Mushrooms are nature's hidden treasures of nutrition. Many people like them for their satisfying meaty taste and their versatility. But are they really good for you? The answer is yes! In fact, you will be surprised to learn about the nutritional benefits of mushrooms. For thousands of years, mushrooms have been used in eastern medicine for their various health benefits. In this Healthy Eating Tip of the Month, learn about the health and nutritional benefits of mushrooms. There are also two delicious recipes, some more helpful resources, and a prize giveaway at the end!
Some Popular Mushroom Varieties

<table>
<thead>
<tr>
<th>Variety</th>
<th>Flavor</th>
<th>Uses</th>
<th>Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Button</td>
<td>Fairly mild taste and pairs well with almost anything! Flavor intensifies the longer they are cooked.</td>
<td>Sauté or cook in any way or even enjoy raw in a salad.</td>
<td>Try them sliced and sautéed in pasta or quesadillas.</td>
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<tr>
<td>Cremini</td>
<td>Deeper, earthier flavor than white button.</td>
<td>Sauté, broil, microwave, or cook in almost any way.</td>
<td>Hearty and full-bodied taste makes them an ideal addition to beet and vegetable dishes.</td>
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<tr>
<td>Portabella</td>
<td>Deep, meat-like texture and flavor</td>
<td>Grill, broil, or roast; serve as appetizers, entrees or side dishes</td>
<td>Hearty taste and texture makes them a flavorful vegetarian substitute. Grill and serve them as a 'burger' on warm toasted buns.</td>
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<tr>
<td>Enoki</td>
<td>Mild taste and crunchy texture</td>
<td>Trim roots at base before using. Before serving them, separate the stems</td>
<td>Eat raw in salads and sandwiches. Can be used as an ingredient in soup stock with soy sauce and tofu.</td>
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<tr>
<td>Oyster</td>
<td>Mild, delicate flavor</td>
<td>Sautéing with butter and onion brings out their best flavor.</td>
<td>Add to linguine with sliced steak and sprinkle with parmesan cheese</td>
</tr>
<tr>
<td>Maiitake</td>
<td>Distinctive aroma and rich, woody taste.</td>
<td>Lightly sauté in butter or oil</td>
<td>For a richer taste in any recipe, use maiitakes. Can be a main dish ingredient or in side dishes and soup</td>
</tr>
<tr>
<td>Shiitake</td>
<td>Rich and woody when cooked</td>
<td>These taste best when cooked</td>
<td>Try them in stir-fries, pastas, soups, entrees, and sides for a meaty flavor.</td>
</tr>
</tbody>
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Ergothioneine: An important antioxidant

Ergothioneine is a naturally occurring antioxidant that protects the body’s cells against oxidative stress which may slow down the aging process.

Mushrooms are the richest source of ergothioneine. In fact, one serving of white, portabella, or cremini mushrooms provide around 2.8-4.9mg of ergothioneine (Gerger 2013).

Less colorful but still nutrient dense vegetables like mushrooms are often ignored and more brightly colored vegetables and fruits are often kept in the spotlight. This is unfortunate since mushrooms also provide a wide range of essential nutrients.

Mushrooms are good sources of some B vitamins like Riboflavin or Vitamin B2, Pantothenic acid or Vitamin B5, and Niacin or Vitamin B3.

These B vitamins play an essential role in the nervous system and provide energy by breaking down carbohydrate, fat, and protein.

Mushrooms are also a good source of some important minerals like selenium, potassium, and copper.

◊ **Selenium**, an antioxidant, can keep the body’s cells healthy and prevent heart disease and cancer. Selenium also promotes a strong immune system and fertility in men. Mushrooms are the richest vegetable source of selenium. This is especially good news for vegetarians since selenium is often found in animal foods.

◊ **Copper** keeps our bones and nerves healthy. Moreover, copper helps make red blood cells which carry oxygen throughout the body.

◊ **Potassium** helps control blood pressure since it helps maintain normal fluid and mineral balance. It also helps the nerves, the heart, and other muscles function normally.
Vitamin D is important for strong and healthy bones since it helps us absorb the calcium from our diet. Deficiencies in vitamin D can lead to soft, thin, and brittle bones; a condition called osteomalacia in adults and rickets in children. However, emerging research has suggested the role of vitamin D in various other conditions like cancer, cardiovascular disease, hypertension, immunity, neuropsychological functioning, physical performance, and reproduction. Limited sun exposure, darker skin, and insufficient vitamin D levels in the diet can cause vitamin D deficiency.

