

Eating well with Parkinson's Disease





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Nutrition in Parkinson's Disease

What is Parkinson's Disease?

Parkinson's Disease (PD) affects the brain cells that are responsible for releasing a neurotransmitter called dopamine. Dopamine sends messages to the body to help control movement. When you have PD, these dopamine-producing brain cells stop working or die. As this happens over time it becomes harder to control your movement. Because PD can cause tremor, slowness, stiffness, walking and balance problems it is called a "movement disorder" and these symptoms are known as "motor symptoms". But constipation, depression, apathy, fatigue, memory problems and other non-motor symptoms can also be part of PD.

Nutrition and Parkinson's Disease

Whilst there is no specific 'PD diet', research to date is showing that balanced diets are beneficial to people living with PD. Diet can also play a role in improving some of the symptoms people with PD may experience such as:

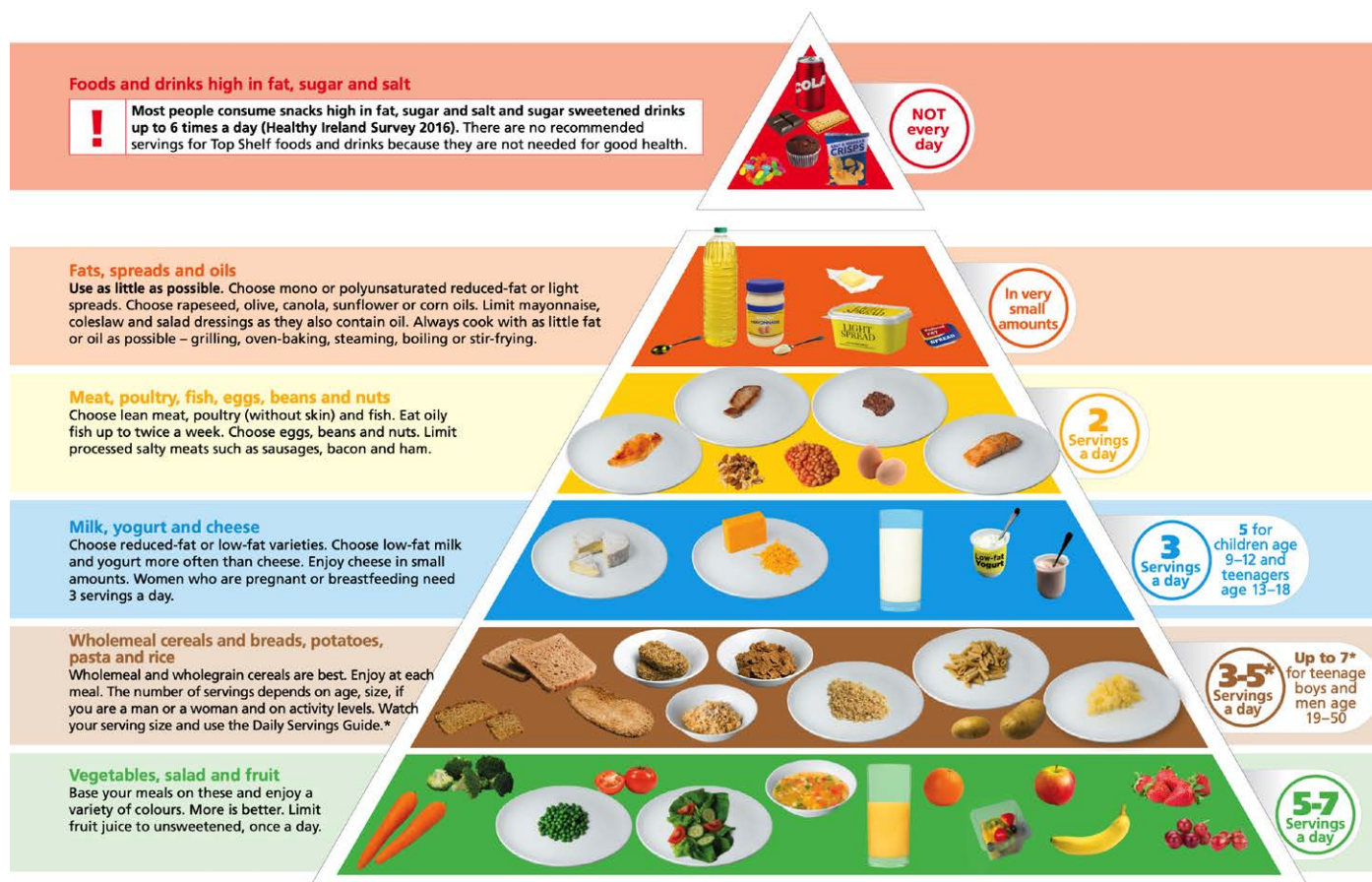
- Unintentional weight loss or gain
- Chewing and swallowing difficulties
- Constipation
- Dehydration
- Blood pressure issues
- Osteopenia and osteoporosis

You should be referred (or may request a referral) to a Dietitian soon after your diagnosis and have ongoing reviews throughout your Parkinson's journey. Your Dietitian can help you to manage dietary issues related to your PD and provide personalised advice on the best diet to live well with PD.

Eating a Balanced Diet

Good nutrition in PD involves eating a wide variety of foods each day. It is about getting the foundations right first. Choosing a diet based on the food groups in the Food Pyramid will help towards achieving a well-balanced diet.

