

Food/food product(s)	Functional ingredient (s)	Potential Health Benefits
Fish, fish oils (E.g. salmon, trout) Omega-3 (DHA/EPA) enriched food products (E.g. margarine, milk, yogurt, ice cream, cheese, eggs, juice, bread/bakery items)	Omega-3 DHA and EPA	<ul style="list-style-type: none"> Reduce elevated blood triglycerides, reduce blood viscosity, reduce blood platelet reactivity – all risk factors for cardiovascular disease and stroke Reduce risk of chronic disorders such as depression, Alzheimer’s disease, rheumatoid arthritis and macular degeneration Improve retention of cognitive functioning with age
Soy beans, soy beverages and other soy-based products (E.g. dairy-alternatives, meat-alternatives, soy bread)	Soy protein Isoflavones	<ul style="list-style-type: none"> Soy protein is easily digested and is a complete source of amino acids Soy protein can preserve lean body mass Isoflavones can reduce risk of chronic diseases such as breast/prostate cancer, cardiovascular disease and osteoporosis Isoflavones can alleviate menopausal symptoms and may improve cognitive function
Probiotic Foods and Beverages (E.g. milk, yogurt, cheese, ice cream, juice)	Probiotic bacteria <i>Lactobacilli</i> <i>Bifidobacteria</i> Yeast	<ul style="list-style-type: none"> Improve gastrointestinal health and systemic immunity by increasing quantity of beneficial intestinal bacteria Reduce inflammatory response that can then benefit related disorder (E.g. rheumatoid arthritis)
Prebiotic Foods & Beverages (E.g. bread/bakery items, juice, snack bars)	Prebiotic fibre <i>Inulin</i>	<ul style="list-style-type: none"> Promote growth of beneficial intestinal microflora Soluble fibre promotes digestion and regularity
Ontario-produced fruits <i>Apples</i> <i>Pears</i> <i>Blueberries, Strawberries</i> <i>Cranberries</i> <i>Tomatoes</i>	<i>Anthocyanins, quercetin</i> <i>Anthocyanins</i> <i>Anthocyanins, ellagic acid</i> <i>Proanthocyanidins, quinic acid</i> <i>Lycopene</i>	<ul style="list-style-type: none"> Prevent certain forms of cancer through antioxidant function (i.e. prostate and lung cancers) Antioxidant function reduced oxidized LDL-cholesterol to help prevent cardiovascular disease May enhance removal of blood cholesterol and reduce risk of cardiovascular disease Protect against recurrence of heart attacks in people who have already had a heart attack Prevent bacteria from adhering to bladder wall; reduce risk of kidney stones
Ontario-produced vegetables <i>Broccoli, cauliflower, cabbage</i> <i>Carrots</i> <i>Garlic, onions</i> <i>Potatoes</i> <i>Spinach, kale</i>	<i>Sulphoraphane, indoles</i> <i>Carotenoids</i> <i>Allicin, allyl sulphides, quercetin, prebiotic fibre</i> <i>Quercetin</i> <i>Lutein, zeaxanthin</i>	<ul style="list-style-type: none"> Reduce risk of breast cancer Antioxidant function reduces oxidized LDL-cholesterol to help prevent cardiovascular disease Fight bacterial and fungal growth; Improve digestion and regularity Slow progression of prostate and lung cancers Antioxidant function can protect eyes from oxidative damage; offer protection against sun-induced oxidative skin damage
Ontario-produced pulses (E.g. beans, lentils)	<i>Saponins, protease inhibitors, phytic acid, inositol PKP, dietary fibre</i>	<ul style="list-style-type: none"> Reduce risk of cancer, such as breast cancer Antioxidant function reduces oxidized LDL-cholesterol to help prevent cardiovascular disease
Ontario-produced grains <i>Flax</i> <i>Oats, barley</i>	<i>Omega-3 ALA, phytoestrogenic lignans</i> <i>β-glucan soluble fibre</i>	<ul style="list-style-type: none"> Reduces blood triglycerides to reduce risk of heart disease and stroke may prevent breast, colon and lung cancers Contributes to diabetes prevention and management by reducing blood sugar levels

References:

