

Contents

PAGE NO	SECTION
3	INTRODUCTION
4	SECTION 1 ASSESSMENT
4	1.1 Checklist for nutrition related risk factors & conditions in adults
5	1.2 Measurement & classification of overweight & obesity in adults
7	1.3 Measurement & classification of overweight & obesity in children & youth
9	1.4 Eating habits & physical activity
12	1.5 Level of motivation
14	1.6 Patient goal setting template
16	SECTION 2 WEIGHT LOSS MANAGEMENT
20	2.1 Weight Loss management – Background
21	2.2 Weight management in children
24	SECTION 3 PREGNANCY
24	3.1 Optimal nutrition & weight management in pregnancy
28	SECTION 4 METABOLIC DISORDERS
28	4.1 Type 2 Diabetes
32	4.2 Polycystic Ovarian Syndrome
34	4.3 Gout
36	SECTION 5 CARDIOVASCULAR DISEASE
37	5.1 Raised total & LDL cholesterol
39	5.2 Lowered HDL cholesterol
40	5.3 Raised triglyceride
41	5.4 High blood pressure
44	SECTION 6 CHRONIC KIDNEY DISEASE
48	SECTION 7 KEY REFERENCES

Nutrition Guide for Health Professionals

This Nutrition Guide has been developed to facilitate the provision of nutritional advice in the primary care setting. Whilst it has a focus on long term conditions, healthy and safe eating in pregnancy are also included as this important area has a long lasting impact on both mother and baby.

In general, healthy eating recommendations for the whole population are the same as for the people who need to:

- Lose weight
- Control diabetes
- Reduce risk for heart disease.

However, for these conditions some additional advice is necessary in order to support individuals, and families, achieve the best outcomes. Each condition requiring nutrition and lifestyle intervention is briefly described in the Guide.

The key nutrition and lifestyle recommendations are summarised along with a brief rationale and relevant resources, available free of charge, are listed. There is also an accompanying Resource Toolkit section with templates to photocopy and use with your patients.

All the information provided has been peer reviewed and key references are listed on page 48.

Contact

Primaryhealthnursedevopmentteam@waitematadhb.govt.nz



Waitemata
District Health Board

Te Wai Awhina

Funding and Planning Team

Section 1: Assessment

This section provides you with tools to assist in assessing your patient's nutrition related disease risk:

- 1.1 Checklist for nutrition related risk factors and conditions (adults)
- 1.2 Measurement and classification of overweight and obesity in adults
- 1.3 Measurement and classification of overweight and obesity in children and youth
- 1.4 Eating habits and physical activity assessment
- 1.5 Level of motivation
- 1.6 Goal setting

1.1 Checklist for nutrition related risk factors & conditions in adults

- Complete the checklist below to determine your patient's nutrition related risk factors and / or conditions.
- This will assist you to identify the key lifestyle changes that your patient needs to make.

CONDITION/RISK FACTOR	PRESENT	ABSENT
Overweight or obese	<input type="radio"/>	<input type="radio"/>
Weight history: Gaining weight	<input type="radio"/>	<input type="radio"/>
Stable	<input type="radio"/>	<input type="radio"/>
Losing weight	<input type="radio"/>	<input type="radio"/>
Impaired glucose tolerance	<input type="radio"/>	<input type="radio"/>
Gestational diabetes	<input type="radio"/>	<input type="radio"/>
Type 2 diabetes	<input type="radio"/>	<input type="radio"/>
High blood pressure	<input type="radio"/>	<input type="radio"/>
Raised LDL cholesterol	<input type="radio"/>	<input type="radio"/>
Low HDL cholesterol	<input type="radio"/>	<input type="radio"/>
Raised triglyceride	<input type="radio"/>	<input type="radio"/>
Raised uric acid	<input type="radio"/>	<input type="radio"/>
Abnormal kidney function: reduced eGFR	<input type="radio"/>	<input type="radio"/>

1.2 Measurement & classification of overweight & obesity in adults

Body Mass Index (BMI) and waist circumference are two simple measures that you can use to identify patients who are overweight or obese.

The absolute risk of obesity-related disease for any one individual is assessed by including their BMI, waist circumference and their levels of the other risk factors in the checklist on page 4.

$$\text{Body Mass Index (BMI)} = \frac{\text{Weight (kg)}}{\text{Height (metres)}^2}$$

BMI is calculated by dividing weight (in kilograms) by the square of height in metres (kg/m²). For example: a 75kg person who is 168cm tall will have a BMI of 27.

For a quick estimation of BMI refer to the chart below.

BMI RANGES FOR PEOPLE OVER 18 YEARS OF AGE

- **Underweight:** < 18.5kg/m²
- **Normal:** 18.5-24.9kg/m²
- **Overweight:** 25.0-29.9kg/m²
- **Obese:** ≥30kg/m²

The New Zealand Ministry of Health follows the World Health Organisation's (WHO) recommendations to not use ethnic specific BMI cut offs. Thus, the same BMI categories are used for people of all ethnicities.

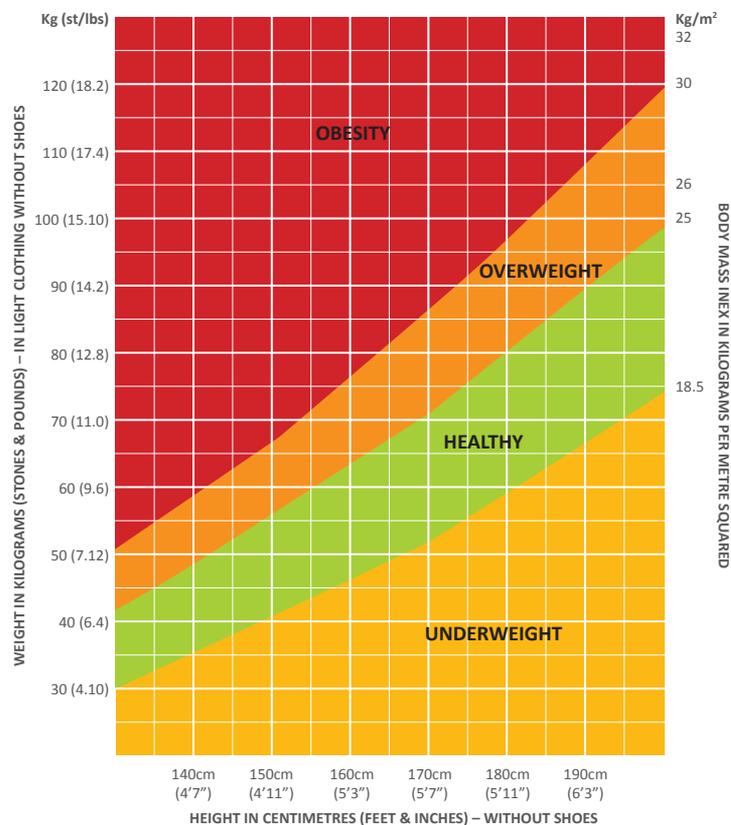
BODY MASS INDEX CHART

How to use the chart

Follow the line for height up until it intersects with the line for weight.

KEY POINTS

- Patients will often need immediate reassurance that it is not appropriate to aim for the healthy weight range, but to instead follow an incremental approach to weight loss, e.g. lose 5-10kg as an initial goal.
- Some patients might decline measurement or may not want to be told the results.



LIMITATIONS OF BMI

- BMI does not distinguish between fat and lean (muscle) mass. As muscle weighs more than fat, athletes or elite sports people with a muscular build may be classified as obese, but in fact have a low body fat. Individuals in this category are relatively easy to recognise.
- BMI does not necessarily reflect body-fat distribution:
 - Abdominal fat is a risk factor for disease even if an individual has a BMI in the healthy weight range
 - Measuring waist circumference will determine if fat distribution is a risk factor. It has better predictive power than BMI for diabetes and cardiovascular disease.

WAIST CIRCUMFERENCE

Intra-abdominal or visceral fat (the 'apple' body shape) is a risk factor for type 2 diabetes and cardiovascular disease. Waist circumference is a useful measure of abdominal fat. It is considered more sensitive in reflecting change in abdominal fat (and weight loss) than waist-hip ratio.

Measuring waist circumference

- When measuring waist circumference, ask your patient to stand with feet 25-30cm apart and weight evenly distributed.
- The measurement is taken midpoint between the lowest rib and the iliac crest. Using the umbilicus or the 'thinnest waist' can be misleading.
- The tape should be fitted snugly around the bare abdomen but not press the skin.
- Measure to the nearest 0.1cm after the patient breaths out normally but is not 'sucking in' the stomach.

WHO waist circumference thresholds

RISK OF METABOLIC DISORDERS	WOMEN	MEN
Average	<80cm	<94cm
Increased	80-88cm	94-102cm
Substantially increased	>88cm	>102cm

KEY POINTS – BODY TYPE

- An 'apple' (typical overweight male) is more at risk than a 'pear' (typical overweight pre-menopausal woman).
- Certain ethnic groups, e.g. South Asian, are more prone to central adiposity or higher visceral fat. Therefore, it might be appropriate to give weight loss advice to someone who is in the healthy BMI range, but has the 'apple' fat distribution.
- If BMI is 35 or more, it is not necessary to measure waist circumference as it adds little to the absolute measure of risk provided by BMI.

1.4 EATING HABITS & PHYSICAL ACTIVITY ASSESSMENT

Assessing eating habits

Use this checklist to help quickly identify problem areas in your patient's diet. This could be, for example, snacking or cooking practices which contribute excess energy and saturated fat intake or a low vegetable intake. Support your patient to set goals with the information gained. It may be useful to prioritise problem areas based on:

- Impact of the eating habit – Is it contributing to the patient's risk profile? Is it contributing excess calories or saturated fat?
- Changeability of the habit – Does your patient think that they can make the change now?
- Is the change realistic and consequently more likely to be maintained?

Use the following checklist to identify problems:

Which meals are regularly eaten?

Breakfast Brunch/morning tea Lunch Dinner

▶ **When setting goals, encourage your patient to eat meals at regular times.**

When are snacks eaten?

Morning Afternoon Evening Overnight Throughout the day

What does the patient snack on?

- Check to find out the type of food and drinks being consumed regularly.
- Are these foods in the high energy list below?