If you are experiencing any of the nutrition related symptoms outlined on page 1, there may be more specific dietary advice that can help you – which is outlined in different sections within this Eating Well with PD booklet.



Visit SafeFood.ie for further information on the food pyramid for over 65's

Vegetables, salad & fruit:

These provide essential vitamins and minerals. Choose from fresh, frozen, canned, or dried fruits and vegetables. Base your meals on these and enjoy a variety of colours. More is better. Aim for 5-7 servings of fruit and vegetables combined each day.

One serving is:

- 1 medium sized fruit (apple, orange, pear, small banana)
- 2 small sized fruits (kiwi, plum, mandarin)
- 1 cupful of berries
- 100 ml glass of fruit juice
- 4 dessertspoons of cooked vegetables
- 1 bowl of mixed salad

Carbohydrate foods:

These provide energy for your body and contain fibre, calcium, iron and B vitamins. Eating wholegrain carbohydrate foods can help to ease constipation and maintain a healthy body weight. These foods should make up over a third of the food you eat across the day. Aim to include carbohydrate food at each meal. Aim for 3-5 servings a day.

One serving is:

- 2 thin slices wholemeal bread, 1 ½ slices wholemeal soda bread or 1 pitta pocket
- ⅓ cup dry porridge oats or ½ cup unsweetened muesli
- 1 cup flaked type breakfast cereal
- 1 cup of cooked rice, pasta, noodles or cous-cous
- 2 medium or 4 small potatoes

Dairy foods:

These help to build and maintain strong bones. Dairy foods include milk, cheese, and yogurts. Both reduced-fat and full-fat varieties of milk and yogurt are good sources of calcium. Aim for 3 servings of dairy/calcium rich foods each day.

One serving is:

- 200ml (1 large glass) of milk/dairy alternative fortified with calcium
- 125g of yogurt/ vegetarian yogurt fortified with calcium
- 30g (2 thumbs size) serving of cheese/ dairy alternative cheese fortified with calcium

If you are a vegetarian who does not eat dairy foods or if you are vegan or if you do not wish to eat dairy foods, you can choose dairy alternative foods such as soya milk, soya cheese, nut butters, olive oil/rapeseed oils, dairy free/vegan protein powder.

Meat, fish, and alternatives:

These protein rich foods help to build and maintain strong muscles. Choose from red or white meat, white or oily fish, eggs, beans, pulses, and nuts. Lamb, beef, eggs, beans, and pulses will also provide essential dietary iron and B vitamins to help combat fatigue. Aim for 2 servings each day from this food group. Limit red-meat servings to 2 to 3 a week.

One serving is:

- 50-75 g cooked lean beef, lamb, pork, mince, or poultry (half size of palm of hand)
- 100 g cooked fish, soya, or tofu
- $\frac{3}{4}$ cup beans or lentils
- 2 eggs
- 40 g unsalted nuts or seeds

Fats, Spreads, and oils:

Fat is an essential part of a healthy balanced diet. Replace animal fats like butter, lard, and ghee with healthier plant-based fats (for example extra virgin olive oil or rapeseed oil).

Foods & drinks high in fat, sugar, and salt:

These are not needed for good health and should be limited. These include biscuits, cakes, crisps, confectionary and regular fizzy drinks.

Fluids:

To avoid constipation, it is particularly important to drink plenty of fluids. Aim for 8-10 cups or glasses of fluid a day (1.6 – 2 litres per day). Fluids may include water, fruit juice, squash, milk, tea/herbal tea, coffee, soups.

This may be adjusted by your medical team or dietitian based on other medical conditions that may require fluid restriction (e.g. heart failure, kidney disease). If you experience urinary urgency or incontinence you may want to restrict caffeine intake several hours before bed and plan your fluid intake in advance of any outings.

A word on alcohol:

Alcohol can interfere with some PD medications. Therefore, alcohol intake should be discussed with your PD Care Team. Current Irish guidelines recommend no more than 17 standard drinks per week for men and 11 standard drinks for women spread out over the week, with at least two alcohol-free days. A standard drink is equivalent to a half-pint of lager, 100 ml of wine or 35 ml of spirits.

Salt:

Salt can affect your blood pressure whether it is high or low.

If you have high blood pressure (also known as hypertension). Salt makes your body hold on to water. This is why if you eat too much salt, the extra water stored in your body raises your blood pressure. The higher your blood pressure, the greater the strain on your heart, arteries, kidneys, and brain. Therefore, reducing your salt intake can help to decrease your blood pressure.

If you have low blood pressure (also known as hypotension) or orthostatic hypotension
If you have low blood pressure, increasing your salt intake may be advisable. If you have concerns, please discuss with your Neurologist or PD Nurse.

See Orthostatic Hypotension under FAQs.

For more detailed information on the food pyramid, you can download your own food pyramid at <https://www.safefood.net/healthy-eating/guidelines/food-pyramid>



Malnutrition in Parkinson's Disease

Malnutrition is a serious condition that happens when your body does not get the right amount of nutrients. This is sometimes referred to as undernutrition.

Signs of undernutrition can include:

- Unplanned weight loss
- Being underweight
- Losing muscle mass and strength (this is also known as Sarcopenia)
- Nutrient deficiencies

The term sarcopenia refers to progressive loss of muscle mass and strength. Losing muscle can be a problem for people with PD as muscle loss can lead to issues such as falls and weaker bones.

