



Manage Your Weight with Mushrooms

Managing Weight to Feel Your Best

Weight management is so much more than reaching a certain number on the scale. It's about your overall health and wellness – having energy, reducing risk of diseases like diabetes, cancer and heart disease¹, and feeling like the best version of yourself. It's great to have a goal in mind when losing weight but don't forget to account for other measures of success beyond the scale like how your clothes fit, your energy level and how you feel overall.

The 411 on Satiety

A key part to managing weight is getting your hunger in check. When insatiable hunger takes control, all good eating habits are thrown out the window and overeating can occur, which is why it's so important to choose foods and snacks that keep you satiated. A couple studies have shown that **mushrooms, when substituted for meat, can improve nutrition, enhance weight loss and promote satiety.**^{2,3}

A one-year, randomized clinical trial at Johns Hopkins Bloomberg School of Public Health indicates increasing

intake of low-energy-density foods (meaning few calories given the volume of food), specifically mushrooms, in place of high-energy-density foods, like lean ground beef, can be an effective method for reducing daily energy and fat intake while still feeling full and satiated after the meal. **Participants following the mushroom-rich diet lost seven pounds, showed improvements in body composition and maintained these changes for six months after losing weight.** Specifically, those in the intervention group reported lower calorie and fat intake; lost more pounds and percentage body weight; achieved lower body mass index, waist circumference and percent total body fat compared to participants on the control diet. The study also suggests that **substituting mushrooms for lean ground beef in an entrée just once every week would save almost 20,000 calories or more than 5 pounds of body weight in one year.**²

Another recent study conducted by University of California-Davis and the Culinary Institute of America found that substituting mushrooms for a portion of meat helped improve nutrition and flavor. **Adding mushrooms to the mix helped lower calorie, saturated fat and sodium intake, while adding nutrients to the plate like B vitamins, vitamin D, antioxidants and potassium (8%).**³

Food Pairings to Curb Hunger

Nutrient-dense meals and snacks that offer a combination of protein, good fat, and fiber have the most staying power to help keep cravings at bay.

Avocado +
Whole-Wheat Toast
+ Egg

Mushrooms +
Ground Turkey +
Whole-Wheat Bun +
Lettuce

Scrambled Eggs +
Mushrooms +
Parmesan Cheese

Apple + Peanut
Butter

Hummus + Olives
+ Carrots

Vitamin D and Weight

Studies have consistently shown a correlation between low vitamin D levels and obesity.^{4,5} Few foods naturally contain vitamin D, but mushrooms are unique for being the only food in the produce aisle that contain vitamin D. In fact, the Institute of Medicine recognizes UV-exposed mushrooms as the exception to the rule that plant foods don't naturally contain vitamin D.

Although the results are not conclusive, some clinical trials have demonstrated that the **vitamin D2 present in mushrooms is bioavailable and is equally effective in raising and maintaining a healthy adult's vitamin D status as taking a supplement that contains vitamin D.** In fact, a 2012 study in *Dermato-Endocrinology* showed that 25 adults who consumed 2,000 IU of vitamin D2 from white button mushroom extract daily for a three-month period were able to raise and maintain their vitamin D (25(OH)) levels similar to healthy adults who consumed 2,000 IU of supplements containing vitamin D2 or D3.⁶

According to USDA's National Nutrient Database, one serving of raw white and crimini mushrooms, exposed to UV light contain 890 IU and 1085 IU of vitamin D, respectively.⁷

Vitamin D Quick Facts

890IU

Amount one serving
of **UV-exposed
white mushrooms**
provides



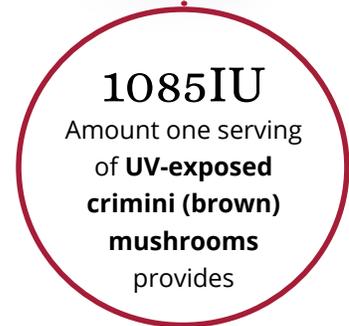
600IU

Current
recommended
Vitamin D intake
level for adults



1085IU

Amount one serving
of **UV-exposed
crimini (brown)
mushrooms**
provides



1. National Institutes of Health: National Heart, Lung, and Blood Institute. Aim for a Healthy Weight. 2. Cheskin LJ, Davis LM, Lipsky LM, Mitola AH, Lycan T, Mitchell V, Mickle B, Adkins E. Lack of energy compensation over 4 days when white button mushrooms are substituted for beef. *Appetite*. 2008;51:50-57. 3. Myrdal Miller, A., Mills, K., Wong, T., Drescher, G., Lee, S.M., Sirimuangmoon, C., Schaefer, S., Langstaff, S., Minor, B. and Guinard, J.-X. (2014), Flavor-Enhancing Properties of Mushrooms in Meat-Based Dishes in Which Sodium Has Been Reduced and Meat Has Been Partially Substituted with Mushrooms. *Journal of Food Science*, 79: S1795-S1804. 4. Wortsman, J., Mat-suoka, L., Chen, T., Lu, Z., Holick, M. Decreased Bioavailability of Vitamin D. *American Journal of Clinical Nutrition*. 2000. 72(3): 690-693. (Discussion. 1st sentence.) 5. Vanlint, Simon. Vitamin D and Obesity. *Review. Nutrients*. 2013, 5, 949-956. (Introduction, 2nd paragraph). 6. Raphael-John H. Keegan, Zhiren Lu, Jaimee M. Bogusz and Michael F. Holick. Photobiology of vitamin D in mushrooms and its bioavailability in humans. *Dermato-Endocrinology*. 2013. 5:1, 1-1. Page 175, 1st column, last paragraph, last sentence; Figure 8. 7. USDA National Nutrient Database for Standard Reference Release 28. UV Exposed White and Brown Mushrooms.

