# KIDNEY DISEASE DIET PLAN

## WHAT IS A KIDNEY DISEASE DIET?

**The Kidney Disease Diet is designed to provide practitioners with a guide that supports a patient's transition to a plant-dominant, fibre-rich, low-protein diet. An easy-to-follow reference, it aims to promote eating habits and foods that reduce the toxic load on the kidney and improve the gut microbiome while providing non-restrictive, nourishing food choices.**

### Stages 1-4

Chronic Kidney Disease (CKD) is characterised by a progressive loss of kidney function. The body can then not eliminate soluble waste optimally. Uraemic toxins, with a high acidic load, then accumulate. A plant-dominant, fibre-rich, low-protein diet may lead to favourable alterations in the gut microbiome. This way of eating can modulate uraemic toxin generation, slow CKD progression and reduce cardiovascular risk.

### Compliance is key long term

Outcomes from dietary trials in renal patients indicate that any healthy change to diet (for example; low-fat - fasting, Mediterranean, low-carbohydrate - non-fasting) can provide significant benefits for renal function. The full effects of these dietary changes are only meaningful if they can be adopted long term.[1]

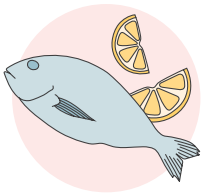
**The purpose of the Kidney Disease Diet is to:**

1. Decrease the accumulation of uraemic toxins by reducing the load on the kidneys with modulation of protein, fibre and micronutrient intake.
2. Slow CKD progression, if possible, to avoid or delay dialysis and transplant whilst reducing hospitalisations and improving quality of life.
3. Provide long term food choices for prevention and treatment of conditions and deficiencies that can stem from a restrictive diet, including constipation, dysbiosis, cardiovascular disease, mitochondrial disease, anaemia and oxidative stress.
4. Monitor the 3P's: protein, potassium, phosphate.

### What to expect from these dietary changes

CKD patients can be prone to dysbiosis and constipation. When increasing their fibre and micronutrient intake patients may notice some bowel discomfort as the gut microbiome rebalances and bowel motions become more frequent. This discomfort will resolve quite quickly. Check in with your patient regularly during the first few weeks.

# WHERE TO BEGIN



**PROTEIN** - 0.6 – 0.8g/kg/day.
For a 70kg adult = 54 grams of protein per day.

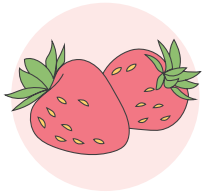
Compared with high protein diets, restricted protein intake (<0.8 g/kg/day) is associated with higher serum bicarbonate levels, lower phosphorus levels, lower azotemia or uraemia, lower rates of progression to end-stage renal disease, and a trend towards increased longevity.

**PLANT DOMINANT** - >50% of the plate to be plants.

This includes complex carbohydrates, micronutrients and important soluble and insoluble fibre. Fibre intake and fermentation are of crucial importance in the kidney-intestine axis, both for kidney health and other associated conditions, such as cancer, diabetes and obesity.

**CALORIES** - Adequate energy 30-35 calories/kg/day.

Patients with low glomerular filtration rate and those on dialysis are at risk of macro and micronutrient deficiencies. This can occur for several reasons including decreased appetite and reduced sense of smell and taste which often leads to a disinterest in food. The flow on effect is sluggish energy and cognitive ability which then makes meal planning, shopping and cooking difficult.



**PHOSPHATES**

May promote the onset and progression of chronic nephropathies. Non-beneficial phosphates are found in soft drinks (particularly cola), commercial flour, processed meats, ready to eat meals and pre-marinated meats. Phosphates are also present in some fruits and vegetables which are not problematic and can, in fact, be used to balance phosphate levels if they become too low in patients taking phosphate blocking medications.

**SODIUM**

If the patient experiences oedema or hypertension, sodium intake needs to be less than 4g per day. Patients will need to be mindful of not adding salt to cooking and checking labels.

**POTASSIUM**

Compromised kidneys can no longer effectively remove excess potassium, potentially causing potassium build up or hyperkalaemia. CKD patients need to monitor and minimise potassium rich foods that include many fruits and vegetables.

**EDUCATION**

Many patients will need extra support from their practitioner to teach them how to correctly read labels, look for additives, how to cook from scratch and avoid processed and pre-packaged foods.

