

The Gas Effect! (continued)

- There are also a number of easy ways to significantly reduce the digestive discomfort that can occur from eating pulses:
 - Change the soaking water once or twice during the long cold soak.
 - Do not use the soaking liquid to cook the pulses and thoroughly rinse.
 - Cook pulses thoroughly as undercooked starch is harder to digest.

HEALTH ISSUES (ANTI-NUTRIENTS)

Phytates

- Phytic acid, or phytate, is found in all pulses that can impair the absorption of iron, zinc and calcium from a meal, and may increase the risk of mineral deficiencies over time.
 - However, this is only relevant when meat intake is low and high-phytate foods regularly make up a large part of meals i.e. a diet based on pulses.

Lectins

- Lectins are a family of proteins found in pulses, making up to 10% of their total protein content.
- They resist digestion and some of them may affect the cell lining the intestinal tract, by adhering to the gut wall, causing intestinal damage, and reducing absorption of certain nutrients and protein.
- However, in most pulses, the amount of lectins is not high enough to cause symptoms in humans unless eaten in large quantities.
- As a general rule, beans should never be eaten unless they are fully cooked and prepared, as soaking overnight and boiling at 212°F (100°C) for at least 10 minutes, degrades most lectins.
- Take up old traditions like soaking, sprouting and using bacterial fermentation techniques, as they are especially effective in virtually eliminating most lectins.

Saponins

- Saponins are a diverse group of nutrients found in a variety of plants that are resistant to digestion but may affect the cells lining the gut.
- Some believe that they may increase intestinal permeability, also called leaky gut, leading to a range of health problems, although this remains purely speculative - there is no good evidence that saponins in legumes cause harm in humans.
- Various strategies can be used to neutralize these anti-nutrients, traditional methods like soaking, sprouting, and boiling, have been used to good effect.

The Bottom Line:

Pulses should be included in the diet simply for the fibre they contain. Fibre is an often under-consumed food that has too many health benefits to be ignored. Their EAAs mean that vegans or vegetarians also have a good source of quality protein. Pulses can be pureed, or added to salads, or veggie stews and can be added to meat-based meals to make them much healthier. There are some anti-nutrient issues, but sensible consumption of properly prepared pulses have great health benefits, when consumed as part of a balanced, real food based diet.

FOOD *in* FOCUS

PULSES

WELCOME

Each month our nutritionist
Gary Baverstock
provides some basic science
and unbiased information, to
help demystify certain
popular foods in our diet.

Pulses

- A legume is a plant in the family Fabaceae (or Leguminosae), or the fruit or seed of such a plant.
- Legumes are grown agriculturally, primarily for their grain seed called a pulse.
- Well-known legumes include peas, beans, lentils, soybeans and tamarind.
- The term “pulse”, as used by the United Nations Food and Agricultural Organisation (FAO), is reserved for crops harvested solely for the dry seed such as chickpeas, haricot beans and lentils etc.
- It excludes green beans and green peas, which are considered vegetable crops.
- Also excluded are crops that are mainly grown for oil extraction (oilseeds like peanuts), and crops, which are used exclusively for sowing (clovers, alfalfa).

Nutritional values of selected Pulses

Pulses	Calories	Net Carbs	Fibre	Total Fat	Protein	Glycaemic Index	Glycaemic Load
Chickpeas	164 cal	19g	8g	3g	9g	36	10
Lentils	116 cal	12g	8g	0g	9g	13	7
Kindney Beans	124 cal	13g	9g	0g	9g	32	7
Soy Beans	122 cal	5g	5g	5g	11g	18	4
Butter Beans	123 cal	19g	5g	0g	7g	28	10

Based on 100g Values of Cooked Pulses without Salt - Source: nutritiondata.com (Net Carbs + Fibre = Total Carbs)

Nutrition

- Pulses have a high nutritional value - they are rich in proteins, carbohydrates, fibre, minerals phosphate, calcium, zinc, magnesium, iron and the B-complex vitamins, including B1, B3 & B9 and vitamin K.
- Most pulses have similar structures which means they have similar nutritional compositions, and they are relatively low in calories.
- However, they only contribute to **one** of your 5-A-Day however much you eat, as they contain more fibre and less nutrition than fruits or vegetables.

Fibre

- Pulses are very high in fibre, containing both soluble and insoluble fibres.
- While soluble fibre helps to decrease blood cholesterol levels and control blood sugar levels, insoluble fibre helps with digestion and regularity.
- The recommend daily intake of fibre is 38 g/day of total fibre for men and 25g/day of total fibre for women and eating just 100g of pulses per day provides up to 10g.

Complex Carbohydrates

- Besides fibre, pulses contain other complex carbohydrates like resistant and slowly digestible starch as well as oligosaccharides (a complex carbohydrate made of three to six simple sugar units).
- Resistant starch and oligosaccharides behave like fibre in the body because they are not digested or absorbed.
- In contrast, slowly digestible starch does get digested completely in the small intestine, although this happens at a slow rate, which keeps the body's blood sugar levels closer to normal.

Protein

- Pulses typically contain about twice the amount of protein found in whole grain cereals like wheat, oats, barley and rice.
- Pulses have higher amounts of the essential amino acid (EAA) lysine whereas cereals have higher amounts of the EAAs methionine and cysteine.
- Blending pulses with cereals or nuts results in a better quality protein that contains all EAAs in appropriate amounts.
- The vegetable proteins in pulses can replace, to a great extent animal proteins, which is important for vegetarians or vegans who use pulses as a substitute for meat.

HEALTH BENEFITS Bone Health

- Pulses contain iron, phosphate, calcium, magnesium, manganese, zinc and vitamin K that all contribute to building and maintaining bone structure and strength.

Weight Loss

- Pulse-based diets contain more arginine, an amino acid that's been shown to increase both carbohydrate and fat burning.
- Broad beans and lentils are a rich source of arginine as well as glutamine, another amino acid that has been tied to aiding weight loss.

Stabilising Blood Sugar and Preventing Fatigue

- With a low GI, beans provide a slow, steady source of glucose instead of the sudden surge (and crash) of blood sugar that can occur after eating simple carbohydrates.
- This coupled with the essential B Vitamins they contain contribute to energy production.

Gut-Friendly

- Filled with fibre, pulses can promote regularity by preventing constipation.
- Pulses are rich in prebiotic fibres, which act as food for the healthy bacteria in your digestive system, and are lower in natural sugars than other types of legumes making them easy to digest.

Anti-Ageing

- As well as high antioxidant levels, beans and pulses are a rich source of the B vitamin folate, which is useful for helping your body repair damaged cells.
- Pinto beans, black beans and aduki beans have the best antioxidant protection.

The Gas Effect!

- Some carbohydrates in pulses produce gas and bloating for some people, similar to the effects produced by certain other foods (e.g. cabbage, broccoli, and fruits).
 - The carbohydrates are called Fermentable Oligo-Saccharides Di-Saccharides Mono-Saccharides and Polyols - otherwise known as FODMAPs.
- Eating pulses can allow your gut to adapt to a higher fibre and carbohydrate dietary content, decreasing these effects over time.
- For those who find that pulses lead to gas and bloating, eat small amounts of pulses, drink lots of water and gradually increase your intake.