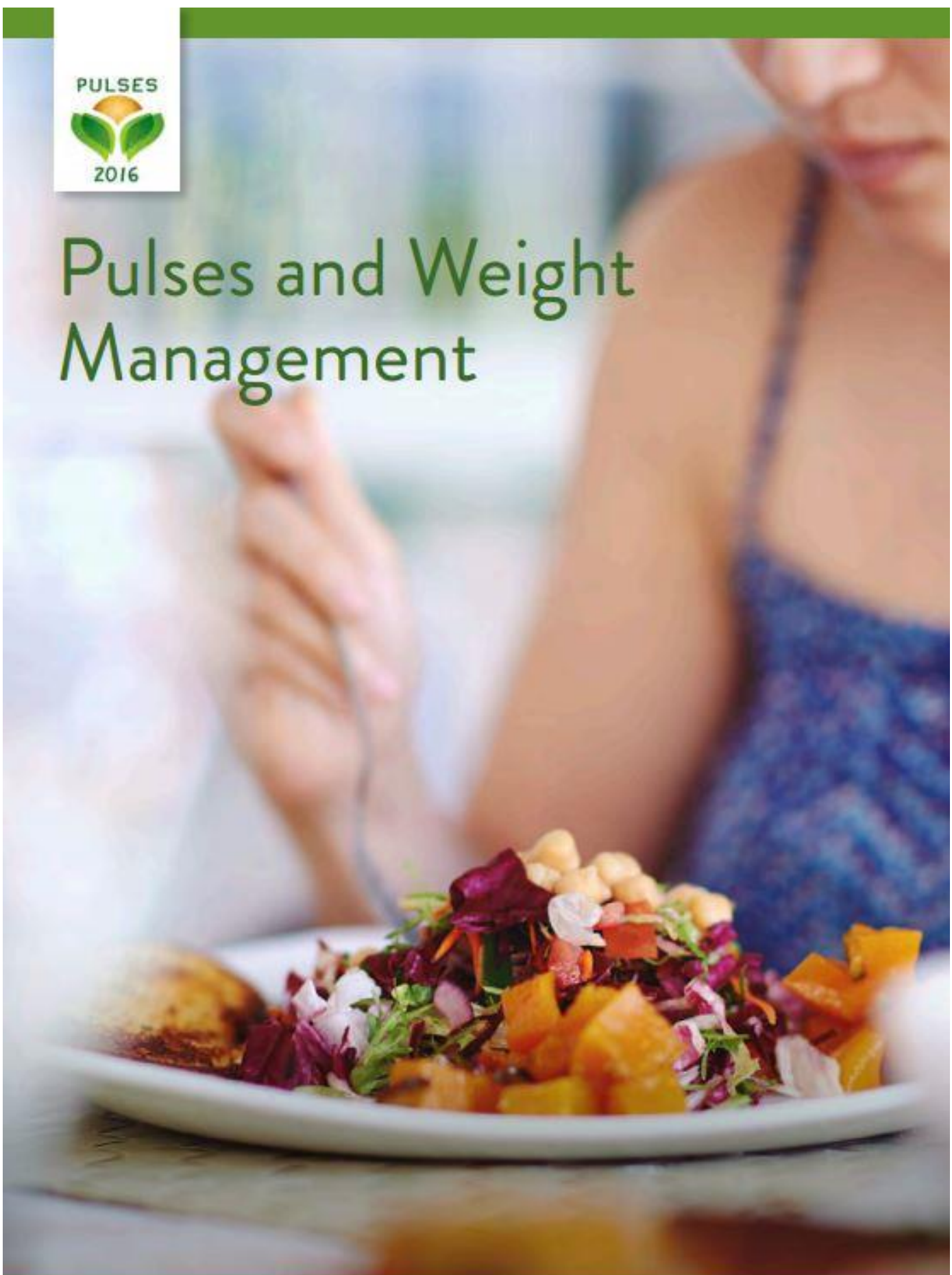


PULSES



2016

Pulses and Weight Management



Obesity is a major risk factor for developing heart disease, hypertension, type 2 diabetes and several cancers. It's become a major global concern, with worldwide obesity rates more than doubling since 1980.¹

Yet, obesity and overweight can be prevented by making healthy lifestyle choices, in particular through proper nutrition and diet.

Mounting evidence suggests that eating one daily serving of pulses – beans, peas, lentils and chickpeas – is a useful weight control strategy. This short guide was created to help people make healthier dietary choices. Under the guidance of leading nutritionist Leslie Beck RD, it flags some of the important science on the role of pulses in weight management.

We hope the guide will encourage professional dietitians and nutritionists to look afresh at these ancient, affordable and highly nutritious crops.