Undernutrition can occur as a result of:

- Loss of appetite and eating less.
- Difficulties with chewing or swallowing.
- Extra movements associated with PD. These extra movements can be due to tremors or dyskinesia (involuntary, erratic, writhing movements of the face, arms, legs or trunk), both of which can burn up extra energy (calories).
- Rigidity (stiff muscles) and dystonia (sustained or repetitive muscle twisting, spasm or cramp) can also result in your body burning more energy and lead to weight loss.
- Your movement symptoms may lead to practical problems that make it more difficult to prepare food and keep it hot while you are eating.
- Apathy or lack of motivation leading to loss of interest in eating.

- Loss of the senses of smell and taste is common in PD, which can reduce the enjoyment of food and therefore reduce your appetite.
- If you are exercising a lot, you will burn energy and if this is not balanced with enough energy from food it can lead to weight loss.
- If you are skipping meals or have cut out protein intentionally when trying to avoid interactions with your medications.
- If you are following a restrictive diet e.g. ketogenic, fasting.

If you attend regular medical clinic appointments, you should be screened for malnutrition (or you can ask to be screened). You can also self-screen using the following online malnutrition screener at <https://www.bapen.org.uk/must-and-self-screening/bapen-malnutrition-self-screening-tool/>. It is important to share the results with your doctor if you are showing signs of malnutrition on the self-screener.

It is much easier to treat the symptoms of malnutrition early because they can worsen your symptoms of PD and contribute to other health problems.

A full assessment of your nutritional status by a Dietitian is recommended if you are showing signs of malnutrition. You can request a referral to a dietitian in your hospital through your PD Care Team or request a referral to a community dietitian through your local GP. You can also find a private dietitian through the “Find a Dietitian” function on www.indi.ie.

How do you slow and reverse weight loss?

If you have lost weight unintentionally or have had a significant decrease in your appetite, it means that you would benefit from increasing your food intake to provide more energy (calories) and protein in your diet.

Eating enough food each day will help you to maintain your weight and muscle strength and function thereby minimising any loss of mobility and independence.

Energy provides the fuel your body needs to function normally. This energy comes from the food that you eat every day. If you eat too few calories, you will start to lose weight.

Protein plays a key role in your muscle health, provides energy, and contains key nutrients such as iron and B vitamins.

If you have a small appetite – try to eat little and often.

- Eat small to medium nourishing meals with small snacks in between to boost your energy and protein intake.
- Try to eat something every 2-3 hours and avoid long gaps between meals.
- Avoid large portions if this puts you off eating a meal.

Refer to the medications section later in this booklet which provides advice on how to manage eating a little and often diet if you are on specific PD medications multiple times per day.

Examples of small high calorie snacks to include between mealtimes

- Nut butter (e.g. peanut/almond butter) on bread/soft roll/ toast
- Hummus with sliced tomato on toast/crackers
- Sliced avocado & tomato & olive oil on toast
- Mixed nuts & olives
- Guacamole & toast/breadsticks
- Boiled egg & toast
- Raisin toast
- Brioche bread
- Toasted muffins/mini pancakes
- A glass of full-fat milk
- Thick and creamy yogurt – full-fat
- Cheese portions
- Rice pudding or custard & stewed fruit
- Small sandwich e.g., cheese, tuna, or egg
- Ice-cream & fruit
- Individually packed desserts such as trifle or chocolate mousse
- Drinking chocolate or cocoa made with full fat milk
- Cereal bars

Avoid low-fat, “light” or “diet” products. Choose full fat products such as milk, yogurts, cheese, and mayonnaise instead of low-fat versions, especially if your appetite is reduced.



Add extra calories and protein to your foods without increasing the size of the meal. This is called “food fortification”:

- **Cream:**

Add 1-2 tablespoons of double cream or cream alternatives (e.g. cashew nut cream) to foods such as porridge, soups, custards, breakfast cereals, coffee.

- **Cheese:**

Add full-fat grated cheese to vegetables, omelettes, baked beans, pasta, soup, scrambled egg, and sauces. Have cheese with crackers or put an extra slice on sandwiches or toast.

- **Olive oil/olive-based spread/plant butter, nut butters and butter:**

Spread thickly on toast, bread, scones.

Add to potatoes.

Drizzle oils over vegetables, rice, pasta or soups.

- **Milk:**

Make porridge on full-fat milk or dairy alternative milks instead of water.

Make coffee, cocoa, or hot chocolate with milk or dairy alternative milks instead of water.

- **Sauces:**

Add milk or dairy alternative based sauces to meals.

- **Nuts & seeds:**

Add toasted nuts and seeds to breakfasts, yogurts.

- **Smoothies:**

Add dried fruit, avocados, protein powders to smoothies.

If you are a vegetarian who does not eat dairy foods or if you are vegan or if you do not wish to eat dairy foods, you can choose alternative foods such as soya milk, soya cheese, nut butters, olive oil/rapeseed oils, dairy free/vegan protein powder.



Do not skip meals - Even if you do not feel hungry, try to have a small snack or nourishing drink.

Consider ready-made meals from the supermarkets or a meal delivery service if you are having difficulty cooking or preparing foods.

