			
HAES*	■		■									■	■
Mindfulness-based approaches				■					■				

# CASE STUDY 1

- BMI 27.8kg/m<sup>2</sup>
- No comorbidities
- Which EOSS stage?
- EOSS Stage 0
- Diet quality and behaviour should be key focus

## DATA GATHERING

- Has attended visit for help with weight loss
- Recent bloods clear
- History of weight cycling
- Notes hunger across the day
- Tries to restrict intake early in the day in order to help with weight loss, “will power” falters by afternoon
  - Identified that likely due to 1) under-eating earlier, 2) stress of work/family commitments
- Works at a bank and walks the dog 4 days a week

## DIET HX ASSESSMENT:

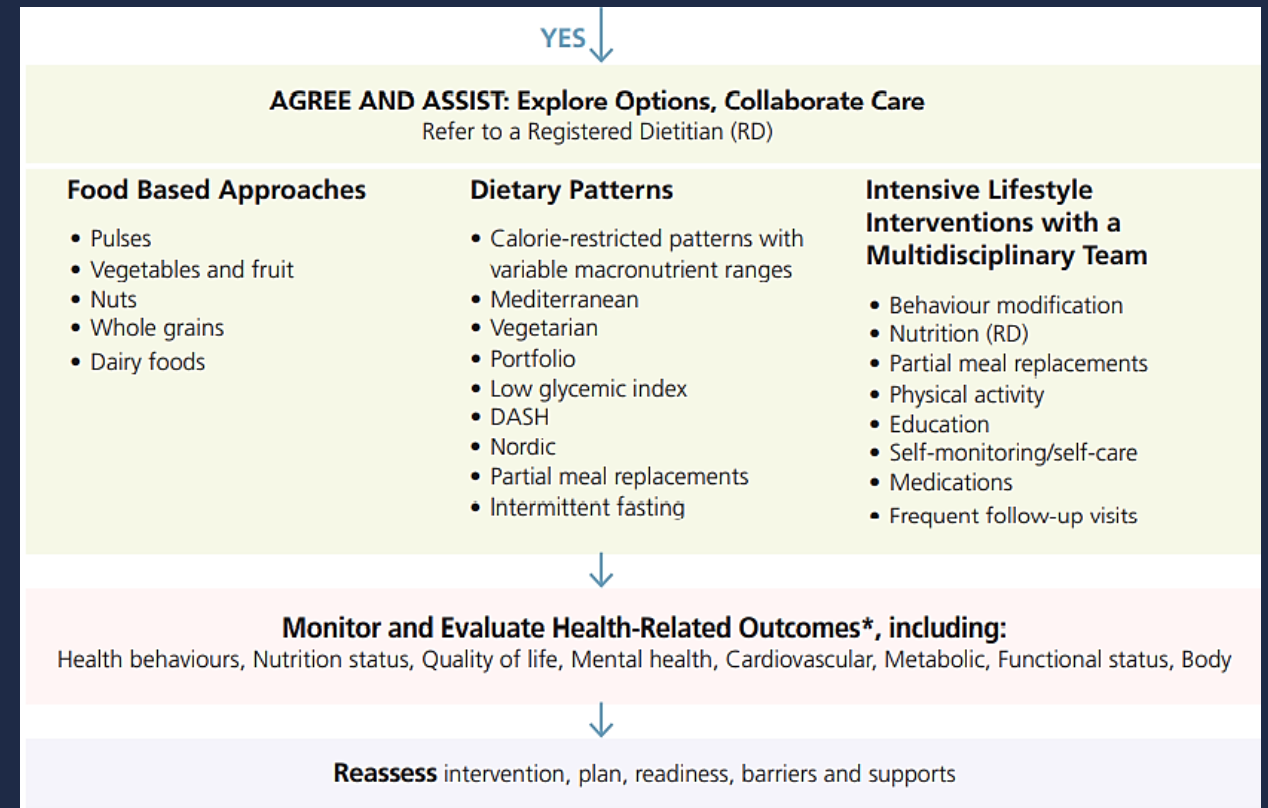
- Adequate intake of fruit, grains and dairy
- Inadequate intake of vegetables, meat/alternatives
- Inadequate energy intake early in day
- Episodes of over-eating later in day

# CASE STUDY 1

## INTERVENTION APPROACH??

### GOALS

- Main focus diet quality and managing hunger/over-eating > weight loss
- Goals included:
  - Food-based approaches
    - Improve quality of diet
  - Limit episodes of over-eating
    - Behaviour modification