FOOD/DRINK	HOW MUCH?	HOW OFTEN?
Takeaways		
Pies, pastries		
Chocolate, lollies		
Muesli bars, muffins		
Cakes, cookies		
Ice-cream		
Crisps, Twisties, Shapes etc		
Cheese, dips		
Fizzy or energy drinks/fruit juice/cordial		
Alcohol		

- ▶ **When setting goals, encourage your patient to reduce the frequency and / or quantity of snacks and drinks to help achieve an energy deficit.**

Vegetables & fruit Check to find out the type and amount of vegetables your patient usually eats.

	HOW MUCH?	HOW OFTEN?
Vegetables		
Fruit		

- ▶ **When setting goals encourage your patient to:**

Eat at least 3 servings of vegetables and 2 servings of fruit each day and

- ✔ Have a variety of colours – fresh, frozen or canned are all good choices. Ideally half the plate should be colourful vegetables.
- ✔ Limit potato/kumara/taro/green banana to two palm sized servings (or one fist size) per meal.

Milk & fats

Find out the type and amounts of the following that your patient is using:

MILK	HOW MUCH?	HOW OFTEN?
Dark blue top (homogenised)		
Lite blue top (reduced fat)		
Green/yellow top (low fat/high calcium)		

SPREAD	HOW MUCH?	HOW OFTEN?
Butter		
Margarine		

COOKING FAT	HOW MUCH?	HOW OFTEN?
Dripping/lard/butter/ghee/vanaspati		
Margarine/oil		

- ▶ **When setting goals, encourage your patient to use low fat milk, a small amount only of margarine for spreading and of oil for cooking.**

Food shopping & cooking habits

Check to find out your patient's shopping and cooking habits:

- Who in their home usually does the cooking?
- Who usually does the food shopping?

Assessing physical activity

Check to find out about your patient's activity habits:

- How many days a week would some exercise/physical activity usually be undertaken?

Days per week? _____ Type of activity? _____

For how long? _____

- What types of physical exercise/activity are enjoyed (e.g gardening, walking, swimming, sport)?

- How often would he/she be able to engage in this?

▶ Assist your patient to set a physical activity goal.

▶ Assess suitability for referral to Green Prescription.

1.5 Level of motivation – Stages of Change Model

UNDERSTANDING CHANGE

Understanding the process of a patient's level of motivation or readiness to make changes will enable you to provide appropriate support. This will encourage your patient to move through the different stages of change (refer to the table below).

It is difficult to negotiate a starting point if someone is not ready to make changes and any effort is less likely to be successful. This can lead to feelings of:

- Frustration
- A sense of failure for both the person making change and those supporting them.

Most patients find themselves recycling through the process several times before the dietary/lifestyle changes becomes truly established.

READINESS FOR LIFESTYLE CHANGES			
STAGE	POSSIBLE PATIENT RESPONSE	SUITABLE ACTIONS	GOALS & ENABLING QUESTIONS <small>Asking these questions can assist patients to achieve the goal</small>
1. PRE-CONTEMPLATION	<p>Generally uninterested, unaware or unwilling to make change.</p> <p>"Everything is ok, there is not a problem."</p> <p>"I'm not really interested in change."</p>	<p>Not appropriate to give specific dietary advice.</p> <p>Raise awareness about the risks of the current behaviour or health problem and suggest that the patient "thinks about it".</p> <p>Highlight the advantage of dietary/lifestyle change including benefits for the family.</p>	<p>★ <i>Goal: Patient will begin thinking about change.</i></p> <p>"What would have to happen for you to know that this is a problem?"</p> <p>"What warning signs would let you know that this is a problem?"</p> <p>"Have you tried to change in the past?"</p>
2. CONTEMPLATION	<p>Weighing benefits and costs of behavior and proposed change.</p> <p>"Maybe everything is not okay, but I'm not interested in doing anything yet."</p> <p>"I have too much going on in my life to do anything about it at the moment."</p>	<p>Aim to influence the patient's weighing of the pros and cons (decisional balance).</p> <p>Discuss the barriers to change.</p> <p>Also discuss the benefits of changing and bolster confidence in their ability to make recommended changes. This will assist with movement to the next stage.</p>	<p>★ <i>Goal: Patient will feel less ambivalent and better able to overcome barriers.</i></p> <p>"Why do you want to change at this time?"</p> <p>"What were the reasons for not changing in the past?"</p> <p>"What are the barriers today that have kept you from change?"</p> <p>"What might help you with that aspect?"</p> <p>"What things (people, programmes and behaviors) have helped in the past?"</p> <p>"What would help you at this time?"</p> <p>"Do you think that you will feel better if you can make some changes?"</p>

STAGE	POSSIBLE PATIENT RESPONSE	SUITABLE ACTIONS	GOALS & ENABLING QUESTIONS Asking these questions can assist patients to achieve the goal
3. PREPARATION	<p>Understands the benefits of changing and experiments with small changes.</p> <p>“There is a problem and I’m considering taking action.”</p>	<p>Reinforce progress. In partnership with the patient, develop an action plan with specifically stated goals.</p> <p>Establish specific strategies for reaching these goals.</p> <p>Encourage patient to maintain a healthy eating pattern or other lifestyle changes. Discussion should cover relapse and prevention strategies and also appropriate follow-up sessions.</p>	<p> Goal: Patient will establish clear pathway for change.</p> <p>“Let’s take a closer look at how you can reduce some of the calories you eat. Some of the high fat/high energy food and drinks you have are …?”</p> <p>“What would you be prepared to do without or have smaller portions of?”</p> <p>“When do you think you could get some more exercise?”</p>
4. ACTION	<p>Taking a definitive action to change.</p> <p>“There is a problem and I’m ready to take action now.”</p> <p>“I’m doing my best. This is harder than I thought’.</p>	<p>Affirm patient’s progress.</p> <p>Help explore possible challenges and potential solutions.</p>	<p> Goal: Patient will feel enabled to maintain changes for the long term.</p> <p>“You are doing so well.”</p> <p>“What do you find the hardest?”</p> <p>“What problems have you had?”</p> <p>Encourage patient to keep a diary to monitor dietary/activity change.</p>
5. MAINTENANCE	<p>Maintaining new behaviour over time.</p> <p>“I’ve learned a lot through the process.”</p>	<p>Decide what level of support is required to maintain the changes.</p> <p>Long term goals should be made and relapse prevention strategies discussed.</p>	<p> Goal: Patient will be equipped to avoid relapse.</p> <p>“What situations continue to tempt you to overeat or to stop your exercise plan?”</p> <p>“Have you thought about what you could do to avoid this?”</p>

1.6 Patient Goal Setting Template

This is an easy-to-use guide to help your patients identify their long term health goals and a realistic pathway to achieve these.

Refer to the template in the [Resource Toolkit](#)

GOAL SETTING

This is an easy-to-use guide to help you identify your long term health goals and a realistic pathway to achieve them.

Date _____

Long term goal: Where do I want to be with my health in the future?

If I have more than one long term goal, which one do I want to focus on first?

How important is this to me?

Important

Very important

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----



How can I achieve this/what do I need to achieve this?

Action Plan

What exactly am I going to do? How, what, when, where, how often?

What will get in the way?

How will I overcome this?

What support do I need?

How confident to I feel?

Not confident

Very confident



Section 2: Weight loss management

- 2.1 Weight loss management – Background
 - 2.1.2 Recommendations & patient resources for weight management
- 2.2 Weight loss management in children & young people
 - 2.2.2 Resources & websites

2.1 Weight loss management – Background

The most effective approach to weight loss uses **three key interventions** in combination, and is known as the FAB approach. These are:

- Changing eating pattern to reduce energy intake (food)
 - Increasing physical activity (activity)
 - Employing behavioural strategies to assist and maintain change (behaviour)
- ▶ An empathetic relationship respectful of the patient’s social, cultural and socio-economic circumstances is essential.

To achieve weight loss there needs to be a negative energy balance:



RATE OF WEIGHT LOSS & METABOLISM

- Benefits begin when 5-10% of initial body weight is lost.
- A 5-10 kg weight loss is recommended as an initial goal for people who are overweight and who have co-morbidities. Discourage your patient from setting an unrealistic goal weight.
- The rate of weight gain and loss vary according to genetics, ethnicity, age, gender and previous weight loss.
- Resting metabolism accounts for 50-75% of our daily energy expenditure. This is the energy required for the functioning of vital organs e.g. heart, lungs, muscle and skin.
- The more a person weighs, the more energy it takes to maintain the body. Consequently, larger people have a relatively high resting metabolic rate or energy expenditure. Metabolism is also linked to muscle mass. The more muscular a person is, the higher their metabolic rate and energy expenditure will be. With aging, muscle mass usually diminishes, the body become comparatively ‘fatter’ and consequently energy requirement decreases. The only way to increase muscle is through exercise.



Did you know?

- That 0.5kg body fat = approximately 3,500 stored calories.
- That to lose 0.5kg a week, daily energy intake needs to be 500 calories less than expenditure.

NUTRITION PRINCIPLES

Reduced energy intake is essential; a usual goal is to aim for 500 less calories (2,100kj) per day. Successfully maintaining this is a considerable achievement.

- Kilojoules are the official measure of energy in New Zealand, but calories are still in common use: 1cal = approx 4.2kj.
- Dietary fat and energy intake are highly correlated and fat contributes the most calories per gram of food.
 - 1g fat = 9cal (38kj)
 - 1g carbohydrate = 4cal (17kj)
 - 1g protein = 4cal (17kj)
 - 1g pure alcohol = 7cal (29kj)
- Energy dense (high energy) foods are high in fat and/or sugar and are usually processed foods, which are also low in micro-nutrients (vitamins and minerals).
- Let your patients know that high energy foods will not give them a surge of power or an energetic feeling, but rather that these foods will contribute a high load of calories and will most likely lead to weight gain.
- Fluids, especially sugary drinks and alcohol, can contribute a lot of calories but no feeling of fullness (satiety).
- Foods with a low energy-density are high in water, fibre and micronutrients and low in fat and sugar. Adding vegetables, fruit, grains or legumes helps to lower energy density and lead to a feeling of fullness. This also increases the nutrient density of the food.
- Ensure nutritional adequacy, that is, eating the recommended number of servings from each of the four food groups (vegetables and fruit, breads and cereals – mainly wholegrain, low fat milk and milk products, lean meat, fish, chicken, legumes, nuts).
- Discourage the use of weight loss programmes or diets that promote the exclusion of a food group or that increase saturated fat intake (for example Dr Aitkens, Blood Group, Liver cleansing diets).
- 1,200 calories (5,000kj) a day is the least someone can eat and still have a nutritionally adequate diet.



