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NEW MUSHROOM STUDY SHOWS THE POWER OF ENERGY DENSITY

Preliminary Research Shows Mushroom Entrées as Satiating and Palatable as Meat Entrées

SAN JOSE, Calif. (August 14, 2008) – Preliminary research, led by Dr. Lawrence Cheskin, MD, Director of John Hopkins Weight Management Center, suggests increasing intake of low-energy density foods, 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.¹ This is good news for the more than one-third of U.S. adults age 20 and older who are obese, according to the Center for Disease Control. Obesity is a risk factor for cardiovascular disease, certain types of cancer, and type 2 diabetes.²

In the study led by Dr. Cheskin, and funded by the Mushroom Council, study participants were randomly chosen to receive either beef or mushroom lunch entrées over four days – lasagna, napoleon, sloppy Joe and chili. Subjects then switched entrées to consume the other ingredient (mushroom or beef) the following week.¹

Energy (calorie) intakes were significantly higher during meat meals than mushroom meals, a difference that averaged 420 more calories and 30 more fat grams per day over the four-day test period. Subjects' ratings for palatability (meal appeal), appetite, satiation (after meal fullness) and satiety (general fullness) did not differ between groups.

"The most intriguing finding was that subjects seemed to accept mushrooms as a palatable and suitable culinary substitute for meat," said Dr. Cheskin. "They didn't compensate for the lower calorie mushroom meal by eating more food later in the day."

The preliminary findings of Cheskin's team follow findings from other initial data that suggested if men substituted a 4-ounce Portabella mushroom for a 4-ounce grilled hamburger every time they ate a grilled hamburger over the course of a year, and didn't change anything else, they could save more than 18,000 calories and nearly 3,000 grams of fat.³ That's the equivalent of 5.3 pounds or 30 sticks of butter. More research is needed to further understand mushrooms' role in weight management as a low-energy density food.

More Health Benefits of Mushrooms

In addition, mushrooms⁴ may be nature's hidden treasure for vitamin D, a nutrient many Americans do not get enough of for the required daily intake.⁵⁻⁷ Mushrooms are the only fresh vegetable or fruit with 4 percent of the daily value of Vitamin D per serving⁴ and preliminary research suggests that a standard serving of mushrooms can provide up to 100 percent of the daily value of vitamin D after just five minutes of contact with sunlight.^{8,9}

A serving of four-five white button mushrooms has 20 calories and no fat, saturated fat or cholesterol but is nutrient-rich. In fact, mushrooms are also the leading source of the antioxidant selenium in the fruit and vegetable category and a good source of the B vitamins riboflavin, niacin and pantothenic acid, which help break down proteins, fats and carbohydrates. Toss in a handful of delicious, nutrient-dense mushrooms into your favorite dish.

The Mushroom Council is composed of fresh market producers or importers who average more than 500,000 pounds of mushrooms produced or imported annually. The mushroom program is authorized by the Mushroom Promotion, Research and Consumer Information Act of 1990 and is administered by the Mushroom Council under the supervision of the Agricultural Marketing Service. Research and promotion programs help to expand, maintain and develop markets for individual agricultural commodities in the United States and abroad. These industry self-help programs are requested and funded by the industry groups that they serve. For more information on the Mushroom Council, visit mushroomcouncil.org.

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¹ Cheskin LJ, Davis LM, Lipsky LM, Mitola AH, Lycan T, Mitchell V, Mickel B, Adkins E. Lack of energy compensation over 4 days when white button mushrooms are substituted for beef. *Appetite*. 2008;51:50-57.

² CDC National Center for Health Statistics. Obesity Among Adults in the United States-No Statistically Significant Change Since 2003-2004. Data Brief Number 1, November 2007.

³ Block, Dietary Data Systems. Analysis of NHANES III Data. Mushrooms: More Than Just Another Fungus. March 2004.

⁴ White button mushrooms.

⁵ U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans 2005. Chapter 2. <http://www.health.gov/dietaryguidelines/dga2005/document/html/chapter2.htm>

⁶ Holick MF. Vitamin D Deficiency. *N Engl J Med.* 2007;357:266-81.

⁷ Calvo MS, Whiting SJ. Prevalence of vitamin D insufficiency in Canada and the United States: importance to health status and efficacy of current food fortification and dietary supplement use. *Nutr Rev.* 2003;61(3):107-13.

⁸ Jasinghe VJ, Perera CO. Distribution of ergosterol in different tissues of mushrooms and its effect on the conversion of ergosterol in vitamin D₂ by UV irradiation. *Food Chem.* 2005;2:541-546

⁹ Calvo M. FDA's Center for Food Safety and Applied Nutrition and the Mushroom Council Collaborate to Optimize the Natural Vitamin D Content of Edible Mushrooms and to Examine their Health Benefits in Different Rodent Models of Innate Immunity. Presented at 2006 FDA Science Forum A Century of FDA Science: Pioneering the Future of Public Health. April 18-20, 2006, Washington Convention Center.