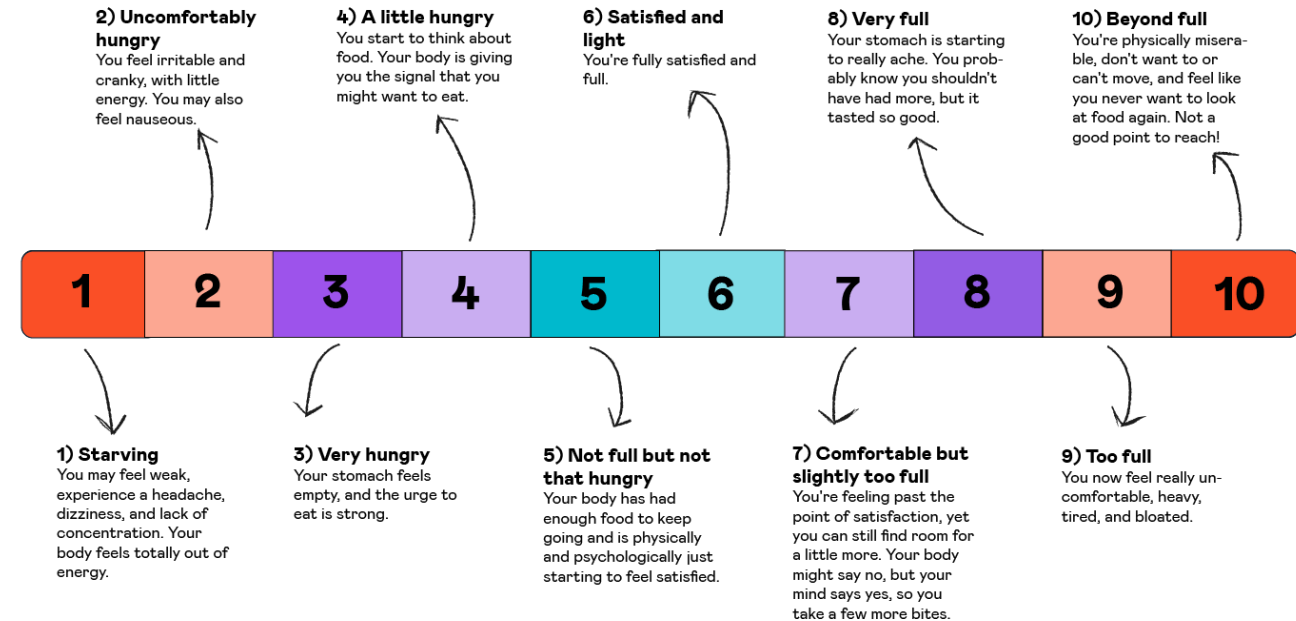




# CASE STUDY 1

## STRATEGIES

- Strategies included:
  - Including vegetables/salad at lunch & dinner, as well as some snacks (to increase volume of intake but with lower energy density + extra fibre)
  - Including more meat/alternatives (protein) across the day (higher-protein intake to manage appetite)
  - Mindful eating



# CASE STUDY 1

## POTENTIAL BARRIERS & MONITORING

- Potential barriers
  - Associative learning - repeated exposure to food as a method of reducing stress generates conditioned wanting when under stress
    - Alternate stress reduction techniques
    - Strategies for reducing emotional eating
    - Psychological support?
- Monitoring
  - Agreed that weight would not be measured
  - Instead, other health indicators would be monitored

Health Improvement	Health indicator	Example
Cognitive improvements	Memory, concentration, attention, problem solving, sleep hygiene	Ask client/patient to rate each of these health outcomes using a 0–10 scale, where 0 is low/poor and 10 is high/great:  Energy level Stress Sleep hygiene Mobility Strength Pain Bowel health Mood Relationship with food Hunger Cravings Overall health
Functional improvements	Strength, flexibility, mobility, coordination, physical activity capacity, endurance, pain	
Medical improvements	Cardiometabolic, endocrine, gastrointestinal, wound care, nutrient deficiencies, changes to medications	
Body composition improvements	Body fat, muscle mass, bone health, waist circumference	
Appetite-related improvements	Hunger, satiety, cravings, drive to eat, palatability of foods	
Mental health	Disordered eating behaviours, self-esteem, self-efficacy, emotional regulation, mood/anxiety, addiction	

# CASE STUDY 2

- BMI 33.9kg/m<sup>2</sup> (H: 175cm, W: 105kg)
- T2DM + Hypertension
- Which EOSS stage?
- EOSS Stage 2
- Weight loss should be advised along with management of co-morbidity

## DATA GATHERING

- Has attended visit for help with blood glucose control and weight loss
- Recent bloods – HbA1c >7%
- Sedentary job and no purposeful activity