Did you know?

The energy content of:

- | | | |
|---|---|--|
| 2 pieces fried fish in batter & 1 scoop chips | = | 44 pieces sushi |
| Burger & fries | = | 7 slices lean beef & 5 baked (jacket) potatoes |
| Large cookie | = | 3 ½ slices of fruit bread |

PHYSICAL ACTIVITY

Physical activity facilitates losing weight and promotes maintenance of weight loss. It also has many other advantages including lowering blood pressure and blood glucose, increasing High Density Lipoprotein (HDL) cholesterol and improving mental wellbeing and bowel habits.

- Recommend starting with small achievable goals, e.g. 5-10 minutes per day, and building up to a target of 60 minutes or more every day.
- While the NZ Ministry of Health's recommendation for adults is at least 30 minutes moderate-intensity activity most days of the week, 60 minutes daily has been shown to be necessary to achieve and maintain weight loss.
- The early stages of starting physical activity are the most important. Quite often patients lose interest in the first two weeks due to injury caused by pushing too hard, too soon.
- Encourage patients to warm-up properly including some light stretching, to wear comfortable loose fitting clothing and to wear sensible footwear.
- Also encourage your patient to add small bouts of activity into daily routines, e.g. taking the stairs, walking to the shops, and pacing while talking on the phone.
- Studies show that 'snackactivity' (3 x 10 minutes daily) is very effective.
- Recommend reducing screen time (TV, video/DVD and computer use) where relevant.
- Reducing sitting time and increasing standing time is also effective.
- Green Prescription can help.

▶ [Call 09 0800 22 84 83](tel:090800228483) or [fax patient referral to 09 623 7950](tel:096237950)

BEHAVIOURAL STRATEGIES

Successful and long term lifestyle change underpins all effective weight loss programmes. The 'Stage of Change' model (refer page 12) provides a useful approach to managing barriers and goal setting.

Training in other models is available including 'Brief opportunistic interventions' Training and Development Services (TADS).



“The only effective approach to weight management is a permanent change to how people live their lives.”

NZ GUIDELINES FOR WEIGHT MANAGEMENT IN ADULTS, NZ MINISTRY OF HEALTH, 2009.

REACHING A WEIGHT PLATEAU

This is the point where no weight has been lost for a period of time. While it is not unusual and can be managed, it can be very disheartening for the patient as the plateau can last from a few weeks to months.

Why a plateau happens

- As weight is lost, it takes less energy to complete tasks and this reduces energy output. In other words, it takes fewer calories to maintain a 90kg body than a 100kg body.
- Further weight loss requires further reduction in calorie intake or an increase in energy output (activity).
- If food intake is reduced too much, the body slows its metabolic rate to save energy, this also reduces energy output.
- The body becomes used to the same movement or routine and needs a new challenge.
- With regular exercise a person builds muscle and loses fat. Muscle is heavier than fat, so although body size is getting smaller, weight doesn't decline.

Maintaining weight loss

Discuss the importance of maintaining weight lost early on. This can reinforce the need to set a realistic goal as rebound readily happens. Factors shown to be important for maintaining weight that has been lost are:

- Following a low-energy density / low fat diet
- Having at least one hour of physical activity a day
- Varying the type of physical activity on a regular basis
- Weighing yourself once a week.

Also encourage your patient to:

- Establish support systems, such as enlisting the help of whanau and friends or a community group
- Develop a positive attitude to food and focus on maintaining a healthy eating pattern
- Use techniques to deal with difficult situations, e.g. coping with stressful events without overeating, attending functions with lots of food, passing a favourite takeaway or bakery
- Reward progress with non-food treats.

Prevention is easier than the cure



- Prevention of obesity is easier, less expensive and more effective than treatment.
- Identify early those patients who are gaining weight and are at risk of becoming obese.
This could include:
 - Pregnant women
 - Those giving up smoking
 - Children or adolescents with obese parents
 - Women with polycystic ovary syndrome and post-menopausal women
 - Particularly Maori and Pasifika peoples in the above groups.
- Aim to divert some of your resources to the patients identified.



The ADHB wishes to acknowledge the generous sharing of 'The Nutrition Toolkit' developed by Rotorua PHO. Some of the information in this section is derived from this Toolkit.

2.1.2 Recommendations & patient resources for weight management

RECOMMENDATIONS	WHY?	RESOURCES
<p>Aim for approx 1kg weight loss every 2 weeks</p> <p>Reduce energy intake by 500 calories (2,100kj) a day or meet 500 calorie deficit by reducing energy intake and increasing output (physical activity)</p>	<p>Gradual weight loss is:</p> <ul style="list-style-type: none"> ■ More likely to be sustained ■ More likely to be fat loss ■ Less likely to result in loss of lean body mass (muscle). 	<ul style="list-style-type: none"> <input type="checkbox"/> 'Healthy Weight for adults' MoH 1324* <input type="checkbox"/> 'Oranga kai - Healthy eating for adult Maori' MoH 1440* <input type="checkbox"/> 'Healthy eating for South Asian families' English, Hindi, Punjabi & Gujarati* MoH (Auckland) <ul style="list-style-type: none"> » *Order from: resourcecentre@adhb.govt.nz <input type="checkbox"/> 'Want to lose some weight?' <ul style="list-style-type: none"> » Order from: Primarynursedevelopmentteam@waitematadhb.govt.nz
<p>Follow low energy density/low fat diet</p>	<ul style="list-style-type: none"> ■ As fat is the most concentrated source of calories, reducing fat is an easy way to reduce energy density/energy intake 	
<p>Increase colourful vegetables, legumes and wholegrains</p>	<ul style="list-style-type: none"> ■ Facilitates lower energy intake and increases satiety ■ Increases intake of micronutrients, fibre and other protective substances 	<p>Online resources</p> <ul style="list-style-type: none"> <input type="checkbox"/> www.vegetables.co.nz for information on tasty ways to prepare vegetables
<p>Eat breakfast, lunch and dinner everyday.</p>	<ul style="list-style-type: none"> ■ Less likely to fall back on high energy snacks 	
<p>Moderate portion/serving size:</p> <ul style="list-style-type: none"> ■ Learn to eat less (except colourful vegetables and fruit) ■ Learn to be guided by hunger. 	<ul style="list-style-type: none"> ■ Reduces energy intake; particularly important if patient has made other appropriate changes e.g. reduced energy intake from high fat and sugar in food and drinks 	
<p>Avoid sugary drinks</p>	<ul style="list-style-type: none"> ■ Reduces energy intake. Sugary drinks provide energy without any feeling of satiety so there is no compensatory reduction in food intake 	
<p>Limit alcohol intake</p>	<ul style="list-style-type: none"> ■ Reduces energy intake. Alcoholic drinks provide energy without any feeling of satiety, so there is no compensatory reduction in food intake 	<p>Online resources</p> <ul style="list-style-type: none"> <input type="checkbox"/> www.alcohol.org.nz
<p>Increase physical activity to 60 minutes or more every day</p> <p>Reduce sedentary activity, including screen time</p>	<ul style="list-style-type: none"> ■ Facilitates negative energy balance ■ Can help to increase lean body mass (muscle) 	<ul style="list-style-type: none"> <input type="checkbox"/> Refer to Green prescription: call 0800 22 84 83 or fax patient referral to 09 623 7950.

Useful websites & resources

Online weight management programme	www.aspireforlife.com
Healthy Food Guide	www.healthyfood.co.nz
USA – tips on food and exercise	http://smallstep.gov/
Meal planning and food selection advice	www.emark.co.nz

Key messages for your patients

- ✓ Aim for approximately 1kg weight loss every two weeks.
- ✓ Reduce energy intake by 500 calories a day: avoid high fats snacks, takeaways and sugary drinks (or also increase energy output).
- ✓ Have three meals a day and include breakfast.
- ✓ Fill up on colourful vegetables.
- ✓ Slot in daily physical activity.

2.2 Weight management in children

A generally accepted goal for an overweight child is to maintain weight while height increases. This can be best achieved by looking at the family food habits and activity levels. It is essential that parents and caregivers role model healthy eating and physical activity behaviours and ensure that healthy food choices are available in the home.

The 'Eating habits & physical assessment' guidelines on page 9 (template in the **Resource Toolkit**) can be used to identify sources of excess energy in a child's or the family's diet as well. Also consider the following risk factors for obesity which were identified by the NZ National Children's Nutrition Survey (2002):

- Increased consumption of sugary drinks
- Missing breakfast
- Missing lunch
- Purchasing food for school from the dairy
- Physical inactivity
- Watching TV (positively associated with energy dense snacks and fast food).

Recommendations from the 2008 Agencies for Nutrition Action report, 'Does the family environment contribute to food habits or behaviours and physical activity in children?' include the following:

- Keep family mealtimes as positive occasions as much as possible
- Turn the TV off during mealtimes
- Support and encourage all attempts by the child to follow healthy eating patterns and be physically active
- Take time to play and interact with the child
- Ensure adequate quality of food is available, but allow children to choose how much they eat
- Have lots of healthy foods easily accessible and have only small portions of treat foods in the home, or none at all.

The above factors can be utilised to set goals for both the child and the family, e.g. making sure that there is adequate bread and cereals (preferably wholegrain) for breakfast and that breakfast is eaten before leaving home.

Prepare a packed lunch rather than give money for lunch and limit sweet drinks and treat foods to once a week or special occasions. **Food should not be used as a reward.**



Did you know?

The energy content of:

Large cookie	=	9 standard chocolate chippie biscuits
250mls fruit juice	=	250mls fizzy drink
1 average serve hot chips (326g)	=	10 baked (jacket) potatoes
1 small packet corn chips (50g)	=	2 slices fruit bread, 2 tsp margarine
1 yoghurt coated muesli bar (33g)	=	4 ½ cups popcorn



Encourage healthy snacks e.g. fruit, reduced fat yoghurt and milk based desserts, milk ice-blocks, bread based snacks including fruit bread, popcorn, wholegrain crisp bread with toppings e.g. peanut butter.