# FOODS TO ENJOY AND AVOID

| FOOD GROUP | ENJOY | AVOID |
|---|---|---|
| **Vegetables** | Asparagus, arugula, broccoli, cabbage (fresh), capsicum, carrot, cauliflower, celery, corn, eggplant, green beans, lettuce, okra, onions, peas, radish, sugar snap peas, spaghetti squash, turnips, yellow beans. | Artichokes, avocado, beetroot, butternut pumpkin, brussels sprouts, bitter greens, kohlrabi, parsnips, potatoes, pumpkin, spinach, sweet potato, tomato, zucchini, fermented vegetables (sauerkraut, pickles etc). |
| **Fruits** | Apples, berries, cherries, cranberries, grapes, lemons, limes, mandarin, peaches, pears, pineapple, plums, rhubarb, tangerines, watermelon. | Apricot, bananas, cantaloupe, dates, dried fruits, figs, kiwi, mango, melons, nectarine, oranges, papaya, pomegranate, prunes, raisons. |
| **Fish** ***(limit these)*** | Cod, mackerel, rainbow trout, salmon, tuna. | Flake, sardines, anchovies, oysters. |
| **Other protein sources** ***(limit these)*** | Beef, chicken, eggs, pork, turkey. | Organ meats, processed meats – ham, salami, prosciutto, bacon, frozen meals, pre-made or marinated meats. |
| **Legumes** ***(limit these)*** | Chickpeas, lentils, tofu. | Black beans, kidney beans, lima beans. |
| **Fats and oils** | Coconut oil, grass fed unsalted butter, ghee, olive oil. | Canola oil, soybean oil, sunflower oil, safflower oil, vegetable oil. |
| **Grains** | White rice, buckwheat, wild rice, oats, unsalted popcorn, psyllium husks. | Amaranth, brown rice, millet, quinoa, sorghum, spelt, teff, triticale, commercially made baked goods. |
| **Nuts & seeds** ***(limit these)*** | Flaxseeds, macadamias, pecans, sunflower seeds, walnuts. | Almonds, cashews, hazelnuts, peanuts, pine nuts, pistachios. |
| **Dairy & dairy alternatives** ***(limit these)*** | Unsweetened almond or coconut milk, cheese – tasty, colby, swiss, mozzarella, cow's milk, cottage cheese. | Dairy alternatives with calcium phosphate or calcium carbonate added. |
| **Condiments** | Balsamic vinegar | Mustard, relish, soy sauce, tomato sauce, yeast spread, fish sauce. |
| **Herbs & spices** | Basil, garlic powder, dill, chili powder, cumin, oregano, onion powder, paprika, turmeric. | Celery salt, chicken salt, MSG, stock cubes, vegetable salt. |
| **Beverages** | Cranberry juice, Nettle tea, burdock root tea. | Alcohol, tomato juice, soft drinks. |
| **Sweeteners** ***(limit these)*** | Honey, maple syrup, stevia. | Artificial sweeteners, refined white sugar, xylitol, sorbitol, maltitol. |

# DAY ON A PLATE

**70kg person = 54g protein daily | *All recipes serve 1***

## Breakfast:

2 eggs – hard boiled and cut in half (contains 12g protein)
½ cup broccoli – chopped into florets
½ cup cauliflower - chopped into florets
½ small red onion – diced finely
½ cup cooked and cooled white rice
Fresh parsley - diced

Add 1 tablespoon of ghee or butter to frypan on medium heat – add the onion and fry until translucent. Increase heat to high and add broccoli, cauliflower and white rice. Stir fry until broccoli and cauliflower are tender, but still firm. Put onto plate, add the eggs, sprinkle with parsley and drizzle with a little olive oil.

## Lunch:

2 large handfuls of mixed lettuce
½ cup grated carrot
½ cup red cabbage finely diced or shredded
¼ cup of dried cranberries
½ of a 95g salmon in spring water drained (contains 12g protein)
1 tablespoon cottage cheese (1g protein)
Juice of half a lemon
Olive oil

Add all vegetables and salmon to large salad bowl and toss until well combined. Add lemon juice and a good drizzle of olive oil. Cottage cheese can be tossed through or added on the side depending on taste.

## Dinner:

90g beef steak (contains 24g protein)
1 spaghetti squash – cut in half
Handful green beans – ends cut off
½ capsicum - sliced

Preheat oven to 180 degrees, drizzle spaghetti squash and capsicum with olive oil and roast until centre parts fall apart. Heat a fry pan on medium heat and add 1 tablespoon ghee or butter, add steak and sprinkle with pepper, garlic powder and paprika. Turn meat when it reaches desired consistency. Add green beans to the frying pan just before steak is ready.

Scoop the centre out of spaghetti squash, it will look like cooked spaghetti and arrange over the plate. Remove steak from heat and slice finely, fan out on the bed of spaghetti squash, add capsicum and green beans on the side.

## Snacks:

***Option 1:***
2 tbs homemade hummus (contains 2g protein)
Carrot and celery sticks.

***Option 2:***
1 apple cut into slices
1 tbs macadamia butter (contains 2g protein)
Apple can be dipped into macadamia butter or spread over each slice.

**Total daily protein – 53 grams**

### Stage 5 Kidney Disease - Dialysis

Patients receiving haemodialysis for chronic kidney disease may be undernourished for energy, protein consumption, or both.

For patients on peritoneal dialysis and haemodialysis, dietary protein intake should be increased to 1.0–1.2 g/kg/day. Each session of haemodyalysis removes 10-20g of amino acids and 200-480 kilocalories of energy.

Constipation rates can reach 63% in haemodialysis patients due to dietary restrictions, medications and a sedentary lifestyle. This requires a tailored, individualised approach for each patient with a special focus on fibre.