## DIET HX ASSESSMENT:

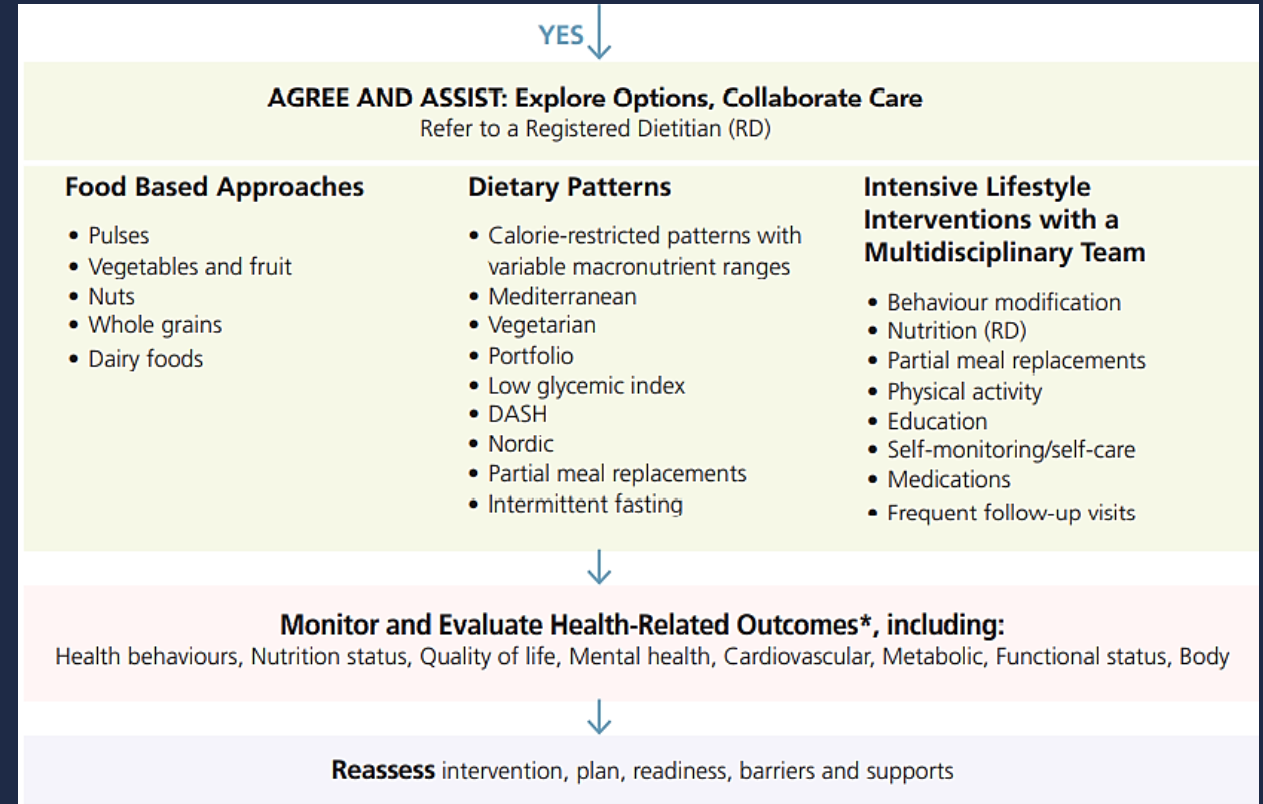
- Adequate intake of fruit, meat/alternatives, dairy (although full-fat) and grains
- Inadequate intake of vegetables
- Excess intake of discretionary choices (3-4 takeaways meals / wk – high salt, sat fat)
- High glycaemic carbohydrates + poor timing

# CASE STUDY 2

## INTERVENTION APPROACH??

### GOALS

- Main focus calorie restriction + DASH diet > weight loss and management of glycaemic control and hypertension
- Education on relationship between current dietary intake & T2DM & hypertension
- Goals included:
  - Weight loss 0.5kg / week (initial goal 7% WL in 4mo)
  - Reduce HbA1c under 7% in 4mo



# CASE STUDY 2

## STRATEGIES

- Carbohydrates
  - Address quality, quantity and timing
- DASH diet
  - Swapping to lite milk for daily coffee and using reduced fat cheese
  - Replacing mince and sausages with fish, chicken + 1 serve nuts each day
  - Don't add salt at table
- Energy restriction
  - Cooking home-cooked dinners 6 nights/week
  - Walk to/from work 2 days week
  - 1 x 30min bike ride on weekend

## DASH Eating Plan

**The Benefits:** Lowers blood pressure & LDL "bad" cholesterol.

 **Eat This**

 **Limit This**

 Vegetables	 Fatty meats
 Fruits	
 Whole grains	 Full-fat dairy
 Fat-free or low-fat dairy	
 Fish	 Sugar sweetened beverages
 Poultry	
 Beans	 Sweets
 Nuts & seeds	
 Vegetable oils	 Sodium intake

[www.nhlbi.nih.gov/DASH](http://www.nhlbi.nih.gov/DASH)



NIH National Heart, Lung, and Blood Institute



# CASE STUDY 1

## POTENTIAL BARRIERS & MONITORING

1. Potential barriers
  - Time / ease of take away
    - Consider pre-made dinner meals e.g. lite n easy
2. Monitoring
  - 2 x fortnightly visits to monitor weight, barriers, drivers
    - Does WL strategy need to change?
  - 3 x monthly visits
  - HbA1c re-tested





# Home work

1. Read Canadian Obesity Guidelines
2. Use systematic reviews and meta-analyses to enhance knowledge on evidence for dietary approaches for chronic disease management
3. Seek professional development opportunities for behaviour change counselling



# Take Home messages

1. Variety of MNT approaches (including weight loss) achieve better nutrition-related health
2. Use 5A's to work with individuals to select most appropriate intervention
3. Use personalised approach to assist individuals' improve diet-related health and well-being
4. Advocate for greater access to Medical Nutrition Therapy services