Oral nutritional supplements

If you continue to lose weight or if your appetite remains poor, oral nutritional supplements (ONS) may help you to meet your nutritional requirements. These are products which provide a concentrated source of energy, protein, vitamins and minerals. They come in a range of flavours and formats including milkshakes, powders, juice style, yoghurt style and desserts. These products are not intended to replace your meals but to take in addition to meals. They are available through your local pharmacy and from your GP, consultant, or Dietitian on prescription. Your Dietitian can advise you on which ONS are best for you.

Managing Weight Gain

If you have gained too much weight

If you have been diagnosed with PD and are currently overweight or obese, losing weight may benefit your PD symptoms and ability to exercise.

Possible causes of weight gain:

- Being less active due to your symptoms
- Cravings for sweeter foods
- Some PD medications, for example, dopamine agonists may cause impulsive eating behaviours which may lead to weight gain.
- Cravings may also be the result of not adhering to medications which may lead to a craving sensation during “off” episodes which is when the effects of levodopa medication wear off and PD symptoms return
- Some people with PD may put on excessive weight after having deep brain stimulation (DBS), a surgery used to treat PD.

Ways to manage your weight:

- Fruit and vegetables are low in energy/calories and high in fibre. They are ideal to bulk out meals and to use as snacks.
- Use healthier cooking methods such as grilling, baking, steaming, microwaving, poaching, and boiling instead of frying.
- Reduce dairy foods to 3 servings a day.
- Cakes, biscuits, pastries, and confectionery are high in sugar and fat. Reduce the number of times you eat these in the week. Ideally top shelf foods from the food pyramid should be eaten occasionally and not every day.
- Empty calories from sugary drinks such as regular fizzy drinks and cordials can add up quickly. Use ‘sugar free’ or ‘low calorie’ options instead. Water is the best drink of all.
- Reduce takeaway meals.
- Reduce alcohol.
- Increase exercise.

Managing Constipation in Parkinson's Disease

Many people with PD experience constipation for several years prior to diagnosis and continue to suffer with constipation after being diagnosed. It is one of the many non-motor symptoms that can occur. Constipation is uncomfortable and can lead to reduced appetite, may cause nausea, vomiting and, if it becomes severe, can cause bowel obstruction (blockage) in a minority of people with PD.

Importantly, constipation can also mean that your PD medicines do not work as well as they should. If your bowel is full, the medicines are less well absorbed into your blood stream. Constipation, therefore, can be a reason for worsening of PD symptoms.

Constipation can be made worse by:

- Poor bowel habits e.g. ignoring the need to go to the toilet.
- Not exercising and sitting a lot.
- Not drinking enough fluids.
- A diet that is low in fibre.
- Changes to your chewing and swallowing which may make it difficult to eat a varied diet.
- Some medicines including PD medications especially in larger doses can worsen constipation – ask your PD Care team if any of your medicines might make constipation worse.
- Some other medical conditions e.g. diabetes or coeliac disease - talk to your GP or medical team.

Constipation can be helped by:

1. Increasing your intake of fibre-rich foods.

There are two types of fibre that your body needs - soluble and insoluble.

Soluble fibre is found in oats, fruit, and pulses; it soaks up water as it passes through your system which helps bulk up your stool and prevent constipation. **Insoluble** fibre is found in wholegrain foods, nuts & seeds, and skins of fruit; this adds bulk to your stool making the stool easier to pass.

How to increase your fibre intake:

- Gradually increase the fibre in your diet as increasing fibre too quickly can cause bloating and discomfort. Aim to introduce 1 new high-fibre food every 3 days.
- Choose high-fibre varieties of foods, such as wholemeal bread, pasta, brown rice, bulgur wheat, buckwheat, couscous, or quinoa.
- Choose a breakfast cereal containing wheat, wheat bran or oats, such as Weetabix, porridge, or bran flakes.
- Eat more vegetables; they can be raw or cooked, fresh, or frozen.
- Include more peas, beans or lentils in your meals and snacks.
- Eat more fruit. Fruit can be fresh, stewed, tinned or dried. (Fruits such as citrus fruits, kiwis or prunes, or prune juice can have a laxative effect on the bowel).
- Ground linseeds (also called flaxseeds) can help to alleviate constipation. You can add 1 teaspoon/day to cereals, salads, or yoghurts to start with and increase gradually this over time to 1 tablespoon/day. If you do this, make sure you drink a pint of water with the linseeds as without extra fluid they may make constipation worse.



2. Increasing your fluid intake.

This is especially important as too much fibre, without enough fluid, can worsen constipation.

How to increase your fluid intake:

- Drink at least 8-10 cups or glasses per day (this is approximately 1.6 - 2 litres per day).
- You can include water, squash or cordial, fruit juice, milk, hot chocolate, tea/herbal tea and coffee.
- Carry around a water bottle with you and take sips regularly during the day.
- Track your fluid intake during the day.
- You can also get extra fluids from high-fluid foods e.g. soup, jelly, or ice pops.

3. Increasing physical activity when possible

Exercise is important to help your bowels move and prevent constipation. (See the section on exercise for PD on page 27).

4. Use of laxatives

If you have tried all these strategies above and are still constipated, your GP or medical team may prescribe a laxative. For some people, the appropriate use of laxatives is helpful in relieving constipation, which in turn can lead to better absorption of your medications and improve your PD symptoms. It is important to remember to drink a large glass of water when you take any laxative.

As with all medications, it is important to take laxatives as they are prescribed. To get the best benefit of laxatives follow the prescribed schedule, inconsistent use is often not effective. If they do not agree with you, please discuss this with your doctor, nurse specialist or pharmacist. It can take time to find the right type of laxative that works for you.

