



Metabolic.ie

National Centre for Inherited Metabolic Disorders



on a

Low Protein Diet

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Introduction

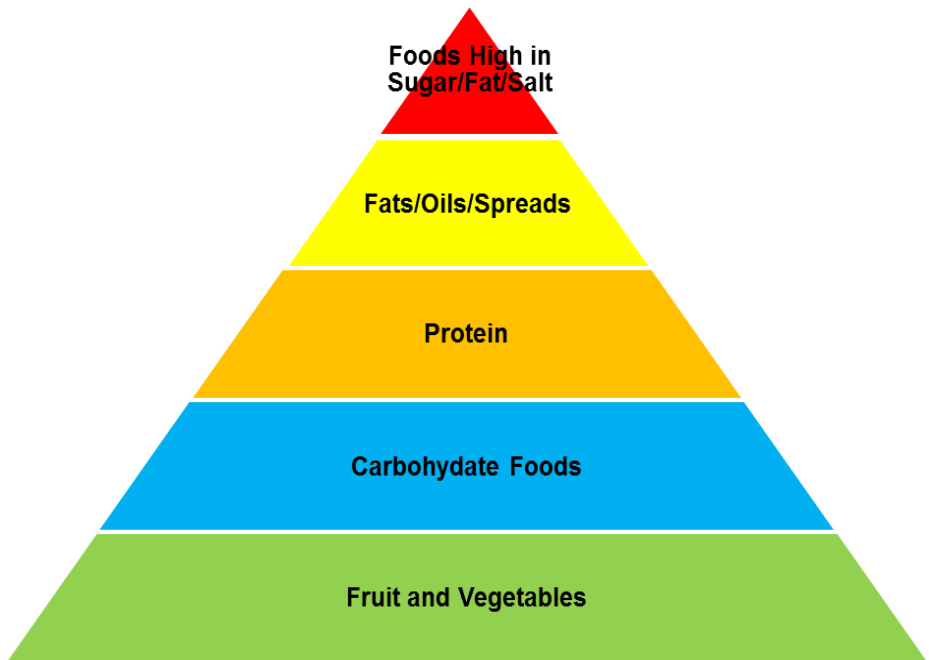
Levels of overweight and obesity in Ireland have doubled. One in every four children in Ireland is overweight or obese. Findings of our own study have suggested that there are higher rates of overweight and obesity in our patients on a low protein diet in comparison to the general Irish population.

This highlights the importance of living a healthy lifestyle by making good food choices and getting regular exercise.

When following a low protein diet, you can sometimes fall into the trap of choosing convenience foods and drinks such as cereal bars, potato waffles, crisps, sweets and fizzy drinks which are easy to count as exchanges or because they are free from or low in protein. These can be high in calories and are not nutritious. If eaten too frequently, this can lead to excessive weight gain.

There are lots of exchange foods and low protein snack and meal options that are healthy. The same principles of healthy eating apply to a low protein diet. This guide will help you make healthier choices.

The Low Protein Food Pyramid



The Food Pyramid is designed to make healthy eating easier. It helps you to include the right amount of each food in your diet.

Fruit and Vegetables:

Fruit and vegetables are a key part of all healthy diets. Use fruit and vegetables as the base for all of your meals and snacks aim to fill half your plate with them at meal times! They contain essential vitamins, minerals, antioxidants and are low in calories. They also contain fibre which helps to keep us feeling fuller for longer and keeps our gut healthy.

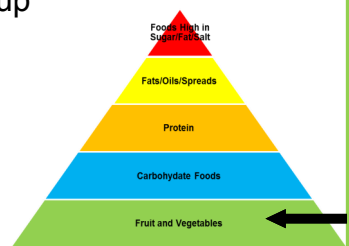
Fruit is a great option when you're craving something sweet. Limit juices and smoothies though as they are high in sugar and lack fibre. **Keep servings of fruit juice/smoothies to 150ml a day** for a healthy weight and to protect teeth.

Aim to include **5-7 serving** of fruit and vegetables in your diet each day.