*Thank you*

**Q & A**

 **@ProfCCollins**

 **@becwilliams\_uon**



# Diet quality and health

## Evidence Summary

Component	Notes
Evidence base	113 cohort studies
Clinical impact	<b>1. Diets of the highest quality* were inversely associated with risk of all-cause mortality (RR 0.80), cardiovascular disease incidence or mortality (RR 0.80), cancer incidence or mortality (RR 0.86), incidence of type 2 diabetes (RR 0.81), and incidence of neurodegenerative diseases (RR 0.82).</b>
Grade	<ol style="list-style-type: none"><li>1. Overall diet quality and all-cause mortality – moderate level of evidence</li><li>2. Overall diet quality and CVD mortality and incidence - moderate level of evidence</li><li>3. Overall diet quality and cancer mortality and incidence - moderate level of evidence</li><li>4. Overall diet quality and T2DM - moderate level of evidence</li><li>5. Overall diet quality and neurodegenerative disease - moderate level of evidence</li></ol>
Conclusion	High diet quality is inversely associated with risk of all-cause mortality, cardiovascular disease incidence or mortality, cancer incidence or mortality, type 2 diabetes, and neurodegenerative disease, as well as all-cause mortality and cancer mortality among cancer survivors

\*Diets quality as assessed by the Healthy Eating Index, Alternate Healthy Eating Index, and Dietary Approaches to Stop Hypertension scores

Morze et al. Diet quality as assessed by the healthy eating index, alternate healthy eating index, dietary approaches to stop hypertension score, and health outcomes: a second update of a systematic review and meta-analysis of cohort studies. J Acad Nutr Diet (2020)

# Diet quality and health

## Evidence Summary

Component	Notes
Evidence base	113 cohort studies
Clinical impact	<ol style="list-style-type: none"><li>1. Higher HEI scores were inversely associated with all-cause mortality (RR 0.80), CVD incidence and mortality (RR 0.81), cancer incidence and mortality (RR 0.84), and type 2 diabetes (RR 0.88) but not neurodegenerative diseases (RR 1.12)</li><li>2. Higher AHEI scores were inversely associated with all-cause mortality (RR 0.79), CVD incidence and mortality (RR 0.77), cancer incidence and mortality (RR 0.89), type 2 diabetes (RR 0.80) and neurodegenerative diseases (RR 0.76)</li><li>3. Higher DASH scores were inversely associated with all-cause mortality (RR 0.82), CVD incidence and mortality (RR 0.81), cancer incidence and mortality (RR 0.86), type 2 diabetes (RR 0.78) and neurodegenerative diseases (RR 0.85)</li></ol>
Grade	<ol style="list-style-type: none"><li>1. HEI and all-cause mortality, cancer mortality and incidence, T2DM, – low level of evidence</li><li>2. HEI and CVD mortality and incidence - moderate level of evidence</li><li>3. HEI and cancer mortality and incidence – very low level of evidence</li><li>4. AHEI and all-cause mortality, CVD mortality/morbidity, T2DM and neurodegenerative disease - moderate level of evidence</li><li>5. AHEI and cancer mortality and incidence - low level of evidence</li><li>6. DASH and all-cause mortality, CVD mortality/morbidity, cancer mortality and incidence, T2DM</li><li>7. DASH and neurodegenerative disease – low level of evidence - moderate level of evidence</li></ol>
Conclusion	High diet quality is inversely associated with risk of all-cause mortality, cardiovascular disease incidence or mortality, cancer incidence or mortality, type 2 diabetes, and neurodegenerative disease, as well as all-cause mortality and cancer mortality among cancer survivors

HEI = Healthy Eating Index, AHEI = Alternate Healthy Eating Index, and DASH = Dietary Approaches to Stop Hypertension scores

Morze et al. Diet quality as assessed by the healthy eating index, alternate healthy eating index, dietary approaches to stop hypertension score, and health outcomes: a second update of a systematic review and meta-analysis of cohort studies. J Acad Nutr Diet (2020)

# Dietary Intervention for adults with Overweight/obesity : Comparison of Low-Carbohydrate and Low-Fat Diets

## Evidence Summary

Component	Notes
Evidence base	17 Randomised Controlled Trials
Clinical impact	<ol style="list-style-type: none"><li>1. Compared with low fat diet, low carbohydrate was associated with <b>significantly greater weight reduction (<math>\Delta = -2.0</math> kg, 95% CI: -3.1, -0.9)</b></li><li>2. Compared with low fat diet, low carbohydrate was associated with <b>significantly lower predicted risk of atherosclerotic cardiovascular disease events (ASCVD) (<math>p &lt; 0.03</math>)</b>. Mean study duration= 35.1 weeks.</li><li>3. Weighted mean changes (baseline minus end-of-treatment) in outcomes were <b>-7.8 versus -5.9 kg for body weight</b>.</li></ol>
Grade	<ol style="list-style-type: none"><li>1. Low carbohydrate and weight reduction – moderate level of evidence</li><li>2. Low carbohydrate and ASCVD – moderate level of evidence</li></ol>
Conclusion	Each diet was associated with significant weight loss and reduction in predicted risk of ASCVD events. However, LoCHO diet was associated with modest but significantly greater improvements in weight loss and predicted ASCVD risk in studies from 8 weeks to 24 months in duration



# Short-term intermittent energy restriction interventions for weight management

## Evidence Summary

Component	Notes (IER = Intermittent Energy Restriction; CER = Continuous Energy Restriction)
Evidence base	5 Randomised Controlled Trials
Clinical impact	Meta-analysis demonstrated <b>no significant difference in weight loss between weekly intermittent energy restriction and continuous energy restriction post-intervention (weighted mean difference: <math>-1.36</math> [<math>-3.23</math>, <math>0.51</math>], <math>p = 0.15</math>) and at follow-up (weighted mean difference: <math>-0.82</math> [<math>-3.76</math>, <math>2.11</math>], <math>p = 0.58</math>)</b> . Both interventions achieved <b>comparable weight loss of <math>&gt;5</math> kg</b> and therefore were associated with clinical benefits to health. Mean duration of active intervention period was 26 (range 14 to 48) weeks. Four studies conducted follow-up assessments of outcome measures at 6 months, 11 months and 12 months post-intervention.
Grade	1. Energy restriction and weight management – low level of evidence
Conclusion	Short-term periods of weekly IER is acceptable and as effective for short-term weight loss. Weekly IER as an approach to adult weight management achieved comparable weight losses to current practice (daily CER).