Parkinson's Disease & Gastroparesis (Slow stomach emptying)

Slow stomach emptying is when food does not move properly or too slowly from your stomach to your intestines. This may produce a bloated sensation and cause you to feel full even if you have eaten very little. Sometimes nausea may develop. Slow stomach emptying commonly exists in people with PD.

In addition to the uncomfortable symptoms, for people with PD, slow stomach emptying can also interfere with the absorption of medications, especially levodopa, which may lead to more “off” times, fewer “on” times, and can affect your daily life.

It is essential that you know the signs of slow stomach emptying, so that you can seek help

- **Abdominal pain /bloating**
- **Nausea**
- **Vomiting**
- **Early satiety** (feeling full after only a small amount of food)
- **Reflux** (a burning feeling in the oesophagus)
- **Weight loss**
- **Poor appetite**

It is important to talk to your PD care team/GP if you are experiencing any of these symptoms.

The following choices may help with the symptoms of slow stomach emptying. You should be referred to a dietitian for an individualised diet plan to help you manage your symptoms and avoid unintentional weight loss.

Please note if you have slow stomach emptying, the advice is to reduce high fibre foods as these foods tend to slow stomach emptying. This is an exception to the high fibre diet that is usually recommended.

- Eat smaller meals (5 or 6 smaller meals throughout the day).
- Chew food completely.
- Choose cooked vegetables and fruits over raw, uncooked fruits and vegetables.
- Avoid high-fibre vegetables and fruits, like broccoli, celery, beans, lentils, oranges and pineapple.
- Avoid fatty foods (these can slow digestion).
- Puree your food or eat soups if liquids are easiest to swallow.
- Drink plenty of fluids each day (8 to 10 glasses).
- Take a walk after you eat.
- Avoid alcohol, smoking, and carbonated beverages.
- Try not to lie down within 2 hours of eating.



Managing Bone Health in Parkinson's Disease

Research has shown that both men and women with PD are more likely to get osteopenia (pre-osteoporosis) and osteoporosis (brittle bone disease). Osteoporosis is a condition that weakens the bones, causing them to become more fragile and putting you at risk of breaking a bone if you fall. As someone with PD, you are at a higher risk of falling and need to keep your bones as strong as possible.

How to strengthen your bones

- Avoid unplanned weight loss – losing too much weight increases loss of bone mass.
- Avoid excessive alcohol and smoking as these can contribute to bone thinning.
- Exercise daily – weight-bearing exercise (e.g. walking, running) and resistance exercise (e.g., body weight exercise or weight training) can help keep your bones strong because of the loading effect on your bones.
- Have an adequate intake of calcium and vitamin D to keep bones strong and healthy.

Calcium is found mainly in dairy foods such as milk, cheese and yogurt, some tinned fish and fortified cereals and juices. It is important to have between 800mg – 1000mg of calcium every day (1200mg for post-menopausal women)

Each of the following food servings will give you 200 mg calcium:

Dairy

200 ml milk/calcium fortified non-dairy drinks

150 ml milk fortified with calcium e.g. Supermilk

1 carton (125 ml) yogurt

200 ml yogurt drink

30 g (1 oz) cheese (2 thumbs size)



Non-Dairy sources of calcium

40 g (1 ½ oz) tinned sardines (softened bones contain the calcium)

250 g (9 oz) tinned salmon

4 tbsp canned red kidney beans

160 ml calcium enriched orange juice

If you do not eat dairy foods, it is essential you get your calcium from non-dairy sources such as non-dairy drinks/yogurts fortified with calcium. If you are not meeting your calcium requirements from your diet you may require a calcium supplement.

Vitamin D is needed to help absorb the calcium that is eaten in food. There are three ways that we can get vitamin D - from sunlight, food, and supplements. Foods that are high in vitamin D include salmon, margarine, eggs, liver, fortified milks, and cereals.

Vitamin D is made by exposing our skin to the UV rays of the sun. Unfortunately, due to Ireland's northern latitude we do not make enough Vitamin D all year round.

For adults under 65 years of age, living independently and getting sunlight exposure during summer, a daily vitamin D supplement containing 15 µg (600 IU) should be taken during the extended winter months (end of October to March).

The following groups should take a daily vitamin D supplement of 15 µg (600IU) all year round:

- People over 65 years
- People who use a high factor sun cream in the summer months
- People of darker-skinned ethnicity
- People who are indoors a lot with minimal or no sunlight exposure

You can buy Vitamin D over the counter, or it can be prescribed by your Doctor. To avoid excessive doses of Vitamin D it is important to check that you are not taking a medication or multivitamin that already contains vitamin D. You may be prescribed a combined calcium and vitamin D supplement if needed.

Vitamin D levels should also be tested on diagnosis as low Vitamin D is associated with osteopenia/osteoporosis.

Everyone who is newly diagnosed with PD should be referred for a DEXA scan to assess bone density to identify if they have osteopenia or osteoporosis as this will require treatment.



Managing Eating and Swallowing difficulties in Parkinson's Disease

Some people with PD experience difficulties with eating, drinking, and swallowing. The medical term for a swallowing difficulty is “**dysphagia**”. Many people do not realise they have speech or swallowing difficulties when they first present as the symptoms can be quite mild. However, early intervention can help to reduce the progression of swallowing difficulties so everyone who is newly diagnosed with PD should be referred to a Speech and Language Therapist (SLT) for assessment and management of their swallow if appropriate.