1 serving is:

- 1 medium piece of fruit- apple, pear, banana
- 2 small pieces of fruit- mandarin oranges, kiwis, plums
- ½ cup cooked vegetables
- 1 bowl of salad
- 1 bowl of homemade vegetable soup

Remember to count exchanges if applicable (sweetcorn, peas)





Encourage your child to eat a 'rainbow' of coloured fruit and vegetables for maximum health benefits

Carbohydrate:

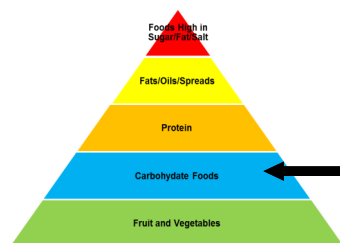
All varieties of breads, cereals, pasta, potatoes and rice are what we call 'carbohydrate' foods and they provide the energy you need. You can use a combination of low protein products and exchange foods. Make sure not to use up all of your exchanges at one meal with these foods!

Everyone needs different amounts of these foods depending on activity level, age and gender.

Daily Servings Guide for Carbohydrates

	Child (5-12 years)	Teenager (13-18 years)	Adult (19-50)	Adult (51+)
Active Female	3-4	4	4-5	3-4
Active Male	3-5	5-7	5-7	4-5
Inactive Female	*	3	3-4	3
Inactive Male	*	4-5	4-6	4

**There is no guideline for inactive children
as it is essential all children are active.*



1 serving is:

- 2 slices of low protein bread (Juvela/Loprofin)/1 slice of Promin Fresh Bread
- 1 bread roll (Juvela /Loprofin)
- 2 medium or 4 small (baby) potatoes
- 3 dessert spoons of low protein rice/pasta or regular varieties
- 2 low protein crackers/regular crackers
- 3 dessert spoons of low protein/regular cereal

Remember to count exchanges if applicable

Four of these baby potatoes is one serving



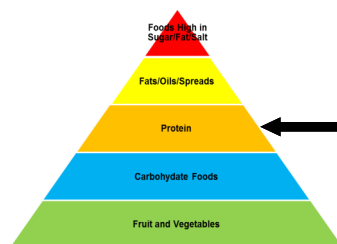
Protein:

The third shelf of the food pyramid is the protein shelf. In the PKU diet, protein comes from your synthetic protein drink/gel and exchange foods. Together, this gives all the right protein for growth and repair of body tissues and helps you to stay healthy.

As well as protein, your synthetic protein drink/gel provides all the vitamins and minerals that we need to be healthy.

Aim to spread out your exchanges and synthetic protein drink approximately 3 times per day everyday (or as advised by your dietitian). Remember, your synthetic protein drink must be taken **everyday**.

Protein is important to muscle and bone health, especially following an exercise or training session. If you play sport aim to have one of your drinks/gels after your session to fuel your body and allow it to recover well.



Fats, Oils and Spreads:

Fats, spreads and oils should only be used in very small amounts. This is because they are very high in calories. Fats, spreads and oils vary in terms of 'healthiness'; some contain saturated or 'bad' fats while others contained unsaturated or 'good' fats.

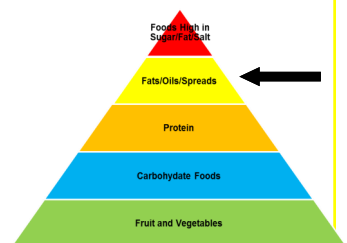
Avoid those containing lots of saturated fats such as margarine, coconut oil or butter. Choose oils and spreads which contain the healthier 'good' fats such as rapeseed, olive or walnut oil based spreads. However, be aware that these 'good fats' are high also in calories so remember, a little goes a long way!

1 serving is:

- 1 tsp. rapeseed/ olive/walnut oil
- 1 pat of reduced fat or light spread for 2 slices of bread



**A teaspoon of this
olive oil is a healthy option**



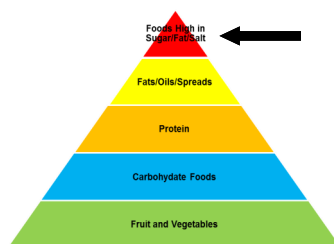
Foods High in Sugar, Fat or Salt:

Top shelf foods include crisps, fizzy drinks, sweets, lollypops, cereal bars, chips/potato wedges, biscuits, chocolate, buns and cakes. This includes both low protein and regular varieties.