# Clinical effectiveness of very-low energy diets in the management of weight loss

## Evidence Summary

Component	Notes
Evidence base	18 studies: 12 randomized controlled trials comprising 14 VLED intervention arms and 12 control arms.
Clinical impact	<p>In trials with data at 12 months and participants randomized to a behavioural weight loss programme, mean wt loss was 6.4 kg, and <b>adding a VLED</b> to a similar intensity programme resulted in <b>mean weight loss of 10.3 kg</b>, a difference of -3.9 kg (95% CI -6.7 to -1.1) weight loss.</p> <p><b>Six trials provided data at 24 months:</b> with participants randomized to a behavioural weight loss programme, participants lost 2.8 kg, but <b>adding a VLED</b> to similar intensity programme resulted in <b>mean weight loss of 4.2 kg</b>, a difference of -1.4 kg (95% CI -2.6 to -0.2).</p>
Grade	VLED and weight management – moderate level of evidence
Conclusion	Adding a VLED to a behavioural weight loss programme produces greater weight loss in medium and longer term than a behavioural programme alone. Such programmes appear well-tolerated.

Parretti HM et al. Clinical effectiveness of very-low-energy diets in the management of weight loss: a systematic review and meta-analysis of randomized controlled trials (2016) Obesity Reviews

# Effectiveness of dietitians in weight management (2019)

## Evidence Summary

Component	Notes
Evidence base	14 Randomised Controlled Trials
Clinical impact	<b>Groups receiving interventions delivered by dietitians reduced weight by an additional 1.03 kg (<math>p &lt; 0.0001</math>) and BMI by 0.43 kg/m<sup>2</sup> (<math>p &lt; 0.0001</math>) compared to those receiving usual care at intervention end (median intervention length 6 months)</b> This was in addition to weight/ BMI reduction due to usual care
Grade	Weight and BMI outcomes – <b>moderate level of evidence</b>
Conclusion	Individualized consultations with dietitian achieved significantly greater impact on weight control

Williams LT et al. How effective are dietitians in weight management? A systematic review and meta-analysis of RCTs (2019) Healthcare

# Maintenance of lost weight

## Evidence Summary

Component	Notes
Evidence base	56 randomised controlled trials
Clinical impact	<ol style="list-style-type: none"><li>1. There is no significant difference between a high protein or high carbohydrate diet for weight loss management (MD= - 0.36kg, p=0.75) over 64 weeks</li><li>2. There is no significant difference between standard protein (12-15% of energy) or high protein (25-30% of energy) for weight loss management (MD= 0.80kg, p=0.38)</li><li>3. There is no significant difference between meal replacement or maintenance food based diet over 40 weeks (MD= -1.97kg, p=0,19)</li></ol>
Grade	<ol style="list-style-type: none"><li>1. High protein vs low carbohydrate for WLM – low level of evidence</li><li>2. High protein vs standard protein for WLM – low level of evidence</li><li>3. Meal replacement vs diet alone for WLM – low level of evidence</li></ol>
Conclusion	To facilitate long-term maintenance of lost weight, health professionals need to advise clients that a specific WLM strategy is needed following initial weight loss. Although further evidence is required in terms of which intervention components are most effective, this review suggests that strategies that achieve a reduction in energy intake are most effective, with the inclusion of MRs one effective strategy identified that can achieve this.

# Behavioural and pharmacotherapy weight loss

## Evidence Summary

Component	Notes
Evidence base	124 randomised controlled trials
Clinical impact	<ol style="list-style-type: none"><li>1. Behaviour-based weight loss trials – <b>greater weight loss from interventions compared to control conditions at 12 to 18 months</b> (mean difference in weight change [MD], -2.39 kg)</li><li>2. Medication-based weight loss trials – those randomized to medications experienced greater weight loss compared to those on placebo at 12 to 18 months (mean/least squares mean ranged from -1.0 kg to -5.8 kg)</li><li>3. Weight loss maintenance in behaviour-based interventions – both intervention and control participants regained weight over 12 to 18 months of maintenance; however, the intervention participants experienced less weight regain (pooled MD, -1.59 kg)</li></ol>
Grade	<ol style="list-style-type: none"><li>1. Behaviour- based weight loss – low level evidence</li></ol>
Conclusion	Behavior-based weight-loss interventions with or without weight loss medications resulted in more weight loss than usual care conditions.