HUSEYIN ARSLAN, PRESIDENT,
GLOBAL PULSE CONFEDERATION

Pulses for weight management

A 2016 meta-analysis of 21 randomized controlled trials conducted in 940 overweight or obese men and women found an overall small, but significant, weight reduction of 0.34 kilograms in participants whose diets included about $\frac{1}{4}$ cup (175 ml) of pulses each day compared to those who did not consume pulses. **Weight reduction occurred even in trial participants whose diets were designed to maintain, not lose, weight.**²

A weight loss of less than one kilogram may seem minimal, however, these new findings are encouraging. They suggest that eating pulses can help patients prevent incremental weight gain that often occurs with age. Consuming pulses may also be an effective strategy for patients to maintain a weight loss, something that is often a clinical challenge.

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Observational data supports the weight control benefits of pulses. A review of the U.S. National Health and Examination Survey (NHANES) data from 1999-2002, for example, found people who reported eating pulses on the day of the survey were more likely to have a lower body weight and waist circumference. **Furthermore, people who ate pulses were 22 per cent less likely to be obese than those who didn't consume them.**³



Pulses and satiety

A number of studies have confirmed the satiating properties of pulses, attributed to their high protein and fibre content.⁴⁻⁶ In 2014, researchers from Toronto, Canada analyzed nine randomized controlled trials and concluded that meals containing 160 grams (less than one cup) of dietary pulses produced a 31 per cent greater satiety effect than did control meals.⁷

Protein in pulses stimulates the release of gastric hormones that cause the feeling of fullness. Fibre in pulses increases chewing time and delays gastric emptying, thereby reducing food intake and signaling early satiety.

Pulses also have a low glycemic index value. **By slowing the rise in glucose and insulin, pulses may help prevent overeating. In so doing, dietary pulses may improve adherence to a weight reduction diets.**

Reduced calorie absorption from pulses

The reduced availability of calories from starch in pulses may also contribute to their weight loss properties. White beans, for example, have intact cell walls that encapsulate starch granules, preventing them from being absorbed in the gut.⁸

Pulses and nutrition

Nutrient-dense, pulses are comprised of 23 per cent protein, supply gluten-free and low glycemic carbohydrates and provide 7 to 17 grams of fibre per one-half cup (125 ml). They are also an excellent source of iron, potassium, magnesium, zinc and B vitamins including folate, thiamin and niacin.

And pulses are cholesterol-free and very low in saturated fat.

KEY NUTRIENTS IN PULSES (PER ½ CUP COOKED)

	Protein (g)	Fibre (g)	Folate (mcg)	Magnesium (mg)	Iron (mg)	Potassium(mg)
Adzuki beans	13	12.6	209	90	3.5	918
Black beans	11.5	11.2	192	90	2.7	458
Chickpeas	11	9.3	212	59	3.6	358
Kidney beans	11.5	8.5	173	56	3.0	538
Lentils	13.5	11.7	269	53	5.0	548
Navy beans	11.2	14.3	191	72	3.2	531
Pinto beans	11.6	11.5	221	64	2.7	559
Split peas	12.3	12.2	96	53	1.9	532

Source: US Department of Agriculture, Agricultural Research Service, Nutrient Data Laboratory. USDA National Nutrient Database for Standard Reference, Release 28. Version Current: September 2015. <http://www.ars.usda.gov/nsl/chnrc>

Pulses and health

The health benefits of pulses extend beyond weight control. **Studies suggest that, if eaten regularly, pulses help lower the risk of heart disease, hypertension and type 2 diabetes.** Inclusion of pulses in a heart-healthy diet has also been shown to reduce elevated blood cholesterol and blood pressure.⁹⁻¹²



Tips to help patients and clients eat more pulses

Pulses are one of the most versatile and affordable foods on the planet. Yet many people don't eat them on a regular basis simply because they don't know how to incorporate them into their diet.

The following tips can help clients/patients increase their intake of pulses.



- > Add cooked black beans or kidney beans to an omelet for a protein-packed breakfast.
- > Toss cooked lentils into a leafy green salad.
- > Add chickpeas to a Greek salad to increase its protein and fibre content.

- > Enjoy minestrone, split pea, black bean or lentil soup for a satisfying lunch or dinner.
- > Spread sandwiches with hummus (chickpea purée) instead of mayonnaise.
- > Add cooked pulses to whole grain side dishes such as quinoa, barley and brown rice pilafs.



For more pulse inspiration, recipes are available at [PULSES.ORG](https://pulses.org) or see how our **GOURMET GURUS** transform the humble pulse into highly creative culinary inventions.



- > Blend mashed cooked white kidney beans into mashed potatoes for a nutrient-rich side dish.
- > Stir cooked white kidney beans or Great Northern beans into a tomato-based pasta sauce for a Mediterranean inspired meal.
- > Toss cooked lentils into sautéed leafy greens such as spinach or Swiss chard for a nutrient-rich vegetarian meal.

- > Make chili with chickpeas and black beans in addition to kidney beans.
- > Add cooked black beans or pinto beans to tacos and burritos. Use half the amount of lean ground meat you normally would and make up the difference with beans.
- > Add mashed cooked pulses to burger recipes to reduce saturated fat and increase fibre.