There are no recommended servings for this group because they are not essential. Limit servings from this shelf to a **maximum of once or twice a week**- not every day. They should be taken in small servings. These are usually the main cause of weight gain and tooth decay. Even though some of these foods are protein free, this does not mean that they should be eaten freely or in large amounts.



Even low protein varieties of cake should not be eaten on a daily basis.



Top Tips for Limiting Top Shelf Foods:

- Sugary drinks such as Cola should be avoided. Cordials should be used sparingly. Remember, no diet drinks are allowed in PKU as they contain aspartame. Our advice – don't buy them, don't have them in the house! Offer water instead.
- Keep count of how many top shelf food you have in a week. You might be surprised how many top shelf foods you/your child consumes in a day or over a week.
- Don't use top shelf foods as a reward. Labelling foods as 'treats' makes them more desirable. Find different ways to reward your child such as with an outing, stickers, colouring pencils.
- Don't forget, it is okay to say no when your child asks you for a sweet treat.
- Have a set day of the week when a top shelf food is allowed, for example, a Friday evening.
- Include the treat as part of a meal such as once a week after dinner as dessert.
- Discuss with your children regularly the importance of eating healthy to have lots of energy and to grow up healthy!
- Lead by example. Set a good example for your children by eating a healthy diet yourself.

How Do I Know If a Food is on the 'Top Shelf'?

To figure out whether a food bought from the supermarket is 'top shelf' have a look at the label for the amount of calories, sugar and saturated fat!

Follow this example below:

Per 100g means you can compare

Per serving means what a portion is and what's in a portion

Amount of calories

NUTRITION INFORMATION		
	Per 100g	Per 3 Chunks (13.8g)
Energy	2210 kJ/530 kcal	305 kJ/73 kcal
Fat	30.5g	4.2g
of which Saturates	18.5g	2.6g
Carbohydrate	56.5g	7.8g
of which Sugars	56g	7.7g
Fibre	0.7g	0.1g
Protein	7.5g	1g
Salt	0.23g	0.03g

Carbohydrate: all carbohydrates contain sugars
Low Sugar= <5g sugar per 100g
High Sugar = >22.5g sugar per 100g

Saturated Fat: These are the 'bad' fats found in food
Low Fat= <1.5g saturated fat per 100g
High Fat= >17.5g per 100g

FOOD SHOPPING CARD					 The amount you eat of a particular food affects how much sugars, fat, saturates and salt you will get from it.
	Sugars	Fat	Saturates	Salt	
HIGH per 100g	Over 22.5g	Over 17.5g	Over 5g	Over 1.5g	 IRISH HEART FOUNDATION <small>Lighting Your Pathway to a Better Heart</small>
MED per 100g	Between 5g and 22.5g	Between 3g and 17.5g	Between 1.5g and 5g	Between 0.3g and 1.5g	
LOW per 100g	5g and below	3g and below	1.5g and below	0.3g and below	





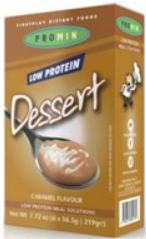
Ask your dietitian for one of these handy cards to bring shopping with you!





What Low Protein Products from the Pharmacy are on the Top Shelf?

Sometimes the low protein products from your pharmacy do not come with the nutritional label. The next three pages detail the low protein products that are top shelf foods.

One or two of these foods can be included in your diet per week as a treat, not every day!

Products	Kcal	Sugar	Portion
Promin Hot Breakfast 	135	10g	Per 100g
	225	10g-16.7g	Per sachet
Fate Low Protein Chocolate/Cake Mix 	367	37g	Per 100g
Loprofin Low Protein Chocolate Cake Mix/Mix 	366	37.9g	Per 100g
Taranis Low Protein Lemon/Apricot/Pear Cakes 	372	33.5	Per 100g
	149	13g	Per cake

Products	Kcal	Sugar	Portion
Juvela Low Protein Cookies 	506	17g	Per 100g
	50	1.8g	Per cookie
Taranis Low Protein Shortbread 	476	16.7g	Per 100g
Taranis Biscuits with Caramel Shards 	486	15.8g	Per 100g
Vitaflo Vitabite Bars 	549	59g	Per 100g
	137	14.8	Per bar
Promin Low Protein Dessert (All Flavours) 	400	49g	Per 100g
	148	18g	Per sachet