2.2.2 Healthy eating resources

NAME	ORDER FROM:
Eating for Healthy teenagers: A Teenager's Guide to Healthy Eating	Ministry of Health 1230 Resourcecentre@adhb.govt.nz
Eating for Healthy Children Aged 2-12/ Te Kai Totika MoTe Hunga Kohungahunga	Ministry of Health 1302 Resourcecentre@adhb.govt.nz
Be Healthy Be Active - Kia-ora, Kia kori kori	NZ Nutrition Foundation, Millenium Institute & Nestle; download from www.nestle.co.nz
Kai Nga kai pai mo nga rangatahi – Choice kai for young Maori	Te Hotu Manawa Maori Call 09 638 5800

Useful websites

WEBSITE AND SCOPE	HOST ORGANISATION
<p>www.aap.org/obesity/ Comprehensive information including the prevention and treatment of childhood overweight and obesity</p>	American Academy of Pediatrics
<p>www.bam.gov Interactive website for older children and adolescents</p>	'Body and Mind', Centres for Disease Control & Prevention (US)
<p>www.healthyfood.co.nz Includes recipes</p>	Healthy Food Guide
<p>www.Kidshealth.org Comprehensive health information which includes nutrition and fitness, family recipes and recipes for specific conditions e.g. coeliac disease</p>	The Nemours Foundation
<p>www.kiwifamilies.co.nz A wide range of nutrition articles and resources including breakfast, healthy school lunches and quick and easy meals</p>	Kiwi families for passionate parents
<p>www.nlm.nih.gov/medlineplus/obesityinchildren.html A range of health topics, including nutrition and obesity in children and young people</p>	National Institutes of Health, USA

Key messages for your patients

- ✓ Have three meals a day including breakfast.
- ✓ Take a healthy lunch from home most days of the week.
- ✓ Drink water instead of sugary drinks.
- ✓ Avoid high fat snacks.
- ✓ Slot in some daily physical activity and reduce screen time.

Section 3: Pregnancy

- 3.1 Optimal nutrition & weight management in pregnancy
- 3.2 Recommendations & patient resources for healthy & safe eating in pregnancy

3.1 Optimal nutrition & weight management in pregnancy

An eating pattern of optimal nutritional quality is essential in pregnancy to ensure the requirements of mother and baby are met. The guiding principle is to eat the recommended number of servings from each of the four main food groups.

Emphasis should be on quality not quantity. Energy dense foods that are high in fat and sugar may need to be limited to avoid excessive weight gain.

A woman is at greater risk of developing diabetes in pregnancy if she is:

- Overweight
- Has a family history of diabetes
- Has previously had a large baby (over 4kg)
- Of Asian, South Asian, Maori or Pasifika ethnicity.

While it is advantageous to give these groups advice about gaining an appropriate amount of weight in pregnancy, dieting to lose weight is not recommended. Instead, women should be helped to shed excess weight before getting pregnant and after giving birth.

Pre-pregnancy BMI	BMI+ (kg/m ²) (WHO)	Total Weight Gain Range (kgs)	Rates of Weight Gain* 2nd and 3rd Trimester (Mean Range in kgs/wk)
Underweight	<18.5	12.5–18.0	0.5 (0.5–0.7)
Normal weight	18.5–24.9	11.5–16.0	0.5 (0.3–0.5)
Overweight	25.0–29.9	7.0– 11.0	0.3 (0.2–0.3)
Obese (includes all classes)	≥30.0	5.0– 9.0	0.2 (0.2–0.3)

KEY POINTS – HEALTHY WEIGHT GAIN

- The recommended weight gain ranges are the same for short women and all ethnic groups.
- High birth weight (or more precisely higher body fat at birth) increases the risk of child obesity and type 2 diabetes in young adulthood.
- Provisional guidelines for women pregnant with twins are a gain of:
 - 17–24.5kg for those in the normal/healthy weight range
 - 14–23kg for overweight women
 - 11–19kg for obese women.

Additional health risks for obese women and their babies include increased risk of miscarriage, pre-eclampsia, longer labour, caesarean section, post-partum haemorrhage and increased difficulties with establishing breastfeeding.



Did you know?

- The need to “eat for two” is a myth.
- Energy requirements for the first two trimesters are the same as usual.
- Only an extra 200 calories per day are needed in the third trimester. This could be partly met by decreased exercise.
- Women who gain too much weight in pregnancy are four times as likely to be obese 20 years later than those women who kept their weight under control.

3.2 Recommendations & patient resources for healthy & safe eating in pregnancy

RECOMMENDATIONS	WHY?	RESOURCES
Follow a nutritionally adequate eating pattern – choose the recommended number of servings from each of the four food groups	<ul style="list-style-type: none"> ■ Assists in achieving optimal pregnancy outcome for mother and baby 	<ul style="list-style-type: none"> <input type="checkbox"/> ‘Eating for Healthy Pregnant Women’* MoH 6002 <input type="checkbox"/> ‘Folic Acid and Spina Bifida’* MoH 4147 » *Order from: Resourcecentre@adhb.govt.nz <input type="checkbox"/> Dietitians NZ Fact sheet: ‘Nutrition during pregnancy’ www.dietitians.org.nz
Adhere to weight gain in pregnancy recommendations	<ul style="list-style-type: none"> ■ Optimal pregnancy outcome ■ Easier for mother to return to a weight in the healthy range 	<ul style="list-style-type: none"> <input type="checkbox"/> Refer www.iom.edu/
Maintain adequate intake when experiencing nausea	<ul style="list-style-type: none"> ■ Assists in achieving optimal pregnancy outcome for mother and baby 	<ul style="list-style-type: none"> <input type="checkbox"/> In the Resource Toolkit Nausea in pregnancy
Follow safe food practices	<ul style="list-style-type: none"> ■ There are lower levels of immunity in pregnancy than usual ■ Rarely pathogens can cause miscarriage, still or premature birth 	<ul style="list-style-type: none"> <input type="checkbox"/> ‘Food safety in pregnancy’ booklet: order from NZ FSA, PO Box 2835, Wellington call 0800 693 21 http://www.nzfsa.govt.nz
Avoid alcohol	<ul style="list-style-type: none"> ■ No known safe level of intake at any stage during pregnancy ■ Alcohol readily crosses the placenta 	

¹ Institute of Medicine, May 2009



Special considerations

- **Folic Acid** (a B vitamin). All New Zealand women planning a pregnancy are recommended to take a 0.8mg supplement of folic acid for at least four weeks before, and 12 weeks after, conception as well as consuming foods rich in folate and foods fortified with folic acid.

Adequate serum folate levels prevent approximately two thirds of spina bifida and other neural tube defects.

As the foetal neural tube is closed between days 22-27 post conceptually, the requirement for increased folate possibly occurs before knowledge of the pregnancy.

- **Iodine.** New Zealand Studies have shown that mild iodine deficiency is relatively common in pregnant and breastfeeding women.

Consequently the NZ Ministry of Health recommends that all healthy pregnant and breastfeeding women take daily a registered 150 mcg iodine tablet available from pharmacies, as well as eating foods which are important sources of iodine (eggs, fresh and canned fish, low fat milk. Also, bread is now fortified with iodine except unleavened, organic and gluten free).

Go to www.moh.govt.nz/iodine for more information.

- **Fish** should be eaten in pregnancy especially oily fish (salmon, sardines, canned tuna, mackerel, eel, warehou) because it is a rich source of omega 3 fatty acids.

However, fish with higher levels of mercury (bluenose, flake, hapuka, Kahawai, ling, orange roughy, snapper, fresh and frozen tuna,) should be limited to 3-4 150g servings per week.

Cardinal, swordfish, marlin, dogfish (except rig), shark (flake) and trout from thermal areas should be limited to one serving every 1-2 weeks.

Omega 3 supplements are not recommended.

- **Vitamin A.** is a fat soluble vitamin, stored in the body. Vitamin A supplements should not be taken in pregnancy because it is teratogenic (harmful to the foetus).
- **Vitamin D.** Research shows that women with pigmented skin can have low levels of Vitamin D particularly in winter, and so should seek medical advice to assess their need for a Vitamin D supplement.



Did you know?

- Folate rich foods are green leafy vegetables, dried beans, wheatgerm and wholegrains. Also look for folic acid fortified breakfast cereals and bread.



Key messages for your patients

- ✓ Keep to recommended weight gain.
- ✓ Ensure nutritionally adequate diet based on the four food groups.
- ✓ Follow safe food practices.
- ✓ Avoid alcohol.

Section 4: Metabolic disorders

- 4.1 Type 2 diabetes
 - 4.1.2 Glycaemic Index
 - 4.1.3 Recommendations & patient resources for type 2 diabetes
- 4.2 Polycystic Ovarian Syndrome
 - 4.2.2 Recommendations & patient resources for Polycystic Ovarian Syndrome
- 4.3 Gout
 - 4.3.2 Recommendations & patient resources for gout

4.1 TYPE 2 DIABETES

Type 2 diabetes is the most prevalent form of diabetes and accounts for 80-90% of diabetes. Risk factors include:

- Increasing age (younger onset in Maori, Pasifika and South Asian)
- Ethnicity (higher prevalence in Maori, Pasifika and South Asian)
- Family history
- Being overweight
- Physical inactivity.

In type 2 diabetes, there can be a high level of circulating insulin, however the body is resistant to its action because of the excess weight carried.

KEY POINTS

- Weight loss improves the body's sensitivity to insulin and is the overarching lifestyle goal.
- Losing 5-10% body weight will improve insulin sensitivity and glucose tolerance and reduce lipid levels and blood pressure.
- There is also increased risk of developing diabetes with a waist circumference ≥ 88 cm for women and ≥ 102 cm in men even when the BMI is in the healthy weight range.



Did you know?

- The risk of diabetes in a person with impaired glucose tolerance (IGT) reduces by 16% when 1kg weight is lost.
- 50% of people with IGT will develop diabetes after 10 years unless there is lifestyle intervention.

NUTRITION PRINCIPLES

Nutritional management in diabetes is a fundamental component of overall management and contributes to the goals of achieving optimal blood glucose, blood pressure and blood lipids as well as achieving or maintaining a healthy weight. The optimal eating pattern for diabetes is:

- Low in saturated fat
- Adequate in carbohydrate (especially wholegrain and low glycaemic index carbohydrate food)
- Even in distribution of energy and carbohydrate and based on three meals a day
- Limited in sugary foods and drinks
- Abundant in colourful vegetables.