PUBLICATIONS

- M Aubertin-Leheudre, C Lord, A Khalil, IJ Dionne. (2007) *Short Communication. Six months of isoflavone supplement increases fat-free mass in obese-sarcopenic postmenopausal women: a randomized double-blind controlled trial.* European Journal of Clinical Nutrition. 61:1442-1444.
- MA Beydoun, JS Kaufman, JA Satia, W Rosamond, AR Folsom. (2007) *Plasma n-3 fatty acids and the risk of cognitive decline in older adults: the Atherosclerosis Risk in Communities Study.* American Journal of Clinical Nutrition. 85:1103-11.
- DC Candy, SJ Heath, JDN Lewis, LV Thomas. (2008) *Probiotics for the young and not so young.* International Journal of Dairy Technology. 61(3):215-221.
- R De Caterina, A Zampolli, S Del Turco, R Madonna, M Massaro. (2006) *Nutritional mechanisms that influence cardiovascular disease.* American Journal of Clinical Nutrition. 83(suppl):421S-6S.
- L Dubé, P Thomassin, J Beauvais and D Sparling. (August 2009) *Building Convergence Toward and Integrated Health and Agri-Food Strategy for Canada, APPENDIX 5 - Table 3: Examples of food/agriculture and agri-food products grown/manufactured in Canada with functional ingredients providing health benefits.* Available online - http://www.capi-icpa.ca/pdfs/BuildingConvergence_Summary.pdf
- CKB Ferrari, EAFS Torres. (2003) *Biochemical pharmacology of functional foods and prevention of chronic diseases of aging.* Biomedicine & Pharmacotherapy. 57:251-260.
- JA Fratesi, RC Hogg, GS Young-Newton, AC Patterson, P Charkhzarin, K Block Thomas, MT Sharratt, KD Stark. (2009) *Direct quantitation of omega-3 fatty acid intake of Canadian residents of a long-term care facility.* Journal of Applied Physiology, Nutrition and Metabolism. 34:1-9. Doi: 10.1139/H08-131
- V Ganji, J Kuo. (2008) *Serum lipid response to psyllium fiber: differences between pre- and post-menopausal, hypercholesterolemic women.* Nutrition Journal. 7:22.
- F Hirayama, AH Lee, CW Binns, Y Zhao, T Hiramatsu, Y Tanikawa, K Nishimura, H Taniguchi. (2009) *Soy consumption and risk of COPD and respiratory symptoms: a case-control study in Japan.* Respiratory Research.10(56).
- E Kennedy. (November 2008) *MaRS Landing SaTELLITE Special Edition – Functional Food Chart, pg 3.*
- S Lauque, F Arnaud-Battandier, R Mansourian, Y Guigoz, M Paintin, F Nourhashemi, B Vellas. (2000) *Protein-energy oral supplementation in malnourished nursing-home residents. A controlled trial.* Age and Ageing. 29:51-56.
- A MacNeil. (2009) *Soy Questions and Answers.* Available at www.soyfoodscanada.com.
- N Maesta, EAP Nahas, J Nahas-Neto, FL Orsatti, CE Fernandes, P Traiman, RC Burini. (2007) *Effects of soy protein and resistance exercise on body composition and blood lipids in postmenopausal women.* Maturitas. 56:350-358.
- NM McKeown, M Yoshida, MK Shea, PF Jacques, AH Lichtenstein, G Rogers, SL Booth, E Saltzman. (2009) *Whole-Grain Intake and Cereal Fiber Are Associated with Lower Abdominal Adiposity in Older Adults.* Journal of Nutrition. 139:1950-1955.
- KT Morgan. (2008) *Nutritional Determinants of Bone Health.* Journal of Nutrition for the Elderly. 27(1):3-27.
- BE C Nordin. (1997) *Calcium and Osteoporosis.* Nutrition. 13:664-686.
- E Nova, J Wärnberg, S Gómez-Martínez, LE Díaz, J Romeo, A Marcos. (2007) *Immunomodulatory effects of probiotics in different stages of life.* British Journal of Nutrition. 98(suppl)1:S90-S95.
- H Payette, V Boutier, C Coulombe, K Gray-Donald. (2002) *Benefits of nutritional supplementation in free-living, frail, undernourished elderly people: A prospective randomized community trial.* Journal of the American Dietetic Association. 102(8):1088-1095.
- JP SanGiovanni, E Agrón, AD Meleth, GF Reed, RD Sperduto, TE Clemons, EY Chew. (2009) *Omega-3 long-chain polyunsaturated fatty acid intake and 12-y incidence of neovascular age-related macular degeneration and central geographic atrophy: a prospective cohort study from the Age-Related Eye Disease Study.* American Journal of Clinical Nutrition. Published ahead of print October 7, 2009 as doi: 10.3945/ajcn.2009.27594
- EJ Schiffrin, A Parlesak, C Bode, JC Bode, MA van't Hof, D Grathwohl, Y Guigoz. (2009) *Short communication. Probiotic yogurt in the elderly with intestinal bacterial overgrowth: endotoxaemia and innate immune functions.* British Journal of Nutrition. 101:961-966.
- S Shao, AM Duncan, R Yang, MF Marcone, I Rajcan, R Tsao. (2009) *Tracking isoflavones: From soybean to soy flour, soy protein isolates to functional soy bread.* Journal of Functional Foods 1:119-127.
- MT Streppel, LR Arends, P van't Veer, DE Grobbee, JM Geleijnse. (2005) *Dietary Fiber and Blood Pressure: A Meta-analysis of Randomized Placebo-Controlled Trials.* Archives Internal Medicine. 165:150-156.
- SM Tramonte, MB Brand, CD Mulrow, MG Amato, ME O'Keefe, G Ramirez. (1997) *The Treatment of Chronic Constipation in Adults: A Systematic Review.* Journal of General Internal Medicine. 12:15-24.

WEBSITES

- Agriculture and Agri-Food Canada; Examples of Functional Food Components – <http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1171305207040&lang=eng>
- Canadian Research & Development Centre for Probiotics – <http://www.crdc-probiotics.ca>
- DHA/EPA Omega-3 Institute – <http://dhaomega3.org>
- International Food Information Council – <http://www.ific.org>
- International Scientific Association for Probiotics and Prebiotics – <http://www.isapp.net>
- Soyfoods Canada – <http://www.soyfoodscanada.com>