



## SUCCESSFUL SODIUM REDUCTION IN COOKING

By Jackie Newgent, RDN, CDN



Salty is one of five basic tastes. Sweet, sour, bitter and umami round out the remainder. Fat (or oleogustus) is a potential sixth taste.<sup>1,2</sup> These tastes all contribute to our food tasting like food! Unfortunately, one of these tastes gets a bad rap: salty.

Salty taste correlates with sodium intake because common salt is composed of sodium chloride. But eliminating it is not an option. The human body requires sodium to manage blood volume and blood pressure as well as assure nerves and muscles function properly.<sup>3</sup> Plus, salt contributes to boosting perception of sweetness and thickness, balancing metallic taste, and improving overall flavor.<sup>4</sup>

There are limits on sodium, however. Most Americans (about 90%) overdo it, averaging roughly 3,300 milligrams (mg) sodium daily.<sup>5</sup> The current Dietary Guidelines for Americans recommend consuming less than 2,300 mg sodium per day. That's basically one teaspoon of table salt. For people with high blood pressure, diabetes or chronic kidney disease, African-Americans, or people age 51 and older, a maximum of 1,500 mg per day is advised.<sup>6</sup> Excess sodium in the diet may lead to hypertension for some and harmful fluid retention in people with congestive heart failure, kidney disease, or cirrhosis.

A key strategy for reducing sodium without losing cuisine enjoyment is via umami. Foods rich in umami contain glutamate, which provides savoriness. Umami also counterbalances saltiness, enhances sweetness, reduces bitterness, and boosts satiety while creating appetite appeal. Research suggests use of umami allows for up to a 50 percent salt reduction without compromising flavor.<sup>7,8</sup>

So where's umami? It's notable in mushrooms, tomatoes, soy sauce, green tea, Parmesan cheese, shellfish, chicken, beef, and

cured meats.<sup>9</sup> All mushrooms, including shiitake, portabella, crimini, and button, are rich in umami. If darker colored, cooked, or dried, the mushrooms will generally be more umami-rich than their lighter, raw, or fresh counterparts, respectively.<sup>9</sup>

Luckily, all mushroom varieties make cuisine tasty. And the more umami, the more flavorful. So try these mushroom-based tips for upping umami deliciousness while reducing sodium:

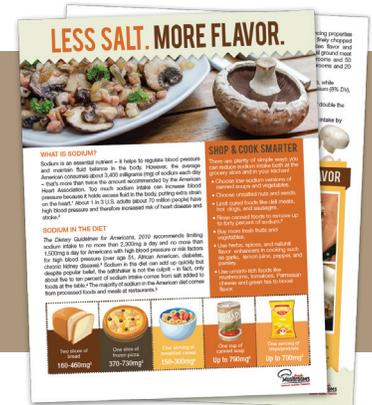
- **Blending:** Prepare traditional ground meat recipes using a ratio as high as 80 percent chopped mushrooms to 20 percent meat. (Hint: The Blend can enhance flavor because of a double whammy of umami while reducing sodium levels by 25 percent!)<sup>8</sup>
- **Browning:** Don't steam; sear or roast mushrooms for intense taste. Then pair with or incorporate into dishes of choice.
- **Simmering:** Add dried mushrooms to water or other cooking liquid when steaming rice, boiling pasta, poaching chicken, or simmering soup. Enjoy the rehydrated mushrooms, too!
- **Rubbing:** Use mushroom powder as a "spice rub" on poultry, fish, or meat. Mix it with spices, if desired.
- **Dusting:** Simply "dust" mushroom powder onto savory dishes like scrambled eggs or mashed potatoes.

For yet more umami, consider shaking on naturally brewed soy sauce, sprinkling with aged cheese, or poaching in green tea. Beyond umami, add delicious enjoyment by splashing with vinegar or other acid, sprinkling with citrus zest, heightening "heat," and incorporating herbs or spices. While these latter strategies don't replace saltiness, they may help you reduce sodium intake, too.

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# Client Education Resources

Help your clients **reduce their sodium intake** with simple tips to shop and cook smarter, including incorporating foods rich in umami, like mushrooms, into their cooking.