This is in line with healthy eating guidelines for the general population.

Resources which cover all aspects of healthy eating for diabetes are 'Ina te kai ora – here's Healthy Food' and 'diabetes and healthy food choices' (for more detailed information order from Diabetes NZ: fax 03 434 5281).

4.1.2 Glycaemic Index

The Glycaemic Index (GI) ranks carbohydrate foods according to their effect on blood glucose levels. When establishing the GI of a food, the blood glucose response to a portion containing 50g carbohydrate is measured. This is compared to the response to oral glucose which sets the basis for comparison and is allocated a GI of 100. There is wide variation in the glycaemic response to food both between individuals and within the same individual.

KEY POINTS

- The major benefit of low GI foods is in diabetes. Carbohydrate foods with a low GI (≤ 55) produce a gradual rise in blood glucose and thus help to flatten out highs and lows.
- Low GI foods improve the body's sensitivity to insulin and consumption of a low GI food at one meal may also help avoid blood glucose peaks after the subsequent meal.
- In contrast, foods with a high GI (70-100) are rapidly digested and absorbed resulting in a peak in blood glucose levels.
- In a mixed meal context, the fat and protein content of the meal will slow down the absorption of carbohydrate and modify the glycaemic response.
- The portion size of carbohydrate foods eaten still matters as this affects the glycaemic load. That is, the overall impact of the carbohydrate food on blood glucose levels is a combination of the amount and the GI of the carbohydrate.

The value of a low GI diet in weight loss is not proven. Following a low GI approach may distract from the key goal of achieving lower energy intake.

There is also no evidence that low GI diets will decrease appetite or increase satiety.

4.1.3 Recommendations & patient resources for type 2 diabetes

RECOMMENDATIONS	WHY?	RESOURCES
<p>Lose weight if overweight (Refer: Weight loss management – Background page 16).</p> <p>It is important to set a realistic weight loss goal in discussion with your patient.</p>	<ul style="list-style-type: none"> ■ Improves sensitivity to insulin and heart health 	<ul style="list-style-type: none"> <input type="checkbox"/> ‘Healthy Weight for adults’ MoH 1324* <input type="checkbox"/> Oranga kai - Healthy eating for adult Maori’ MoH 1440 * <input type="checkbox"/> ‘Healthy eating for South Asian people’ English, Hindi, Punjabi & Gujarati; MoH (Auckland)* <ul style="list-style-type: none"> » Order from: resourcecentre@adhb.govt.nz <input type="checkbox"/> ‘Want to lose some weight?’ <ul style="list-style-type: none"> » Order from: Primarynursedevelopmentteam@waitematadhb.govt.nz
<p>Follow a diet low in saturated fat and trans fatty acids</p>		<ul style="list-style-type: none"> <input type="checkbox"/> In the Resource Toolkit Fat
<p>Eat breakfast, lunch and dinner every day at consistent times</p>	<ul style="list-style-type: none"> ■ Spreads energy intake evenly through the day, thereby increasing the efficiency of insulin use 	
<p>Eat some carbohydrate (e.g. bread/pasta/rice/green banana/taro/potato/fruit) at each meal, but limit to approx ¼ of plate at lunch and dinner</p> <p>Choose carbohydrate foods that are wholegrain or with a low glycaemic index in preference to other foods</p>	<ul style="list-style-type: none"> ■ Spreads carbohydrate intake evenly through day for more stable blood glucose levels ■ Wholegrains improve insulin sensitivity as well as being micronutrient rich ■ Achieve a lower and slower rise in blood glucose levels 	<ul style="list-style-type: none"> <input type="checkbox"/> ‘Ina te kai ora – here’s Healthy Food’ and ‘diabetes and healthy food choices’ <ul style="list-style-type: none"> » Order from Diabetes NZ: fax 03 434 5281 <p>★ <i>A low carbohydrate diet is not recommended and can reduce glucose tolerance.</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> In the Resource Toolkit Fibre in your diet Glycaemic index
<p>Include a small serving of protein food at lunch and medium serve (palm size) at dinner; choose lean meat, skinless chicken, fish or legumes</p>	<ul style="list-style-type: none"> ■ To meet nutritional requirements ■ Protein foods do not have an immediate effect on blood glucose levels ■ Small increase in satiety 	
<p>Eat plenty of colourful vegetables</p>	<ul style="list-style-type: none"> ■ Increases intake of fibre and protective nutrients ■ Helps with satiety – ‘feeling full’ 	<p>Online resources</p> <ul style="list-style-type: none"> <input type="checkbox"/> www.vegetables.co.nz for information on tasty ways to prepare vegetables.

RECOMMENDATIONS	WHY?	RESOURCES
<p>Limit food and drinks high in sugar; small amounts of sugar can be incorporated to increase palatability, e.g. 1 tsp sugar on porridge, thin spread jam on wholegrain bread</p> <p>Reduce salt (sodium) intake</p> <p>Limit alcohol:</p> <ul style="list-style-type: none"> ■ Women <2 standard drinks per day ■ Men < 3 standard drinks per day ■ 3 alcohol free days per week 	<ul style="list-style-type: none"> ■ Avoids peaks in blood glucose levels ■ Reduce energy intake ■ Reduces blood pressure ■ Alcohol is high in calories ■ Increases blood pressure and lowers HDL Cholesterol 	<p>★ It is safe to use artificial sweeteners in place of sugar.</p> <p><input type="checkbox"/> In the Resource Toolkit Salt – Break the habit!</p> <p>Online resources</p> <p><input type="checkbox"/> www.alcohol.org.nz</p>
<p>Be as active as possible – aim for at least 30 minutes exercise a day</p> <p>Reduce sedentary activity, including screen time (TV, computer etc)</p>	<ul style="list-style-type: none"> ■ Increases insulin sensitivity ■ Lowers blood pressure ■ Improves HDL cholesterol ■ Assists with weight control 	<p><input type="checkbox"/> Refer to Green prescription: call 0800 22 84 83 or fax patient referral to 09 623 7950.</p>

KEY MANAGEMENT POINTS

- It is recommended that patients with type 1 diabetes are referred to the Diabetes Centre (ADHB) for individualised nutritional assessment and advice.
- People with Type 2 diabetes are recommended to attend a self management course. Refer to Health Point for the course details.

Useful websites & resources

Diabetes New Zealand	www.diabetes.org.nz
Diabetes Projects Trust	www.dpt.org.nz
NZ Guidelines Group	nzgg.org.nz
NZ Scientific Study of Diabetes	www.nzssd.org.nz
<p>General Diabetes Resources</p> <p>Pre-diabetes</p> <p>'Keeping Well with Diabetes' English (1154), te Reo Maori (1155), Samoan (1156), Cook Islands Maori (1157) Tongan (1158), Niuean 91159). NZ MoH. This resource includes basic nutrition information</p>	<p>» Order from Diabetes NZ: fax 03 434 5281 or email info@diabetes.org.nz</p> <p>» Order from: resourcecentre@adhb.govt.nz</p>

▶ Key messages for your patients

- ✓ Lose weight if overweight (approximately 1kg every 2 weeks).
- ✓ Choose foods low in saturated fat (low in total fat in practice).
- ✓ Eat three meals a day at consistent times and with consistent amount carbohydrate.
- ✓ Limit sugary drinks and foods.
- ✓ Slot in daily physical activity.

4.2 Polycystic Ovarian Syndrome

ABOUT POLYCYSTIC OVARIAN SYNDROME (PCOS)

PCOS is one of the most common endocrine disorders for women. It has been estimated that 20-30% of women have polycystic ovaries but only 5-10% have PCOS. In PCOS, eggs do not mature and detach from the ovaries resulting in the formation of fluid filled cysts.

Many women with PCOS have insulin resistance resulting in raised serum insulin levels.

This can lead to abnormally high production of male hormones from the adrenal glands, ovaries and fat tissue causing many of the symptoms including an erratic menstrual cycle, infertility, acne, hirsutism and alopecia.

Hyperinsulinaemia also encourages the body to store fat which leads to weight gain and further insulin resistance. Over half of the women with PCOS are overweight or obese and there is a predisposition to abdominal obesity. Approximately half will have elevated blood cholesterol.

Managing PCOS

- Diet and lifestyle changes are the most successful treatment for PCOS.
- 5-10 % weight loss can improve symptoms and fertility. The amount of androgens produced by fat tissue is reduced and this improves insulin sensitivity.

4.2.2 Recommendations & patient resources for PCOS

RECOMMENDATIONS	WHY?	RESOURCES
Lose weight if overweight (Weight loss management – Background page 16)	<ul style="list-style-type: none"> ■ Improves menstrual regularity, ovulation and fertility ■ Reduces risk of cancer, diabetes and heart disease ■ Improves sensitivity to insulin 	<ul style="list-style-type: none"> <input type="checkbox"/> ‘Healthy Weight for adults’ MoH 1324* <input type="checkbox"/> ‘Oranga kai - Healthy eating for adult Maori’ MoH 1440* <input type="checkbox"/> ‘Healthy eating for South Asian people’ English, Hindi, Punjabi & Gujarati; MoH (Auckland) * <ul style="list-style-type: none"> » *Order from: resourcecentre@adhb.govt.nz <input type="checkbox"/> ‘Want to lose some weight?’ <ul style="list-style-type: none"> » Order from: Primarynursedevlopmentteam@waitematadhb.govt.nz <input type="checkbox"/> General information including diet: ‘Polycystic Ovarian syndrome – A Guide for Women’ Estelle – 5 ED: www.estelle35.co.nz
Follow a low fat diet especially low in saturated fat	<ul style="list-style-type: none"> ■ Improves sensitivity to insulin and heart health 	<ul style="list-style-type: none"> <input type="checkbox"/> In the Resource Toolkit Fat