Signs of a swallowing difficulty can include:

- Drooling where saliva is not being swallowed.
- Coughing/choking when eating or drinking.
- Difficulty chewing or swallowing certain foods or tablets.
- Difficulty clearing your mouth of food.
- Repeated chest infections.

If at any stage you experience swallowing difficulties, it is important to let your GP or PD care team know. Your SLT may advise you to change the texture or consistency of your food and fluids so that they are easier to swallow. As dysphagia diets can be lower in energy, a full assessment by a Dietitian is recommended at this point to work with you on an eating plan to ensure you are getting all the nutrients and fluids you need.

Tube feeding:

If swallowing becomes exceedingly difficult and you are not able to eat and drink enough, your medical team or Dietitian may suggest that you consider having a feeding tube inserted. A feeding tube is a short tube that is inserted through the abdomen into the stomach. Drinks, foods, and medications can be passed through the tube directly into the stomach. This can usually be managed at home. Having a feeding tube is not a decision that you will have to make alone. Your medical team and Dietitian will discuss this fully with you so that you can make the best decision having received all the relevant information.

Physical difficulties with eating and drinking

PD symptoms such as tremor and stiffness may make it difficult to eat and drink. Dystonia, dyskinesia, bradykinesia and rigidity symptoms may also contribute to difficulties with preparing and eating foods. If holding or using cutlery is making it challenging for you to eat, there are many types of adapted utensils available. An Occupational Therapist (OT) can give you guidance on equipment that can be helpful. Ask your Dietitian, or PD care team for a referral to an OT.

Examples of adapted cutlery available:

- Special handles for cutlery that are large, easy to grip or curved. These can be useful if you have a reduced grip or hand weakness.
- Weighted handled cutlery can be helpful if a tremor makes it difficult to eat.
- Cutlery with a combined knife and fork, or an all-in-one spoon can be useful.
- If you have a tremor, you may find that a special mug can help to prevent spills when drinking, for example, a mug with two handles, a sip cup with a lid or a sports cup to stop spilling.
- There are also several special plates available such as a 'stay warm' plate which can be useful if it takes you a long time to eat.
- A non-slip mat or a wet tea-towel placed under your plate or bowl can stop these from moving.



Medication, Supplements and Parkinson's Disease

When and how should I take my PD medication?

You should discuss this with your PD Care team or Pharmacist. The primary medicine used to treat PD contains levodopa e.g., Sinemet®, Madopar®, Stalevo®. You should aim to drink 1 cup of water (200 ml) with each tablet. This helps with swallowing the tablets and helping them to move down to your intestine so they can be absorbed. It is important to note that you should ideally not take your PD medication with milk (see section on protein-rich foods).

Can protein-rich foods affect my medication?

In some people, protein (found mainly in meat, fish, chicken, eggs, cheese, yoghurt, milk, nuts, beans, and pulses) may interfere with how well their levodopa medication works. This is because levodopa competes for absorption in the gut and the blood-brain barrier with protein-containing foods.

Some people therefore benefit from taking their levodopa 30 minutes before or 1 -2 hours after protein-rich meals as this helps to ensure maximum absorption of their levodopa. Not everyone will experience worsening of their symptoms due to the interaction of protein foods and their levodopa medication. The best way to identify if they do, is to track your PD symptoms in relation to the timing of your levodopa medication and your meals/snacks and notice if your PD symptoms are better when you take your levodopa medication separate to your meals.

If any of the following apply to you:

- A lot of fluctuations and “off” episodes
- Taking Levodopa medication 5-6 or more times a day
- Eating protein foods with your medications leads to more ‘off’ episodes (e.g. when your PD symptoms are worse)

You should see a dietitian to discuss how best to optimise your protein foods with your levodopa medications to get better control of your symptoms.



For some people it becomes very difficult to time medication around meals and snacks so it may be easier to trial a protein redistribution diet. This is when you eat most of your protein at a time of the day when you do not need to be as active. It is very important that you do not cut protein from your diet. Speak with a dietitian to see if a protein redistribution diet is suitable for you. If it is suitable they can help you plan your meals and snacks to optimise your PD symptom control whilst avoiding weight or muscle loss.

In addition large meals that are high in fat and protein can slow the emptying of your stomach which may mean your levodopa tablet stays in your stomach too long and delays transfer to your intestine where it is absorbed. If you are eating large meals and you notice your symptoms worsening it may also help to take your levodopa medication 30 minutes before and at least 1 - 2 hours after your meal.

Parkinson's Medication and nausea

If your PD medication causes nausea, especially when you first start taking the medicine, this may be helped by taking your tablets with a carbohydrate-rich snack e.g. crackers or a slice of toast.

Can I take antacids?

Antacids (e.g. Rennie's or Milk of Magnesia, which are used to relieve digestive discomfort) should not be taken at the same time as other drugs, since they may impair absorption of your PD medications. Antacids can also affect Vitamin B12 absorption and lead to deficiency which can negatively affect your PD symptoms. You need to discuss potential interactions between your different medications with your PD Care Team or Pharmacist.

Can I take iron supplements?

Iron supplements can be taken but this should be under the guidance of your doctor or GP, and Dietitian. It is important not to take levodopa with iron tablets as the iron binds to levodopa and prevents its absorption. Make sure that you have a gap of at least two hours between these two medications.

