



Fresh. Simple. Good.

## Health Sheet

*So, your concern is...*

### Immunity

The immune system is the body's first line of defense against disease and infection. A healthy immune system is important at every age. A strong immune system helps protect against infections from bacteria and viruses. It also helps protect against other health problems such as arthritis and certain types of cancer.<sup>1</sup>

There are many ways you can keep your immunity boosted. Getting enough sleep, keeping stress levels in check, exercising every day and being at a healthy weight will go a long way to maximize your wellness. Good nutrition is also essential for maintaining the immune system in top shape. Including a wide variety of nutrient-rich foods in your diet gives your body the nutrition it needs to help protect against illness and lower the risk of developing chronic diseases such as diabetes and heart disease. That's where mushrooms come in.

#### ***Fresh Mushrooms Can Help!***

##### Boosting Immunity

- A 2006 study found that the beta-glucan, a polysaccharide that is part of the soluble fibre found in mushrooms, had potential anti-inflammatory activity, which may help protect the body against disease.<sup>2</sup>
- Mushrooms extracts may also stimulate different cells of the immune system.<sup>3 4</sup>

##### Vitamins and Minerals

- A 2000 study published in the American Journal of Clinical Nutrition found that elderly subjects who were deficient in vitamins and minerals, including selenium, zinc, vitamin B6 and folate, also had fewer and less effective natural killer cells.<sup>5</sup>
- A ½ cup serving of uncooked, white button mushrooms is an excellent source of selenium, and a good source of niacin, copper, pantothenic acid and selenium. You'll also get some vitamin B6, vitamin C, folate and zinc.<sup>6</sup>

##### Adding up the Antioxidants

- Ergothioneine is a naturally occurring antioxidant found in mushrooms that may also help protect the body's cells.<sup>7</sup> Ergothioneine is found in both raw and cooked mushrooms.

## ***Mushrooms Make a Difference***<sup>8</sup>

- Mix in ½ cup chopped shiitake mushrooms into clear broth or consommé  
Benefit: - add 18 micrograms of selenium (26% of the Daily Value)
- Add ½ cup sliced fresh crimini mushrooms into egg dishes  
Benefit: - add 9 micrograms of selenium (13% of the Daily Value)
- Top pasta with ½ cup grilled Portabella mushrooms  
Benefit: - add 11 micrograms of selenium (15% of the Daily Value)

### ***Make it with Mushrooms:***

- Serve stuffed mushrooms as an elegant appetizer or casual side dish.
- Combine earthy flavored and hearty-textured crimini mushrooms with beef, poultry or veggie dishes.
- A mixed-mushroom tart is a savory way to start a holiday or special occasion meal.
- Add finely chopped portabella or crimini mushrooms to meatloaf for a fabulous flavor boost.
- Sautéed fresh mushrooms, some herbs and a light sprinkling of cheese make a delectable filling for crêpes.

### ***Recipe Suggestion:***

#### **[Mushroom Tomato and Basil Ragout](#)**

*For more mushroom nutrition information, great tips and delicious recipes visit [www.mushrooms.ca](http://www.mushrooms.ca).*

*For more about the immune system visit the National Institute of Allergy and Infectious Diseases at [www.niaid.nih.gov](http://www.niaid.nih.gov). For more about healthy eating visit the Dietitians of Canada website at [www.dietitians.ca](http://www.dietitians.ca).*

Disclaimer: The provided information is not meant to replace the medical counsel of your Doctor. If you have further questions please consult with your Doctor or Registered Dietitian.

<sup>1</sup> ADA Nutrition Fact Sheet – Eat Your Way to Better Health at [www.eatright.org](http://www.eatright.org).

<sup>2</sup> Pacheco-Sanchez M, Boutin Y, Angers P, Gosselin A and Tweddell RJ. A bioactive (1-3), (1-4)-beta-D-glucan from *Collybia dryophila* and other mushrooms. *Mycologia* 2006;98(2):180-185.

<sup>3</sup> Lull C, Wichers HJ and Savelkoul HFJ. Antiinflammatory and Immunomodulating Properties of Fungal Metabolites. *Mediators of Inflammation*. 2005;2:63-80.

<sup>4</sup> Ahn WS, Kim DJ, Chae GT et al. Natural killer cell activity and quality of life were improved by consumption of a mushroom extract, *Agaricus blazei* Murill Kyowa, in gynecological cancer patients undergoing chemotherapy. *Int J Gynecol Cancer*. 2004;14(4):589-94.

<sup>5</sup> Ravaglia G, Forti P, Maioli F et al. Effect of micronutrient status on natural killer cell immune function in healthy free-living subjects aged >90 years. *Am J Clin Nutr*. 2000;71:590-598.

<sup>6</sup> Values from Mushrooms Canada website.

<sup>7</sup> Dubost NJ, Beelman RB, Peterson D and Royse DJ. Identification and Quantification of Ergothioneine in Cultivated Mushrooms by Liquid Chromatography-Mass Spectroscopy. *Int J Med Mushr* 2006;8(3):215-222.

<sup>8</sup> USDA National Nutrient Database for Standard Reference, Release 19, 2006 at <http://www.ars.usda.gov/ba/bhnrc/ndl>.