RECOMMENDATIONS	WHY?	RESOURCES
Eat some carbohydrate (bread/pasta/ rice/potato) at each meal (three meals a day), but limit to approx ¼ of plate	<ul style="list-style-type: none"> Enables efficient insulin use 	<input type="checkbox"/> In the Resource Toolkit Glycaemic index
Choose carbohydrate foods that are wholegrain or with a low glycaemic index (GI) in preference to other foods	<ul style="list-style-type: none"> Wholegrains have higher satiety and nutritional value Carbohydrate foods with a low GI are more slowly digested and converted to sugar and have a lower insulin response. This may be useful in PCOS 	
Have moderate amounts of protein foods: Include a small serving protein food at lunch and medium serve (palm size) at dinner; choose lean meat, skinless chicken, fish or legumes	<ul style="list-style-type: none"> Meets nutritional requirements Small increase in satiety 	
Limit food and drinks high in sugar	<ul style="list-style-type: none"> Removes concentrated sources of energy –assists with weight loss 	
<p>Be as active as possible – aim for at least 30 minutes exercise a day. This can be broken in to 10-minute ‘snack’ size amounts to add up to 30 minutes over the day</p> <p>Reduce sedentary activity, including screen time</p>	<ul style="list-style-type: none"> Assists with weight control Increases insulin sensitivity Improves HDL cholesterol 	<input type="checkbox"/> Refer to Green prescription call 0800 22 84 83 or fax patient referral to 09 623 7950

Useful websites & resources

Polycystic Ovary Association of Australia	www.posa.aasn.au
Verity UK	www.verity-pcos.org.uk

Key messages for your patients

- ✓ Lose weight if overweight (approximately 1kg every 2 weeks)
- ✓ Avoid high fat snacks and takeaways
- ✓ Include carbohydrate (starchy) food at each meal but limit to approx ¼ plate
- ✓ Limit foods and drinks high in sugar
- ✓ Slot in daily physical activity

4.3 GOUT

Gout is the most common type of inflammatory arthritis in New Zealand men. It is a disorder of purine metabolism and is caused by the deposit of uric acid crystals in the joints. These form when levels of uric acid in the blood are chronically high. This is contributed to by less effective excretion of uric acid in predisposed people.

KEY POINTS

- Raised uric acid is often found in individuals who are overweight and who have impaired glucose tolerance, raised blood pressure and cholesterol.
- It is also associated with chronic kidney disease.
- Maori and Pasifika people are genetically predisposed and experience higher levels of gout (14% adult Maori males in a Counties Manukau community study compared to 1-5% in European populations).
- The prevalence in women is approximately half that of men and there is a later onset (post-menopausal).
- Gout is primarily controlled with medications, but making some dietary changes can also help.



Did you know?

- Gout is becoming increasingly common.
- It is a leading cause of sick leave and avoidable disability.
- It is a frequent reason for giving up sport.



Key messages for your patients

- ✓ Lose weight slowly if overweight.
- ✓ Eat three meals a day.
- ✓ Limit serving size of meat, offal and seafood.
- ✓ Include low fat milk/milk products.
- ✓ Avoid beer, limit other alcohol.

4.3.2 Recommendations & patient resources for gout

OBJECTIVES	WHY?	RESOURCES
<p>Lose weight slowly if overweight</p> <p>Avoid:</p> <ul style="list-style-type: none"> ■ Crash dieting ■ Low carbohydrate diets ■ 'Feasting and fasting'. 	<ul style="list-style-type: none"> ■ Weight loss will lessen uric acid production and improve symptoms. However, fast or extreme weight loss will break down the body's protein, inhibit uric acid excretion and increase uric acid levels 	<ul style="list-style-type: none"> □ 'Out with Gout' is available in English, Maori, Samoan, Tongan, Nuiean. Call: 0800 6600 50 or go to www.pharmac.govt.nz □ In the Resource Toolkit Gout – a painful problem
<p>Eat breakfast, lunch and dinner every day – spreading food intake evenly over the day</p>	<ul style="list-style-type: none"> ■ Moderates impact of food on uric acid production 	
<p>Eat no more than 1-2 palm sized servings of meat, offal and seafood each day; use legumes (dried beans, chick peas, lentils) or tofu at some meals</p>	<ul style="list-style-type: none"> ■ Animal protein foods are high in purines and cause increased uric acid production ■ Plant proteins also have purines, however these have less impact on uric acid levels 	
<p>Have 2 servings of low fat milk/ milk products daily</p>	<ul style="list-style-type: none"> ■ Consumption of milk products (especially low fat), is associated with lower levels of uric acid (the casein and lactalbumin in milk probably enhance uric acid excretion) 	
<p>Avoid beer, limit other alcohol to 1-2 standard drinks / day</p>	<ul style="list-style-type: none"> ■ Alcohol, especially beer, increases uric acid production and impedes uric acid excretion (the malt in beer contains the purine guanosine) 	
<p>Have 6-8 cups of water or other non-alcoholic drinks every day</p>	<ul style="list-style-type: none"> ■ Assists with excretion uric acid 	

Section 5: Cardiovascular disease

- 5.1 Raised total & LDL cholesterol
 - 5.1.2 Recommendations & patients resources for raised Total & LDL cholesterol levels
- 5.2 Lowered HDL cholesterol
 - 5.2.2 Recommendations & patients resources for lowered HDL cholesterol levels
- 5.3 Raised triglyceride
 - 5.3.2 Recommendations & patients resources for raised triglyceride levels
- 5.4 Raised blood pressure
 - 5.4.2 Recommendations & resources for patients with raised blood pressure

5.0 Cardiovascular disease



Did you know?

- Cardiovascular disease (CVD) is responsible for 40% of New Zealand deaths every year. Rates of heart disease are higher among Maori and Pasifika people.

Risk factors for CVD include:

- Family history
- Age
- Gender
- Raised serum cholesterol
- Raised blood pressure
- Raised blood glucose/diabetes
- Obesity, increased waist circumference
- Tobacco smoking.

The three major modifiable risk factors are raised blood pressure and blood cholesterol and cigarette smoking. Together these explain about 80% of cardiac events.

Moderate levels of these risk factors when combined are a greater predictor of CVD risk than a high level of a single risk factor.

A clear guide to assessing absolute risk for an individual patient is given in 'The New Zealand Cardiovascular Guidelines' (nzgg.org.nz). In the following section, specific changes will be looked at for each risk factor modifiable with lifestyle intervention (refer 2.1 for Weight loss management).

5.1 Raised blood cholesterol

Increasing saturated fat intake results in an increase in total and low density lipoprotein (LDL) cholesterol. Seventeen per cent of all deaths in New Zealand, $\frac{1}{3}$ of ischaemic heart disease deaths and $\frac{1}{3}$ of stroke deaths can be directly related to high cholesterol levels. LDL cholesterol is a major component of plaque which builds up in artery walls.

KEY POINTS

- The average New Zealander eats more than twice the recommended limit of saturated fat.
- Saturated fats have varying effects on cholesterol. The saturated fats in dairy products are particularly potent at raising cholesterol.
- While there is no direct relationship between total fat intake and CHD, most of the fat present in baked goods and takeaways is saturated.
- Trans fatty acids (TFAs) are not prominent in the New Zealand food supply as they have been substantially reduced in margarine. Some hydrogenated fats (vegetable oils that have been hardened by adding hydrogen) are high in TFAs, e.g. vanaspati (used in South Asian cuisine) and cheaper cooking fats used in takeaway cooking.



Did you know?

- The average NZ total cholesterol at ~ 5.7 mmols/L is one of the highest levels in the world.
- New Zealanders get about 20% of their saturated fat intake from butter.
- The NZ annual per capita consumption of butter has decreased by almost two thirds over the past 10 years from 15.85kg in 1996 to 6.3kg in 2006.
- This remains one of the highest butter intakes in the world.

5.1.2 Recommendations & resources for patients with raised total and LDL cholesterol levels

RECOMMENDATIONS	WHY?	RESOURCES
Reduce saturated and trans fatty acids: <ul style="list-style-type: none"> ■ Limit takeaways, baked goods e.g. pastries, pies, cakes ■ Use low fat milk and milk products ■ Trim fat from meat, skin poultry ■ Use 'lite' coconut cream where relevant. 	<ul style="list-style-type: none"> ■ For most people, reducing saturated fat intake will result in reduced production of cholesterol by the liver and lower blood cholesterol by $\sim 15\%$. 	<ul style="list-style-type: none"> <input type="checkbox"/> A Guide to Heart Healthy Eating' booklet: email info@heartfoundation.org.nz (70c/ copy) <input type="checkbox"/> 'Heart to Heart - A simple guide to lower cholesterol through diet and lifestyle' www.ncepnz.co.nz or Call: 0800835672. <input type="checkbox"/> Eating for a Healthy Heart' booklet <ul style="list-style-type: none"> » Order from: annef@adhb.govt.nz <input type="checkbox"/> In the Resource Toolkit Fat
Replace saturated fat with polyunsaturated (PUFA) and / or monounsaturated (MUFA) spreads and oils.	<ul style="list-style-type: none"> ■ PUFA lower cholesterol levels ■ MUFA have a less potent effect on lowering cholesterol but have other benefits 	<ul style="list-style-type: none"> <input type="checkbox"/> In the Resource Toolkit Fat ★ All oils and fats have an equal energy content.