Products	Kcal	Sugar	Portion
Promin Low Protein Rice Pudding (All Flavours) 	118	8g	Per 100g
	250	18g	Per sachet
Taranis Dessert Drinks (All Flavours) 	428	45	Per 100g
	85	9.8g	Per 20g
Taranis Low Protein Hazelnut Flavour Spread 	347	7g	Per 100g
PK Foods Low Protein Jelly Mix (All Flavours) 	356	87g	Per 100g
	285	70g	Per Sachet

Handy Hints for Healthy Eating

- **Breakfast:** Don't skip breakfast. If you miss breakfast, you are more likely to snack on unhealthy foods later in the day. A good breakfast will help you to concentrate and perform well at school, college or work. Breakfast is a good opportunity to get in a serving of fruit.
- **Cooking:** Try different methods of cooking vegetables such as stir frying, grilling, boiling, steaming or oven baking. Try to avoid frying. Use oils sparingly.
- **Snacks:** Chop up some peppers, cucumbers and carrots and have as a healthy snack. Fruit such as apples and pears can easily be picked up from shops when you're out.
- **Desserts:** Chop up some of your favourite fruits to make a fruit salad for a healthy dessert or snack. Strawberries, blueberries, watermelon and pineapple are all tasty free foods.
- **Chips:** Chips should be limited. Use healthier exchange options such as potatoes, pasta or rice. They contain very little fat compared to chips. You can also make your own homemade chips by chopping up regular or sweet potatoes, carrots and parsnips and roasting them in the



oven with a small amount of oil. Remember to count exchanges.

- **Spice:** Add different spices and herbs to your foods to add variety and make your foods more exciting.
- **Drinks:** Water is best to drink for health and your teeth. 150ml of unsweetened fruit juice can be drunk once daily at a meal. Juice is naturally high in sugar and low in fibre.
- **Portions:** Your child needs small child sized portions*. Try using a child sized plate. Your child's synthetic protein drink/gel provides calories and protein which will fill them up so they need smaller portions than other children their age and size.

**For further information regarding appropriate serving sizes visit the Healthy Ireland website for children over 5 years or visit the Safefood website for younger children. (See 'useful website section').*



Healthy Meal Ideas

Breakfast Ideas	
Exchange Free	Exchange Containing (see exchanges in bold)
<ul style="list-style-type: none"> • Low protein pancake with berries • Smoothie (low protein milk, berries, ice) • Grilled mushrooms*, asparagus and tomatoes • Low protein toast with <ul style="list-style-type: none"> -Banana* -Mushrooms* and tomatoes -Low protein cheese -Wilted spinach* • Fruit salad: • -Watermelon, pineapple, apple, strawberries, blueberries 	<ul style="list-style-type: none"> • High fibre cereal such as Weetabix or Bran Flakes with low protein • Porridge/Readybrek made with low protein milk • Koko yoghurt with mixed fruit • Smoothie bowl (ice, low protein milk, Koko yoghurt, berries and banana*) • Low protein toast with: <ul style="list-style-type: none"> -Cream cheese -Mashed avocado -Baked beans
Exchange free toppings	
<ul style="list-style-type: none"> -Cinnamon and raisins -Banana* and cinnamon -Blackberries and apple -Rhubarb and apple 	<ul style="list-style-type: none"> -Figs and cinnamon -Kiwi, mango and passion fruit -Dates

*Some fruit and vegetables must be counted as exchanges if eaten in large quantities.

Lunchbox Ideas

Exchange Free	Exchange Containing (see exchanges in bold)
<ul style="list-style-type: none"> • Low protein sandwich/roll/crackers with a suitable filling • Low protein rice/couscous/pasta with <ul style="list-style-type: none"> -Sundried tomatoes, garlic and peppers -Chopped tomato -Tomato and herb sauce with roasted vegetables -Low protein pesto • Mixed salad: <ul style="list-style-type: none"> -Rocket, butternut squash and peppers -Lettuce, carrot, beetroot and raisins -Spinach*, lettuce, cherry tomatoes, pumpkin • Vegetable sticks served with low protein hummus/pesto: <ul style="list-style-type: none"> -Carrot sticks -Cucumber slices -Sliced peppers -Celery sticks -Mangetout 	<ul style="list-style-type: none"> • Corn cake/rice cake/cracker/sandwich/roll • Baked potato with: <ul style="list-style-type: none"> -Low protein cheese (small amount) -Grilled free vegetables -Sweetcorn • Koko yoghurt (1ex)
	Low Protein Filling Ideas
	<p><i>These can be used in sandwiches/rolls or on crackers/rice cakes</i></p> <ul style="list-style-type: none"> • Lettuce, tomato and onion • Spinach* and peppers • Mashed banana* • Tomato relish, lettuce, tomato, caramelised onion • Low protein cheese

*Some fruit and vegetables must be counted as exchanges if eaten in large quantities.