# Behavioural counselling and a healthful diet in CVD prevention

Component	Notes
Evidence base	88 randomised and non-randomised trials
Clinical impact	<ol style="list-style-type: none"> <li>1. Healthful diets and/or physical activity behavioural interventions resulted in improvements in systolic blood pressure (SBP; MD= -1.26mm Hg), diastolic blood pressure (DBP; MD= -0.49 mm Hg), LDL cholesterol (MD= -2.58mg/dL) and total cholesterol (MD= -2.58mg/dL) at 6 and 12 months</li> <li>2. Healthful diets and/or physical activity behavioural interventions resulted in improvements in BMI (MD= -0.41kg/m<sup>2</sup>), weight (MD=-1.04kg) and waist circumference (MD=-1.19cm)</li> <li>3. <b>Healthful diets alone resulted in improvements in SBP (MD=-1.46 mm Hg), DPB (MD= -0.70 mm Hg), BMI (MD= -0.45 kg/m<sup>2</sup>), weight (MD=-0.82kg) and waist circumference (MD= -1.61cm)</b></li> <li>4. Behavioural interventions improved dietary intake with between group differences on energy intake ranging from +65kcal/day to -500kcal/d; fruit and vegetable intake effects ranging from -0.2serves/d to +2.2serves/d; and fibre intake effects from 1-2.5g/d</li> </ol>
Grade	<ol style="list-style-type: none"> <li>1. Healthful diets and blood pressure outcomes – moderate level of evidence</li> <li>2. Healthful diets and weight outcomes – low level of evidence</li> <li>3. Healthful diets and diet outcomes – very low level of evidence</li> </ol>
Conclusion	In general, diet and physical activity behavioural interventions for generally unselected adults who were not targeted for counselling based on their CVD risk resulted in consistent modest benefits across a variety of important intermediate health outcomes, including blood pressure, low-density lipoprotein, and total cholesterol levels as well as adiposity



# Diabetes prevention strategies

## Evidence Summary

Component	Notes
Evidence base	25 pre-post studies, 16 non-randomised controlled trials, 22 randomised controlled trials
Clinical impact	<ol style="list-style-type: none"><li><b>Participants receiving an intervention compared to control group had a 29% lower risk of developing diabetes</b></li><li><b>Participants receiving care from a health care professional had a 33% lower odds of developing diabetes than control</b></li><li><b>Each additional kilogram of weight lost by participants (<math>\beta = 0.57</math>) and each additional intervention session they attended (<math>\beta = 0.82</math>) was associated with 43% and 18% lower odds of developing diabetes, respectively.</b></li></ol>
Grade	<ol style="list-style-type: none"><li>Diabetes risk development – moderate level of evidence</li><li>Care from health care professional – low level of evidence</li></ol>
Conclusion	Real-world LSM strategies can reduce diabetes risk, even with small weight reductions

# Weight change between pregnancies and adverse pregnancy outcomes

## Evidence Summary

Component	Notes
Evidence base	10 retrospective cohort studies, 1 case-control study
Clinical impact	<ol style="list-style-type: none"> <li>1. A decrease &gt;1 BMI unit was associated with a reduction in large for gestational age (LGA) births (aOR 0.70) compared to those whose BMI remained stable. A moderate increase in BMI was associated with a higher risk of LGA birth (aOR 1.43) and a significant increase in BMI (&gt;3 units) had an even greater risk (aOR 1.85) of compared to those whose BMI remained stable</li> <li>2. A decrease in BMI had a reduced risk of macrosomia (aOR 0.5)* and an increase in BMI was associated with an increased risk (aOR 1.54)* compared to those whose BMI remained stable</li> <li>3. A decrease in BMI &gt;1 unit reduced the risk of gestational diabetes mellitus (GDM; aOR 0.80, not significant). <b>A moderate increase in BMI was associated with an increased risk of GDM (aOR 1.7), and in those with a substantial increase in BMI also had had a higher risk of GDM (aOR 2.28)</b></li> </ol>
Grade	<ol style="list-style-type: none"> <li>1. LGA and BMI – very low level of evidence</li> <li>2. Macrosomia and BMI – very low level of evidence</li> <li>3. GDM and BMI – very low level evidence</li> </ol>
Conclusion	Gaining weight between pregnancies increases the risk of developing GDM, LGA or having a C-section, and decreases the risk of SGA in a subsequent pregnancy. Weight loss between pregnancy reduced the risk of GDM and LGA but increases the risk of SGA> Weight stability between pregnancy is advised.

\* Only 1 study included in analysis

Oteng-Ntim et al. Interpregnancy weight change and adverse pregnancy outcomes: a systematic review and meta-analysis. BMJ (2018).

# Weight gain and colorectal adenomas

## Evidence Summary

Component	Notes
Evidence base	6 retrospective and 4 prospective studies
Clinical impact	<ol style="list-style-type: none"><li>1. High versus low weight gain in adulthood increases the risk of colorectal adenoma (OR 1.39), the effect was greater in females (OR 1.36) compared to males (OR 1.05) but this was not statistically significant.</li><li>2. Stronger associations were identified for <math>\geq 10</math>kg adult weight gain (OR 1.55) compared with studies <math>&lt; 10</math>kg weight gain (OR 1.24), but this was not statistically significant</li><li><b>3. For each 5kg weight gain in adulthood there was a 7% increased risk of colorectal adenoma</b></li><li><b>4. For each kg increase in weight per year there was a 30% increased risk of colorectal adenoma</b></li></ol>
Grade	<ol style="list-style-type: none"><li>1. Weight gain and risk of colorectal adenoma – low level of evidence</li></ol>
Conclusion	Weight change in adulthood is associated with colorectal adenoma occurrence, the risk was greater with weight gain. Therefore weight control may be helpful to prevent colorectal cancer.