Should I take other supplements?

Eating a well-balanced, varied diet will provide adequate intakes of vitamins and minerals for most people. The main vitamins that are often found to be low in people with PD are Vitamin D and certain B vitamins such as Vitamin B12. If you are deficient in these Vitamins they will need to be supplemented. (See section on Vitamin D - **page 20** and Vitamin B - **page 30**).

Currently, there is insufficient scientific evidence to recommend taking high doses of antioxidant supplements for PD such as Co-enzyme Q10.

Taking excessive amounts of any vitamin, mineral, antioxidant or supplement can adversely affect your health and wellbeing and may interfere with your PD medication. Before purchasing any 'over the counter' vitamin and mineral supplements from pharmacies or health food shops, check with your PD Care team.

Your Dietitian can advise you on any specific dietary or nutritional supplements that you need based on your individual nutritional needs.

Exercise and Parkinson's Disease

People with PD who exercise have a better quality of life than those who do not. Research is showing that exercise has the potential to slow the progression of PD so it is important to find a way to include exercise in your daily routine.

Some of the benefits of exercise include improvements in the following areas:

- Bone health
- Constipation
- Gait and balance
- Flexibility and posture
- Endurance
- Working memory and decision making
- Attention and concentration
- Quality of sleep
- Falls Prevention
- Depression and anxiety
- Muscle mass and strength (preventing sarcopenia)

To avoid unintentional weight loss and maintain muscle strength it is important to ensure that you are eating enough calories and protein to match the exercise you do.

Everyone who is newly diagnosed should be referred to a Physiotherapist with experience in working with neurological conditions to assess your needs. There are also exercise groups specifically for those with PD such as PD Warrior, LSVT Big, and Rock Steady Boxing. Parkinson's Ireland can inform you of where you can access these classes online and in person.

Your GP or local physiotherapist may also be able to refer to you PD exercise classes in your local area. Follow this link to find exercise recommendations for PD. <https://www.parkinson.org/library/fact-sheets/exercise-recommendations>

Nutrition and Parkinson's Disease

Frequently Asked Questions

What do I eat if I suffer from low blood pressure?

Orthostatic hypotension is sustained low blood pressure (BP) and dizziness on standing and can be common in PD. There are several ways to reduce this:

- Avoid eating large meals and those that are high in refined, low fibre carbohydrate-rich meals (e.g., plain white rice, pasta, mashed potato, sugary desserts) as they divert blood to the digestive system and away from the brain which can exacerbate the symptoms of low BP. Eat smaller meals more regularly.
- Increase the amount of salt in your diet as this draws more fluid into your blood circulation and your brain. This may seem strange as healthy eating guidelines would advise the general population to reduce salt intake, however this is because of the risk of high blood pressure. In people with PD, who have low blood pressure, they need salt to raise their BP.
- Reduce alcohol consumption as alcohol can cause dehydration and result in lower BP.
- Drink at least 8-10 cups (1.6 - 2 litres) of fluids each day. Depending on your weight, weather and exercise, more fluids can be needed. Before standing from sitting, drink a full, cold glass of water as this can raise blood pressure for a short period. Coffee can also temporarily increase blood pressure.
- When rising from bed in the morning, get up slowly. A physiotherapist can also recommend some exercises for low BP.

Be sure to let your medical team know if you are experiencing dizzy spells or fainting as your medication may be a cause. It is important that ongoing dizzy spells are investigated as these will increase your risk of falling.

Should I try special diets to help my Parkinson's?

The Mediterranean diet and a form of the Mediterranean diet called the MIND diet (Mediterranean-DASH Intervention for Neurodegenerative Delay diet) are associated with a reduced risk of developing PD and some research is indicating a potential to slow progression in those living with PD.

These diets emphasise the importance of eating plant-based foods, in particular, fruits and vegetables, legumes, wholegrains, and nuts as well as moderate portions of fish, poultry and dairy. They are lower in saturated fats, red meats and ultra processed food.

The ketogenic diet is another diet that has been researched in PD. The ketogenic diet consists of low-sugar, low-carbohydrate, and high-fat foods. Whilst some small research studies have shown some benefit in reducing PD non-motor symptoms, there is no evidence that it slows progression of the condition. The diet is very restrictive and may cause weight loss which, for some with PD who have already a low weight, may worsen symptoms. Anyone with PD considering a ketogenic diet should discuss this with their Dietitian and PD care team.

Should I go gluten-free for my PD?

There is no evidence that a gluten-free diet will slow the progression of PD. Many people with PD suffer from bowel symptoms such as constipation, wind, bloating, diarrhoea, and reflux. For some people, these symptoms can be due to conditions such as Irritable Bowel Syndrome (IBS) or Small Intestinal Bacterial Overgrowth (SIBO).

If you suffer from bowel symptoms, discuss these with your Dietitian who will work with you to ensure you are eating the right foods to manage your symptoms. Going gluten-free is difficult and if not done properly may lead to a diet that is deficient in fibre, vitamins and minerals important for good health when living with PD.

If a person with PD also has coeliac disease, they must follow a gluten-free diet as diet is the only treatment for coeliac disease. A dietitian can help optimise your diet with gastrointestinal conditions such as IBS, SIBO or coeliac disease.

Am I at risk of Vitamin B12, vitamin B6 and folate deficiency?