## RD Mushroom Love in the Media



### [Mushrooms Shine Nutritionally via The Pantagraph](#)

“It’s National Nutrition Month and with mushrooms’ unique flavor and versatility, there’s no reason not to eat these fungi. Though edible mushrooms are not a vegetable, but rather a seemingly unattractive and often colorless fungus, they can be considered a delicacy that has surprisingly good nutrition stats. Mushrooms are low in calories, fat-free, a good source of potassium, and rich in many vitamins.” – Jenna Smith, RD, LDN

### [Take the extra effort in choosing foods that benefit your health via The Grand Rapids Press](#)

“Individuals with low-sodium, potassium-rich diets are linked to healthier blood pressures. Dark, leafy green vegetables and deep orange vegetables, such as butternut squash and sweet potatoes, are loaded with potassium. So are bananas, cantaloupe, mushrooms (8%), fish, beans, milk and yogurt.” – Elizabeth Sinclair, RD

### [Fall menus feature healthy flavors via Atlanta Journal-Constitution](#)

“Fall’s healthy harvest: Mushrooms (are) very low in calories, high in riboflavin and a good source of niacin. Mushrooms add rich flavors to fall’s hearty soups and stews.” – Carolyn O’Neil, MS, RD

### [Mushrooms are mighty via Fremont Tribune](#)

“Mushrooms are a truly inexpensive, versatile vegetable. Whether prepared as the main dish, served as an appetizer or as a side dish, mushrooms add exquisite flavor to a meal. They are also an excellent meat

substitute for vegetarians as they contain an adequate amount of protein. The earthy, umami-rich taste of mushrooms allows them to blend well with a variety of flavors...One of the most surprising benefits of mushrooms is the amount of vitamin D they contain. Like humans, mushrooms convert sunlight into a usable form of vitamin D. Vitamin D aids in the absorption of calcium and phosphorus, two essential minerals for maintaining bone health and strength. Just one half-cup serving of its mushrooms provides 100 percent of the recommended daily vitamin D intake.” – Jennifer Dunavan, MS, RD

### [The 10 Best Homemade Veggie Burger Recipes via Livestrong.com](#)

“A healthful cheeseburger? Sure! Simply use a grilled large portobello mushroom cap in place of beef and top with natural cheese like Muenster. You’ll have all of the cheesiness, but without the excess calories and “bad” fats from the traditional burger patty. Plus, you’ll get a punch of ergothioneine (4.3 mg), a powerful antioxidant naturally found in mushrooms that may help protect the body’s cells.” – Jackie Newgent, RDN, CDN

### [Warm spinach salad, hold the bacon — but not the big, smoky flavor via WashingtonPost.com](#)

“This salad hits the spot with a bold dressing that has big umami flavor and meaty texture, thanks to mushrooms and sun-dried tomatoes. Plus, it has a heady smokiness from Spanish smoked paprika. The flavor combination matches the taste experience that bacon typically provides in such recipes, but in a much more healthful way.” – Ellie Krieger, MS, RD

# THE LATEST MUSHROOM RESEARCH

## Scientific Report of the 2015 Dietary Guidelines Advisory Committee Mushrooms' Role in Healthful Dietary Patterns

Although the 2015 Dietary Guidelines for Americans are pending release by the end of the year, throughout the deliberations of the Dietary Guidelines Advisory Committee (DGAC), the Mushroom Council (Council) commented on mushrooms' role in nutrition guidance to improve the diet quality of our food supply and consumers' access to healthful foods. Mushrooms are an excellent source of riboflavin (20% Daily Value (DV) and niacin (15% DV) and a good source of selenium (11% DV). Mushrooms also provide under-consumed nutrients of concern such as potassium (8% DV), vitamin D and fiber (3% DV)<sup>1</sup> and enhance flavor while reducing intake of overconsumed nutrients of concern such as sodium and saturated fat.<sup>2</sup>