Snack Ideas

- Olives
- Cherry tomatoes
- Fruit salad
- Apple and cinnamon
- Watermelon chunks
- Raisins



Pieces of fruit and vegetables can be healthy snack options

Dinner Ideas

Exchange Free	Exchange Containing (see exchanges in bold)
<ul style="list-style-type: none"> • Vegetable soup <ul style="list-style-type: none"> -Butternut squash, carrot and red pepper -Carrot and parsnip -Tomato and basil • Vegetable Bolognese with low protein spaghetti • Low protein vegetable rice with grated carrot, ginger and courgette 	<ul style="list-style-type: none"> • Baked potato with <ul style="list-style-type: none"> -Baked beans -Low protein cheese -Grilled free vegetables • Regular pasta/rice/ couscous/quinoa / noodles • Rice or low protein rice (free) with peas or sweet corn • Low protein burger/ sausage mix with low protein rice and vegetables

Dinner Ideas Continued

Exchange Free	Exchange Containing <i>(see exchanges in bold)</i>
<ul style="list-style-type: none"> • Vegetable kabobs -Cooked pepper, courgette, onion and sweet potato* • Stuffed peppers with: -Low protein rice, low protein cheese and onion • Stir fried free vegetables with soy sauce, garlic, ginger and low protein rice • Carrot and parsnip chips • Salad: -Beetroot, red onion and rocket -Mushrooms*, red pepper, chili and rocket 	<ul style="list-style-type: none"> • Vegetable soup with exchange containing vegetables (peas, sweet corn, potato) • Chickpeas/kidney beans -These make a tasty meal along with low protein rice and mixed vegetables

*Some fruit and vegetables must be counted as exchanges if eaten in large quantities.

These are just a few examples of healthy low protein meals. Ask your dietitian for some recipe books or have a look at some the next time you come to the Metabolic Unit.

Get Fit, Get Active

Children need to be physically active for at least 60 minutes a day. There are lots of ways to be physical activity.

If your child is not physically active, start slowly. Include 15-30 minutes of exercise 1-3 days per week to begin with. Keep increasing this gradually until they reach the goal of 60 minutes a day.



Simple ways to get active everyday:

- Walking or cycling to school/college/work
- Getting off the bus a stop earlier and walking
- Parking the car further away from shops
- Going for a walk in the evening as a family
- Incorporate exercise into family activities – this might involve going cycling, hiking or swimming together as a family.



Screen Time

Technology has become increasingly popular over the years. This has resulted in children spending a large portion of the day sedentary.

Screen time includes:

- Watching TV
- Using a phone
- Playing playstation/x-box
- Using an iPad
- Using a computer/laptop even for homework/schoolwork

Monitor your child's screen time over the week. Gradually aim to cut it down until it is **less than 2 hours per day**. Encourage your child to take up a new hobby instead. Make sure all screens are turned off during mealtimes as it can be distracting.



Sleep

Sleep is a very important part of a healthy lifestyle. Getting a good night's sleep decreases your risk of becoming obese and getting diseases like diabetes. It is very important for children as they are growing.



- Limit screen time before bed time. The blue light emitted from screens can interfere with your body falling asleep. Try reading a book instead.
- Keep phones, tablets and laptops out of the bedroom.
- Get into a relaxing pre bed routine.
- Have a set bed time.

Useful Websites

www.healthyireland.ie

www.safefood.eu/Publications/Consumer-information/What-is-a-serving-size-A-Guide-for-Pre-schools

www.INDI.ie

www.getirelandactive.ie

<https://www.lowproteinconnect.com/Recipes/>



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Version: 2

Approval date: July 2018

Review date July 2020

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