# Food groups and risk of overweight, obesity, and weight gain

Component	Notes
Evidence base	25 prospective studies
Clinical impact	<ol style="list-style-type: none"> <li> <p><i>Overweight/obesity:</i>                      Reduced risk - 30g/d increase of wholegrains reduces risk by 7% ; 50g/d increase legumes reduces risk by 12%                      Increased risk - 30g/d increase in refined grains increases risk by 5% ; 250ml/d increase sugar sweetened beverages (SSB) increases risk by 5%                      - <b>Strongest associations at 5 serves/d wholegrains, 3 serves/d vegetables, 3 serves/d fruit reduces risk by 38%; greatest risk at 5 serves/d refined grains and 3 serves/d SSB results in increased risk by 59%</b></p> </li> <li> <p><i>Weight gain:</i>                      - Reduced risk - 100g/d increase fruit reduces risk of weight gain by 9%                      - Increased risk 50g/d increase in eggs increases risk by 24% *; 100g/d increase red meat increases risk by 14% *; 100g/d increase in processed meat increases risk by 18%*                      - <b>Strongest increased risk by 63% with 2 serves/d red meat and 3 serves/d SSB</b></p> </li> <li> <p><i>Abdominal obesity:</i>                      - Reduced risk - 28g/d increase nuts reduced risk by 58%* (NB: 1 study only included in this analysis) ; 100g/d increase in fish reduces risk by 17%                      - Increased risk - 100g/d increase in red meat increases risk by 10% ; 205ml/d increase SSB increases risk by 12%                      - <b>Strongest reduced risk by 59% with 2 serves/d wholegrains, 5 serves/d vegetables, and 3 serves/d fruit</b></p> </li> </ol>
Grade	<ol style="list-style-type: none"> <li>Overweight/obesity – low level evidence for all</li> <li>Abdominal obesity – very low level evidence for all</li> <li>Weight gain – low for fruit and SSB; very low level evidence for all others</li> </ol>
Conclusion	High intakes of whole grains, vegetables, fruit, and probably fish as well as a low intake of refined grains, red meat, and SSBs are associated with a reduced risk of measures of adiposity, including overweight/obesity, abdominal obesity, or weight gain, respectively

\* Only 1 study included in analysis

Schlesinger et al. Food groups and risk of overweight, obesity, and weight gain: a systematic review and dose-response meta-analysis of prospective studies. Adv Nutr (2019)

# Effectiveness of dietitians in weight management (2019)

## Evidence Summary

Component	Notes
Evidence base	14 Randomised Controlled Trials
Clinical impact	<b>Groups receiving interventions delivered by dietitians reduced weight by an additional 1.03 kg (<math>p &lt; 0.0001</math>) and BMI by 0.43 kg/m<sup>2</sup> (<math>p &lt; 0.0001</math>) compared to those receiving usual care at intervention end (median intervention length 6 months)</b> This was in addition to weight/ BMI reduction due to usual care
Grade	Weight and BMI outcomes – <b>moderate level of evidence</b>
Conclusion	Individualized consultations with dietitian achieved significantly greater impact on weight control

Williams LT et al. How effective are dietitians in weight management? A systematic review and meta-analysis of RCTs (2019) Healthcare