Some people who take levodopa may have lower levels of vitamin B12, vitamin B6 and folate. People with PD should undergo regular monitoring of nutritional and vitamin status during the course of the disease. If you're worried about any symptoms you're experiencing, you should speak to your GP or PD Care Team.

Vitamin B12

Symptoms of Vitamin B12 deficiency can include:

Weakness, tiredness or light-headedness, rapid heartbeat and breathing, pale skin, sore tongue, easy bruising or bleeding, including bleeding gums, upset stomach, weight loss, diarrhoea or constipation.

Food sources of vitamin B12 include:

Vitamin B12 is naturally found in animal products, including meat, fish, poultry, eggs, milk and milk products. Vitamin B12 is typically not present in plant foods; however fortified breakfast cereals are a readily available source of vitamin B12.

Vegans are advised to include alternative sources including yeast extract, soya milks and yoghurts, textured vegetable protein, fortified breakfast cereals and certain brands of rice and oat milk. It is advised to always check the food label to identify if it is fortified with vitamin B12.

Vitamin B6

Symptoms of vitamin B6 deficiency can include:

Low iron in the blood, dry or cracked lips, red inflamed tongue, burning skin, headache, mild depression/anxiety/irritability or bloating.

Food Sources of vitamin B6 include:

Meat, e.g. Pork, fish, poultry, eggs, peanuts, bananas, wheat germ, & some fortified breakfast cereals.

Folate

Symptoms of folate deficiency include:

Low iron in the blood, lack of energy/muscle weakness/muscular cramps, red/ tender mouth or tongue, mouth sores or mouth ulcers, cracking at the corners of the mouth, paleness, shortness of breath/dizziness, tiredness/weakness/irritability, memory loss/forgetfulness/difficulty concentrating or depression.

Food source of folate include:

Green vegetables e.g. cabbage, kale, broccoli, spinach, brussels sprouts, oranges and orange juice, liver, (avoid if pregnant), peas, beans and legumes (e.g. chick peas, kidney beans & lentils), nuts & seeds, eggs and dairy, pork and poultry, wheat germ, yeast and beef extract, fortified breakfast cereals - check the label. (Alcohol excess impairs folate metabolism).

Should I give up dairy foods?

Some research has shown an association between dairy foods, in particular milk and low-fat dairy foods, and an increased risk of developing PD. Some of the theories behind these associations include a high level of pesticides (mainly seen in North America). These associations do not mean that dairy foods cause PD. There is no research that shows dairy foods cause progression of PD.

Dairy foods are a rich source of calcium and other nutrients important for bone health and are especially important for people with PD who tend to have a higher rate of osteopenia or osteoporosis. Dairy foods also provide good quality protein which helps to keep muscles healthy, help blood pressure control and cognitive health. Based upon the current evidence, dairy foods should not be omitted from the diet. 3 servings of dairy foods each day is the best approach. However, if you choose to avoid dairy foods ensure that you get your calcium from other sources (see section on Bone health **page 19**)

For people with PD who have lost a lot of weight, dairy or dairy alternative foods can contribute to weight and muscle regain. Your Dietitian can work with you to ensure you have a good balance of nutrients for bone and muscle health whether you choose to eat dairy foods or not.



Is coffee okay to drink if I have PD?

Coffee and tea can be included daily to meet fluid needs to reduce the risk of dehydration and constipation. It is worth noting that too much caffeine can worsen tremors and increase the risk of dehydration. Moderation is key and 300 mg of caffeine a day is the acceptable maximum amount. This is equivalent to 3 (200 ml) cups of instant coffee, 1 cup of coffee made from ground coffee beans or 6 cups of tea a day. Recent research has indicated that more than 3 cups of coffee a day may not be beneficial for PD symptoms and there is currently no research that shows drinking coffee slows progression of PD.

Should I take probiotics?

There is a lot of emerging evidence for a link between the gut and the brain in PD. Much of this is related to the gut microbiome which is the environment in the gut that can influence health. There are many probiotics available that claim health benefits, however, some may not be beneficial for people with PD. The current advice is that more definitive research evidence is needed before specific recommendations can be made to take probiotics on an ongoing basis.

Eating a diet rich in plant-based foods is associated with healthier gut bacteria in people with PD. However there is some emerging evidence that certain probiotics may be beneficial for constipation, however you should seek advice from a Dietitian on the most appropriate probiotic.

For more information

If you require further information about nutrition and PD, or a referral to a Dietitian, please request a referral through your Consultant, PD Nurse Specialist, medical team, or other health professional in the hospital or through your GP or public health centre in the community. You can find a list of practising private dietitians on the INDI website, which you may access using the following link: <https://www.indi.ie/find-a-dietitian.html>

Most dietitians on this list offer both in person and online appointments.

Alternatively, there is another list supported by the Self Employed Dietitians of Ireland which you may access using the following link: <https://www.sedi.ie/>

For further information on PD, you can visit:

- <https://www.parkinsons.ie/>
- <https://www.parkinsons.org.uk/>
- <https://www.parkinson.org/>
- <https://parkinsonseurope.org/>

For further information on how to access a Dietitian you can visit <https://www.indi.ie/> or Speech Therapist <https://www.iaslt.ie/>

We strongly advise you to join “Parkinson’s Ireland” which includes a support group for people diagnosed with young onset (<40 years old) or Early Onset (<60 years old) PD. They provide peer support, nurse phone line, a dietitian call back service, education events and exercise classes.

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