In a letter to the Secretaries of the Departments of Health and Human Services and Agriculture supporting the scientific report of the DGAC, the Council specifically addressed mushrooms' role in health-promoting dietary patterns, their increasing utility in plant-based diets, and their contribution to the intake of the [under-consumed nutrient of concern, vitamin D](#).<sup>3</sup> The USDA National Nutrient Database for Standard Reference Release 28 lists the vitamin D content of several cultivated and wild mushrooms available in retail markets. White mushrooms, raw, unexposed to UV light provide about 5 IU per 70 g (1 cup) serving; while white mushrooms, raw, exposed to UV light provide about 732 IU per 70 g (1 cup) serving.<sup>4</sup>

## Improving the "Healthy U.S. Style" Dietary Pattern: Blending Mushrooms with Meat

The Committee noted that vegetables are excellent sources of many shortfall nutrients including those of public health concern; yet the U.S. population consumes few vegetables, and intake has been decreasing. Although mushrooms are fungi and belong to [a distinct food kingdom](#),<sup>5</sup> they are used as a vegetable. Mushrooms' flavor and low energy density make them a strategic addition to dishes to increase vegetable intake. In addition, mushrooms' long historical use in cross-cultural cuisines supports the recommendation to adopt dietary patterns considered health promoting - described by the Committee as a Healthy U.S.-style Pattern, Healthy Mediterranean-style Pattern and Healthy Vegetarian-style Pattern.

Continuing its commitment to discovering the nutrient and health benefits of mushrooms, the Council is excited to announce its new research projects:

- [Mechanisms by which mushrooms regulate the gut microbiota](#). Margherita Cantorna, Penn State University, State College.
- [Mushroom intake and chronic disease risk in men and women: biomarkers indicative of risk of type 2 diabetes, cardiovascular disease, prostate and breast cancer of nurses and health professionals followed by the Harvard School of Public Health](#). Jorge Chavarro, Harvard School of Public Health, Boston, MA.
- [Potential prevention of atherosclerosis by edible mushrooms](#). Mohsen Meydani, USDA Human Nutrition Research Center on Aging, Tufts University, Boston, MA.
- [Mushrooms enhance satiety and improve gut health markers](#). Joanne Slavin, University of Minnesota, Minneapolis.
- [Prebiotic effect of dietary Agaricus bisporus mushroom on intestinal microflora composition and host immunological function](#). Sonia Solano-Aguilar, USDA Beltsville Human Nutrition Research Center,

The Committee also identified changing the composition of mixed dishes high in calories, saturated fat and sodium as an important strategy to lower population intakes of these dietary components to help consumers better meet nutrition goals. Research<sup>2</sup> supports the potential for mushrooms' use as a partial substitute for ground beef in popular dishes by improving the flavor and texture while helping to lower calories and some overconsumed nutrients of concern in the finished dish. In keeping with the anticipated release of the 2015 Dietary Guidelines for Americans, nutritious, flavorful and versatile mushrooms can be part of many healthful dietary patterns.

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## Mushroom Chipotle Chili

*Courtesy of the Culinary Institute of America and the Mushroom Council.*

**Yield:** 6×8 ounce servings

### Ingredients:

4 pounds mushroom and meat base  
3 tablespoons vegetable oil  
2 cups yellow onion, diced  
1 tablespoon garlic, minced  
2 each poblano green chilies, seeded and diced  
2 tablespoons jalapeños, seeded and minced  
1/3 cup chili powder  
1 tablespoon chipotle chilies in adobo, minced  
2 tablespoons ground cumin  
2 tablespoons oregano, dried  
1×16 oz can crushed tomato with liquid  
1x 12 ounce bottle lager beer  
Kosher salt to taste  
Black pepper, freshly ground to taste

### Directions:

1. Season the mushroom and meat mixture with salt and pepper as needed.
2. Heat the oil in a pan over medium to high heat. Add the onions, garlic and chilies to the pan and cook over medium heat, stirring from time to time, until the mixture is tender, about 12 – 15 minutes.
3. Add the herbs chipotle, and spices and sauté for 5 minutes then add the mushroom meat blend and stir to mix well.
4. Add the beer and tomatoes to the pan and bring to a slow simmer. Cover the pot and cook over very low heat or in a 325 degree oven for 1 hour. Check the chili periodically, stirring as needed.
5. Taste for seasoning and adjust as needed with more chili powder, salt and pepper. The chili should be very flavorful and the liquid should be greatly reduced and thickened. Serve the chili.

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