# Effectiveness of meal replacements on weight loss (2019)

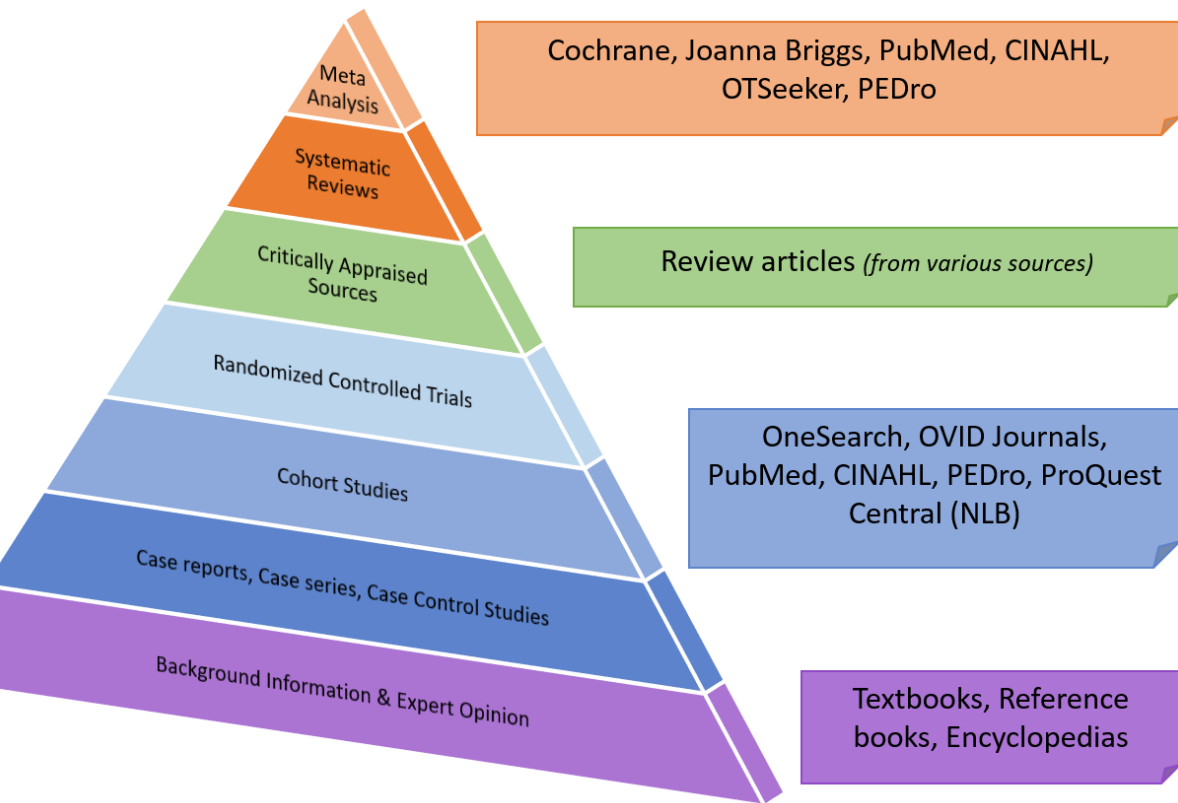
## Evidence Summary

Component	Notes
Evidence base	23 Randomised Controlled Trials
Clinical impact	<p>Studies with similar intervention and comparators were grouped into five comparisons for analysis.</p> <p><b>Mean weight change at 1 year favoured MR group</b> relative to the control group.</p> <p>In meta-analysis; people assigned to a diet incorporating MR, <b>mean difference was -1.44 kg (-2.48 to -0.39 kg; <math>I^2 = 38%</math>)</b> compared with alternative diets.</p> <p>In those assigned to <b>MR diet plus support</b>, <b>mean difference was -2.22 kg (-3.99 to -0.45, <math>I^2 = 81%</math>)</b> compared with other diets with support and <b>-3.87 kg (-7.34 to -0.40; <math>I^2 = 60%</math>) compared with other kinds of diet without support.</b></p> <p>In those assigned to MR diet plus enhanced level of support, <b>mean difference was -6.13 kg (-7.35 to -4.91, <math>I^2 = 19%</math>) compared with alternative diets and regular support.</b></p>
Grade	Meal replacements and weight loss – moderate level of evidence
Conclusion	Programmes incorporating meal replacements led to greater weight loss at 1 year compared to other weight loss programs.

Astbury NM et al. A systematic review and meta-analysis of the effectiveness of meal replacements for weight loss (2019) Obesity Reviews



# Research Evidence Hierarchy



# NHMRC Evidence Grades

Grading of recommendations<sup>8</sup>

Grade	Description
A	Body of evidence can be trusted to guide practice
B	Body of evidence can be trusted to guide practice in most situations
C	Body of evidence provides some support for recommendation(s) but care should be taken in its application
D	Body of evidence is weak and recommendation must be applied with caution
✓	Recommended best practice based on clinical experience and expert opinion

**Table 1 Body of evidence matrix**

Component	A	B	C	D
	Excellent	Good	Satisfactory	Poor
<b>Evidence base<sup>1</sup></b>	one or more level I studies with a low risk of bias or several level II studies with a low risk of bias	one or two level II studies with a low risk of bias or a SR/several level III studies with a low risk of bias	one or two level III studies with a low risk of bias, or level I or II studies with a moderate risk of bias	level IV studies, or level I to III studies/SRs with a high risk of bias
<b>Consistency<sup>2</sup></b>	all studies consistent	most studies consistent and inconsistency may be explained	some inconsistency reflecting genuine uncertainty around clinical question	evidence is inconsistent
<b>Clinical impact</b>	very large	substantial	moderate	slight or restricted
<b>Generalisability</b>	population/s studied in body of evidence are the same as the target population for the guideline	population/s studied in the body of evidence are similar to the target population for the guideline	population/s studied in body of evidence differ to target population for guideline but it is clinically sensible to apply this evidence to target population <sup>3</sup>	population/s studied in body of evidence differ to target population and hard to judge whether it is sensible to generalise to target population
<b>Applicability</b>	directly applicable to Australian healthcare context	applicable to Australian healthcare context with few caveats	probably applicable to Australian healthcare context with some caveats	not applicable to Australian healthcare context

levelsEvidence.png (1286 × 821) (libapps-au.s3-ap-southeast-2.amazonaws.com)



# Vision



The leading voice in nutrition and dietetics

## Strategic Objectives

- Communicate credible and timely nutrition messages to the public
- *Lead translation of evidence into practice*
- Build capacity for advocacy within the membership
- Protect a strong and recognised credential



# DAA Strategic Plan 2018 - 2021



The leading voice in Nutrition and Dietetics

VISION



Supporting members, advocating for our profession and building healthier communities

MISSION



Integrity  
Courage  
Transparency  
Equity

VALUES

## Strategic Objectives: Rectangular Snip