PULSE RESOURCES FOR FURTHER READING

Meet Pulses: The Health Powerhouses. Global Pulse Federation.
http://pulses.org/pulse+hub/fact+sheets/download?path=iyp_factsheet_healthpowerhouse.pdf

The Many Nutritional Benefits of Pulses. Global Pulse Federation.
http://pulses.org/pulse+hub/fact+sheets/download?path=iyp_factsheet_nutrition.pdf

Molecular, Functional and Processing Characteristics of Whole Pulses and Pulse Fractions and their Emerging Food and Nutraceutical Applications. *Food Research International* 2010; 43 (2): 397-664. (Special Issue.)
<http://www.sciencedirect.com/science/journal/09639969143/2>

Meet Pulses: The Sustainable Superfoods. Global Pulse Federation.
http://pulses.org/pulse+hub/fact+sheets/download?path=iyp_factsheet_sustainablesuperfood.pdf

Pulses and Food Security. Global Pulse Federation.
http://pulses.org/pulse+hub/fact+sheets/download?path=iyp_factsheet_pulses_and_food_security.pdf

Cooking with Pulses: A New Era for an Ancient Crop. Global Pulse Federation.
http://pulses.org/pulse+hub/fact+sheets/download?path=iyp_factsheet_worldcuisines.pdf

REFERENCES

1. Obesity and overweight. World Health Organization, 2016.
<http://www.who.int/mediacentre/factsheets/fs311/en/>
2. Kim SJ, de Souza RJ, Choo VL et al. Effects of dietary pulse consumption on body weight: a systematic review and meta-analysis of randomized controlled trials. *AJCN* 2016; 103 (5):1213-23.
<http://ajcn.nutrition.org/content/103/5/1213.abstract>
3. Papanikolaou Y, Fulgoni VL III. Bean consumption is associated with greater nutrient intake, reduced systolic blood pressure, lower body weight, and a smaller waist circumference in adults: results from the National Health and Nutrition Examination Survey 1999-2002. *J Am Coll Nutr* 2008;27:569-76.
<http://www.ncbi.nlm.nih.gov/pubmed/18845707?dopt=Abstract>
4. McCrory MA, Hamaker BR, Lovejoy JC, Eichelsdoerfer PE. Pulse consumption, satiety, and weight management. *Adv Nutr* 2010;1:17-30.
<http://www.ncbi.nlm.nih.gov/pubmed/22043448>
5. Leathwood P, Pollet P. Effects of slow release carbohydrates in the form of bean flakes on the evolution of hunger and satiety in man. *Appetite* 1988;10:1-11.
<http://www.ncbi.nlm.nih.gov/pubmed/3355122?dopt=Abstract>
6. Murty CM, Pittaway JK, Ball MJ. Chickpea supplementation in an Australian diet affects food choice, satiety and bowel health. *Appetite* 2010;54:282-8.
<http://www.ncbi.nlm.nih.gov/pubmed/19945492?dopt=Abstract>
7. Li SS, Kendall CWC, de Souza RJ et al. Dietary pulses, satiety and food intake: a systematic review and meta-analysis of acute feeding trials. *Obesity* 2014; 22(8): 1773-80.
<http://onlinelibrary.wiley.com/doi/10.1002/oby.20782/abstract>
8. Ellis PR, Kendall CW, Ren Y, Parker C, Pacy JF, Waldron KW, Jenkins DJ. Role of cell walls in the bioaccessibility of lipids in almond seeds. *Am J Clin Nutr* 2004;80:604-13.
http://ajcn.nutrition.org/content/80/3/604.abstract?ikey=6762fa67260544dbbc200df9605941ae1f19abc&keytype=tf_ipsecsha
9. Ha V, Sievempiper JL, de Souza RJ et al. Effect of dietary pulse intake on established therapeutic lipid targets for cardiovascular risk reduction: a systematic review and meta-analysis of randomized controlled trials. *CMAJ* 2014;186(8):E252-62.
<http://www.ncbi.nlm.nih.gov/pubmed/24710915>
10. Jayalath VH, de Souza RJ, Sievempiper JL et al. Effect of dietary pulses on blood pressure: a systematic review and meta-analysis of controlled feeding trials. *Am J Hypertens* 2014; 27(1):56-64.
<http://www.ncbi.nlm.nih.gov/pubmed/24014659>
11. Ndanuko RN, Tapsell LC, Charlton KE et al. Dietary Patterns and Blood Pressure in Adults: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Adv Nutr* 2016;7(1):76-89.
<http://www.ncbi.nlm.nih.gov/pubmed/26773016>
12. Satija A, Bhupathiraju SN, Rimm EB et al. Plant-Based Dietary Patterns and Incidence of Type 2 Diabetes in US Men and Women: Results from Three Prospective Cohort Studies. *PLoS Med* 2016; 13(6).
<http://www.ncbi.nlm.nih.gov/pubmed/27299701>

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