RECOMMENDATIONS	WHY?	RESOURCES
Limit dietary cholesterol – keep eggs (yolks) to 3 per week	<ul style="list-style-type: none"> Recommended although dietary cholesterol has minor impact on blood cholesterol 	
Lose weight if overweight:	<ul style="list-style-type: none"> Overweight people manufacture more cholesterol 	<ul style="list-style-type: none"> ‘Healthy Weight for adults’ MoH 1324* ‘Oranga kai - Healthy eating for adult Maori’ MoH 1440* ‘Healthy eating for South Asian people’ English, Hindi, Punjabi & Gujarati* MoH (Auckland) <ul style="list-style-type: none"> » Order from: resourcecentre@adhb.govt.nz ‘Want to lose some weight?’ <ul style="list-style-type: none"> » Order from: Primarynursedevelopmentteam@waitematadhb.govt.nz
Eat plenty of colourful vegetables and fruit	<ul style="list-style-type: none"> Increases intake of protective substances including ‘anti-oxidants’ which reduce arterial inflammation and improve endothelial function 	<ul style="list-style-type: none"> Visit www.vegetables.co.nz for information on tasty ways to prepare vegetables
Eat nuts and seeds regularly – up to 2 tbsp (30g) per day (high in calories so watch amounts)	<ul style="list-style-type: none"> Rich source PUFA and MUFA fatty acids and micronutrients 	
Have 4-5 servings of legumes and pulses (e.g. lentils, baked beans) or soy products (e.g. tofu) per week; use to replace meat.	<ul style="list-style-type: none"> Provide: <ul style="list-style-type: none"> Good quality protein Soluble fibre which binds with cholesterol in gut and removes it from the body. Also very low in fat 	<ul style="list-style-type: none"> In the Resource Toolkit Fibre in your diet
Optional: Use margarines fortified with plant sterols. A daily extra serving of a yellow or green vegetable or fruit is needed to cover partial binding of vitamin A in the gut	<ul style="list-style-type: none"> The sterols bind with cholesterol in the gut and remove it from the body. Cholesterol level is reduced by ~ 10% when the dose of 5tsp (25g)/day is adhered to (this provides 2-3g of phytosterols). The disadvantages are the cost and the high calorie value (i.e. 185 calories) of 25g margarine 	
<p>Be as active as possible:</p> <ul style="list-style-type: none"> Aim for at least 30 minutes exercise a day. This can be broken in to 10-minute ‘snack’ size amounts to add up to 30 minutes over the day Reduce sedentary activity, including screen time 	<ul style="list-style-type: none"> Helps to lower LDL cholesterol and raise HDL 	<ul style="list-style-type: none"> Refer to Green Prescription: Call 0800 22 84 83 or fax 09 623 7950.

Key sources of saturated, polyunsaturated & monounsaturated fats

AVOID	USE THESE INSTEAD (IN SMALL AMOUNTS ONLY)	
Saturated fats	Polyunsaturated oils & spreads	Monounsaturated oils & spreads
Fat in meat, milk and cheese, takeaways and most baked goods	Corn	Avocado
Butter	Linseed	Canola
Coconut	Safflower	Olive
Ghee	Sesame	Peanut
Palm	Soyabean	Peanut butter
Vanaspati, Kremelta	Sunflower	Ricebran

5.2 Low levels of High Density Lipoprotein (HDL) cholesterol

HDL cholesterol is protective as it draws cholesterol out of the artery wall and out of the body. Low HDL cholesterol is an independent risk factor for cardiovascular disease and part of the dyslipidaemia that occurs in diabetes.

5.2.2 Recommendations & resources for patients with low HDL Cholesterol levels

RECOMMENDATIONS	WHY?	RESOURCES
Lose weight if overweight	<ul style="list-style-type: none"> ■ Raises HDL cholesterol 	<ul style="list-style-type: none"> <input type="checkbox"/> 'Healthy Weight for adults' MoH 1324* <input type="checkbox"/> 'Oranga kai - Healthy eating for adult Maori' MoH 1440* <input type="checkbox"/> 'Healthy eating for South Asian people' English, Hindi, Punjabi & Gujarati; MoH (Auckland)* <ul style="list-style-type: none"> » *Order from: resourcecentre@adhb.govt.nz <input type="checkbox"/> 'Want to lose some weight?' <ul style="list-style-type: none"> » Order from: Primarynursedevelopmentteam@waitematadhb.govt.nz
<ul style="list-style-type: none"> ■ Use poly (PUFA) and /or mono (MUFA) unsaturated fat instead of saturated fats ■ Reduce trans fatty acids (TFA- found in some hydrogenated or hardened plant oils) . 	<ul style="list-style-type: none"> ■ PUFA increase HDL more strongly than MUFA although MUFA have other heart health benefits. ■ TFAs reduce HDL cholesterol. 	<ul style="list-style-type: none"> <input type="checkbox"/> In the Resource Toolkit Fat
Increase Omega 3 intake: Eat oily fish twice a week	<ul style="list-style-type: none"> ■ Modest effect on raising HDL 	
Stop smoking	<ul style="list-style-type: none"> ■ Smoking lowers HDL 	<ul style="list-style-type: none"> <input type="checkbox"/> In the Resource Toolkit List of smoking cessation providers
<ul style="list-style-type: none"> ■ Be as active as possible – aim for at least 30 minutes exercise a day. This can be broken in to 10-minute 'snack' size amounts to add up to 30 minutes over the day. ■ Reduce sedentary activity, including screen time. 	<ul style="list-style-type: none"> ■ Physical activity increases HDL levels 	<ul style="list-style-type: none"> <input type="checkbox"/> Refer to Green Prescription: Call 0800 22 84 83 or fax 09 623 7950.

5.3. Raised blood triglyceride

Triglyceride is the chemical name for fat. It applies to both fat in food and fat in the bloodstream. The latter is increased after a fatty meal. Triglycerides are also produced in the body.

A raised blood triglyceride promotes atherosclerotic progression and is a separate risk factor for cardiovascular disease and part of the dyslipidaemia that occurs in diabetes.

5.3.2 Recommendations & resources for patients with raised blood triglyceride levels

RECOMMENDATIONS	WHY?	RESOURCES
Lose weight if overweight	<ul style="list-style-type: none"> ■ Lowers triglyceride level 	<ul style="list-style-type: none"> <input type="checkbox"/> Refer page 39
Use poly (PUFA) and/or mono (MUFA) unsaturated fat instead of saturated fats	<ul style="list-style-type: none"> ■ Lowers triglyceride level 	<ul style="list-style-type: none"> <input type="checkbox"/> In the Resource Toolkit Fat
Increase Omega 3 intake eat oily fish twice/week.	<ul style="list-style-type: none"> ■ Lowers triglyceride level (reduced production in liver) 	
Limit alcohol intake	<ul style="list-style-type: none"> ■ Alcohol increases triglyceride level 	<ul style="list-style-type: none"> <input type="checkbox"/> www.alcohol.org.nz
Reduce sugar and sugary food and drink intake	<ul style="list-style-type: none"> ■ Reduces production of triglyceride in liver 	
Be as active as possible	<ul style="list-style-type: none"> ■ Lowers triglyceride level 	<ul style="list-style-type: none"> <input type="checkbox"/> Refer to Green Prescription: Call 0800 22 84 83 or fax 09 623 7950

OMEGA 3 FATTY ACIDS

Sources

- Omega 3 fatty acids (eicosapentaenoic [EPA] and docosahexaenoic [DHA]) can be consumed ready made from seafood especially oily fish (kahawai, mackerel, salmon, sardines, canned tuna). Aim to have two servings a week.
- Alpha-linolenic (ALA) is an Omega 3 fatty acid found in plants. The conversion efficiency of ALA to EPA and DHA is very limited in humans and the heart health benefit has yet to be clarified. ALA is found in wheatgerm, seeds especially linseeds and chia, nuts especially walnuts, canola oil/spread, soyabean oil/spread, legumes and green leafy vegetables.
- These foods have useful nutrients with other health benefits so are good to include in a heart- healthy eating plan.
- Omega 3 capsules can also be taken on medical advice.



Benefits of Omega 3 fatty acids

- Reduce triglyceride levels and raise HDL.
- Thought to:
 - Reduce tendency to thrombosis and arrhythmias
 - Reduce inflammation and increase plaque stability
 - Have a slight blood pressure lowering effect.

5.4 High blood pressure

Approximately 1/3 of New Zealand adults have high blood pressure. It is a key risk factor for stroke. The modifiable risk factors for high blood pressure are:

- Sodium (salt) intake
- Physical inactivity
- Obesity
- Alcohol intake.

KEY POINTS

- The upper limit set for daily sodium intake is 2,300mg (100 mmol), which is the amount found in 6g or one teaspoon salt (sodium chloride).
- The average NZ consumption is approximately four times this recommended upper limit.
- At least 75% of our sodium intake comes from manufactured food (bread, cereals, cheese, spreads, soups, sauces, processed meat) and takeaways, with the rest being added in home cooking or at the table.
- The lower the salt intake the lower the blood pressure.



Did you know that?

- In a recent Food Standards Australia New Zealand (FSANZ) survey*, foods found to contain the highest levels of sodium per 100g included the following:

FOOD	SODIUM (MG) 100G	SODIUM (MG) PER SERVING
Beef sausage	790	1 sausage (70g) = 553
Butter	780	Foil packet (7g) = 55
Cheddar cheese	730	1 slice (20g) = 146
Hamburger	440	1 large (200g) = 880
Pizza	550	1/4 large (130g) = 715
Potato crisps (salt & vinegar)	1,180	Small packet (45g) = 531
Potato crisps (other flavours)	580	Small packet (45g) = 261
Yeast spread	3,000	1 tsp = 180

The amount of sodium in different brands will vary around this average – encourage your patients to:

- Limit manufactured foods
- Use the 'Nutrition Information Panel' on food packets to compare brands
- Aim for a food with less than 450mg sodium/100g.

* FSANZ: 'How much sodium and salt are we eating?' Fact sheets 2009.

5.4.2 Recommendations & resources for patients with high blood pressure

RECOMMENDATIONS	WHY?	RESOURCES
Lose weight if overweight	<ul style="list-style-type: none"> ■ Lowers blood pressure 	<ul style="list-style-type: none"> □ 'Healthy Weight for adults' MoH 1324* □ 'Oranga kai - Healthy eating for adult Maori' MoH 1440* □ 'Healthy eating for South Asian people' English, Hindi, Punjabi & Gujarati; MoH (Auckland)* <ul style="list-style-type: none"> » *Order from: resourcecentre@adhb.govt.nz □ 'Want to lose some weight?' <ul style="list-style-type: none"> » Order from: Primarynursedevelopmentteam@waitematadhb.govt.nz
Reduce salt (sodium) intake	<ul style="list-style-type: none"> ■ Sodium: <ul style="list-style-type: none"> » Raises blood pressure » Causes increased stiffness of the arteries. 	<ul style="list-style-type: none"> □ In the Resource Toolkit Salt – Break the habit!
Increase omega 3 intake – eat oily fish twice/week	<ul style="list-style-type: none"> ■ Omega 3 fatty acids may reduce blood pressure 	
Limit alcohol intake	<ul style="list-style-type: none"> ■ Alcohol raises blood pressure 	<ul style="list-style-type: none"> □ www.alcohol.org.nz
Eat plenty of colourful vegetables	<ul style="list-style-type: none"> ■ Colourful vegetables are rich sources of: <ul style="list-style-type: none"> » Potassium which helps to lower blood pressure » 'Anti-oxidants' which reduce arterial inflammation and improve endothelial function. 	<ul style="list-style-type: none"> □ Visit www.vegetables.co.nz for information on tasty ways to prepare vegetables
Stop smoking	<ul style="list-style-type: none"> ■ Smoking raises blood pressure 	<ul style="list-style-type: none"> □ In the Resource Toolkit Refer to Quit Line or cessation provider
Consider factors contributing to stress	<ul style="list-style-type: none"> ■ Stress has a lesser effect on blood pressure than the above factors. However, reducing stress where possible may help to lower blood pressure. 	
Be as active as possible – aim for at least 30 minutes exercise/day	<ul style="list-style-type: none"> ■ Exercise reduces blood pressure 	<ul style="list-style-type: none"> □ Refer to Green Prescription: Call 0800 22 84 83 or fax 09 623 7950.



Did you know that?

- If you do use salt, make it iodised!
- All salt added at household level in NZ should be iodised. NZ soils are low in iodine and iodine deficiency has been re-emerging as a population wide health problem.
- This led to NZ bakers being required to add iodised salt to all bread (except unleavened, gluten free and organic) from September 2009. Iodine supports normal growth and development in children and helps to maintain a healthy thyroid gland and normal thyroid function.



Useful websites & resources

<p>The National Heart Foundation of New Zealand Your Age Forecast tool (University of Auckland & NZ Guidelines Group)</p>	<p>www.heartfoundation.org.nz http://yourheartforecast.org.nz nzgg.org.nz</p>
<p>Resources Reducing your Risk of Heart Attack and Stroke</p>	<p>ISBN 978-1-877465-24-6; email: info@nhf.org.nz NZ Guidelines Group and the National Heart Foundation of New Zealand</p>
<p>For blood pressure and salt reduction National Heart, Blood & Lung Institute, National health Institute.</p>	<p>www.nhlbi.nih.gov/hbp/prevent/sodium/lflabel.htm</p>



Key messages for your patients

- ✓ Eat plenty of colourful vegetables and fruit.
- ✓ If choosing meat make it lean; include fish and legumes as alternatives several times a week.
- ✓ Choose low fat milk.
- ✓ Replace butter, ghee, lard or dripping with margarine and poly/monounsaturated oils.
- ✓ Reduce salt.

Section 6: Chronic Kidney Disease

6.1 Background

6.2 Recommendations & patient resources for Stage 1 & 2 CKD

6.1 Chronic Kidney Disease

It is estimated that approximately 750,000 people in NZ have chronic kidney disease (CKD). However, with good management the progression to end stage kidney disease can be substantially delayed.

The risk factors for CKD are:

- Diabetes
- High blood pressure
- Cardiovascular disease
- Obesity
- Age > 50 yrs (earlier onset Maori and Pasifika)
- Ethnicity (higher prevalence in Maori and Pasifika)
- Proteinuria
- Family history of kidney disease
- Smoking
- History previous kidney disease.

Diabetes, cardiovascular disease and high blood pressure are the most influential risk factors. However, once chronic kidney disease is established, there is in turn increased risk for hypertension and cardiovascular disease. Key points for managing and slowing the progression of CKD are:

- Early detection
- Tight control of blood pressure (130/80; 125/75 for people with diabetes)
- Tight glycaemic control in people with diabetes
- Improving disease treatment and management including effective links between primary and secondary care
- Controlling the modifiable risk factors (obesity, smoking, high blood pressure, diabetes control).



Did you know that?

- People with CKD are about 20 times more likely to die of events related to cardiovascular disease than go on to dialysis.
- More than 50% of people with diabetes show evidence of kidney damage.
- Maori experience about 14 times higher incidence of diabetic end stage kidney disease than European people.

MANAGEMENT OF CKD

Team work is essential for effective and supportive management of people with CKD. Members of the team include the nurse, dietitian and physician from the nephrology team as well as the practice nurse and general practitioner.

The management of CKD differs according to the stage of the disease.

Patients with **Stages 1 and 2** can usually be managed in the primary care setting.

Stages 4 and 5 will require management by a nephrologist and some patients with **Stage 3** who have co-morbidities will also benefit from this. Signs and symptoms where referral to a renal dietitian is warranted include unintentional weight loss and hyperkalaemia.

By **Stage 4**, there can be a risk of malnutrition as uraemia increases, appetite declines and weight loss accelerates. The table below shows the appropriate approaches to nutritional management in the general practice setting.

CKD management according to stage

CKD STAGE	1	2	3	4	5
Description	Kidney damage with normal or ↑ eGFR	Kidney damage with mild ↓ eGFR	Moderate ↓ eGFR	Severe ↓ eGFR	End stage kidney disease
eGFR (mL/min/1.73m²)	≥90	60-89	30-59	15-29	<15 or on dialysis
Common complications	Hypertension	As for Stage 1 & 2 + mineral and bone disorder, anaemia, sleep apnoea, restless legs, CVD, malnutrition, depression	As for Stage 3 + hyperphosphataemia, acidosis, hyperkalaemia	As for Stage 4 + pericarditis, GIT bleeding, encephalopathy, neuropathy	
Nutritional management	Refer 6.2	Consider referral to dietitian if co-morbidities e.g. diabetes	Referral to renal dietitian recommended	Likely to be modification of protein and minerals such as sodium, potassium and phosphate Please help reinforce patient's individual guidelines	

RECOMMENDATIONS	WHY?	RESOURCES
Maintain blood potassium within normal levels. Unlikely to have elevated levels until Stage 3 or later unless on ACE or ARBS for managing high blood pressure (these may raise potassium levels).	<ul style="list-style-type: none"> ■ Potassium is essential for normal working of muscles and the heart, too much or too little can be dangerous 	
Be as active as possible: <ul style="list-style-type: none"> ■ Aim for at least 30 minutes exercise/day. ■ Reduce sedentary activity including screen time. 	<ul style="list-style-type: none"> ■ Improves weight, blood pressure, lipid profile and mood 	<ul style="list-style-type: none"> □ Refer to Green Prescription: Call 0800 22 84 83 or fax 09 623 7950.

Useful websites & resources

National Kidney Foundation	www.kidney.org
Kidney Foundation NZ	www.nzkidneyfoundation.co.nz
Kidney Health Australia	www.kidney.org.au
Caring for Australasians with renal impairment	www.cari.org.au
For heart health The National Heart Foundation of New Zealand	www.heartfoundation.org.nz
For blood pressure & salt reduction National Heart, Blood & Lung Institute, National health Institute.	www.nhlbi.nih.gov/hbp/prevent/sodium/lflabel.htm

Section 7: Key references

- Ministry of Health (2008) *Body size technical Report: Measurements and classifications in the 2006/7 New Zealand Health Survey* Ministry of Health, Wellington.
- Ministry of Health and Clinical Trials Research Unit (2009) *New Zealand Guidelines for Weight Management in Adults*. Ministry of Health, Wellington.
- Ministry of Health and Clinical Trials Research Unit (2009) *New Zealand Guidelines for Weight Management in Children*. Ministry of Health, Wellington.
- US Centers for Disease Control, National Center for Chronic Disease prevention and Health promotion 2010 (www.cdc.gov/growthcharts).
- NZ Ministry of Health (2003) *NZ Food NZ Children: Key results of the 2002 National Children's Nutrition Survey* Ministry of Health, Wellington.
- Brown R, Scragg R, Quigley R. (2008) *Does the family environment contribute to food habits or behaviours and physical activity in children?* A report prepared by the Scientific Committee of the Agencies for Nutrition Action, Wellington.
- Institute of Medicine (2009) *Weight Gain During Pregnancy: Re-examining the Guidelines*. Institute of Medicine, National Academy of Sciences, Washington.
- National Institute for Health and Clinical Excellence (2010) *Dietary interventions and physical activity interventions for weight management before, during and after pregnancy*. National Institute for Health and Clinical Excellence, London.
- American Diabetes Association (2006) Nutrition Recommendations and Interventions for Diabetes - 2006 Position Statement. *Diabetes Care* (29) 2140-2157.
- Wolever TMS, Gibbs AL, Mehling C et al. (2008) The Canadian Trial of Carbohydrates in Diabetes (CCD), a 1-y controlled trial of low-glycaemic-index dietary carbohydrate in type 2 diabetes: no effect on glycated haemoglobin but reduction in C-reactive protein. *Am J Clin Nutr* 87: 114-25.
- Moran LJ, Pasqali R, Teede HJ, et al. (2009) Treatment of obesity in polycystic ovary syndrome: a position statement of the Androgen Excess and the Polycystic Ovary Syndrome Society. *Fertil Steril*; 92: 1966-82.
- Lim SS, Clifford PM, Noakes M, et al. (2007) Obesity management in women with polycystic ovary syndrome. *Women's Health* 3(1) 73-86.
- Liepa GU, Sengupta A, Karsies D. (2008) Polycystic Ovary syndrome (PCOS) and Other Androgen Excess Related Conditions: Can Changes in Dietary Intake make a difference? *Nutr Clin Pract*; 23;63-70.
- Richette P, Bardin T. (2009) Gout The Lancet published online August 18.
- Lee SJ, Terkeltaub RA, Kavanaugh A. (2006) Recent developments in diet and gout. *Current Opinion in Rheumatology* 18,2; 193-98.
- Ministry of Health (2009) *New Zealand Cardiovascular Guidelines Handbook: A summary resource for primary care practitioners*. New Zealand Guidelines Group, Wellington.
- Saravanan P, Davidson NC, Schmidt EB, Calder PC. (2010) Cardiovascular effects of marine omega-3 fatty acids. *The Lancet* 375 540- 50.
- Wang C, Harris WS, Chung M, et al. (2006) n-3 fatty acids from fish or fish-oil supplements, but not alpha-linolenic acid, benefit cardiovascular disease outcomes in primary-and secondary-prevention studies: a systematic review1-3 *Am J Clin Nutr* 84:5-17.
- National Heart Foundation of Australia (2010) *Antioxidants if food, drinks and supplements for cardiovascular health: Summary of evidence*. National Heart Foundation of Australia, Canberra.
- He FJ, MacGregor GA. (2008) Effect of longer-term modest salt reduction on blood pressure (Review). *The Cochrane Collaboration*. John Wiley & Sons Ltd.