Vitamin D is only present in a few foods including: milk, fatty fish like salmon, fortified cereal, and juice. However, mushrooms are the only food from the produce aisle that have vitamin D. The vitamin D content in mushrooms is often increased by exposing them to ultraviolet light, and these new varieties of mushrooms are available in grocery stores. In fact, some light-exposed mushrooms found in a few stores have up to 400 IU of vitamin D in 1 serving of mushrooms (4-5 white button cremini mushrooms or 1 portabella!).

(Vitamin D, 2010)
Mushrooms are lower in calories and fat and are a great substitute for red meat. In addition, they are very filling due to their meaty and fulfilling nature!

A recent study in 2013 examined the effect of substituting red meat with mushrooms. The results of this interesting study showed that the participants who consumed mushrooms instead of red meat showed more weight loss, lower waist circumference, lower blood pressure, and they were also able to maintain their weight when compared to the participants who ate red meat! (Ren, Perera, and Hemar)
Umami and Sodium

Mushrooms are a good source of umami, the pleasant savory and 'earthy' taste. Mushrooms are naturally low in sodium and their umami flavor makes up for the lack of saltiness. Hence, less salt can be used in a dish with mushrooms without compromising the taste. A collaborative report from the Department of Nutrition at Harvard School of Public Health and the Culinary Institute of America suggests cooking with foods rich in umami, like mushrooms!

Additional Research

Mushrooms have long been considered as functional foods. They are currently under research for their effects on cancer. They have special bioactive compounds called Beta-Glucans that have been known to exhibit anti-tumor activity. However, more research is needed and currently researchers are conducting human clinical trials.
Selecting, Storing, and Cleaning Fresh Mushrooms

**Selecting**
- Buy mushrooms that are firm and have a smooth, fresh appearance.
- The surface of the mushroom should be dry enough but not too dried out and should appear plump.
- The veil under the mushroom indicates the depth of flavor. If the veil is closed under the cap then this indicates a delicate flavor.
- If the veil under the cap is exposed then this means a richer flavor.

**Storing**
- Mushrooms can be refrigerated for up to 1 week in their original packaging.
- Once open, store in a paper brown bag for a longer shelf-life; do not store in an air tight container, which can cause spoilage due to condensation.
- Fresh mushrooms should never be frozen, but cooked mushrooms can be frozen for up to a month.

**Cleaning**
- Brush away any dirt off fresh mushrooms using a damp paper towel or your fingers.
- Rinse under running water for a few seconds and pat dry with a dry paper towel.
- Mushrooms absorb water so never soak them!
  - Before using, trim the end of the stem.
Mushroom Hunting and Safety

Mushrooms in the Wild

- Never eat mushrooms in the wild unless they have been identified as safe to eat by a specialist or a mycologist.
- Eating unsafe, wild mushrooms can result in toxic reactions ranging from mild gastric distress to hospitalization and even death.
- It is advisable to cook the wild mushrooms thoroughly. Some mushrooms contain toxins that can be destroyed by cooking.
- Young children, the elderly, and the sick should avoid wild mushrooms since they are generally more susceptible to toxic reactions than other people.

Michigan Mushroom Hunters Club (MMHC)

The Michigan Mushroom Hunters Club is a social and educational organization dedicated to collecting, identifying, and enjoying wild mushrooms grown throughout the state of Michigan. Contact the MMHC for more information at www.michiganmushroomhunters.org.

Comprised of experienced, beginner, amateur and professional mycologists, the MMHC can be a gateway for the fun and safe outdoor hobby of mushroom hunting!
Recipe: Mushroom and Kale Hash with Poached Eggs

**Yield:** 4 servings

**Serving Size:** 2 poached eggs and 2 cups vegetables

**Ingredients**
- 2 large potatoes, scrubbed (but not rubbed), peeled, and cut into ½-inch dice
- ½ large onion, chopped
- 2 cloves garlic
- 1 pound small crimini mushrooms (or “baby bellas,“)
- 1 large bunch kale, washed and chopped
- olive oil for cooking
- Pinch each of dried basil, oregano and crushed chili peppers
- about 4-5 sprigs fresh parsley, leaves chopped
- salt and pepper to taste
- 8 large eggs, poached (or fried)

**Directions**
1. Bring a medium pot of water with about a teaspoon of salt to a boil.
2. Add the potatoes and cook until just before completely done, about 10 minutes. Drain water.
3. Heat about 2 tablespoons olive oil in large frying pan. Add onions and garlic and cook over medium heat until soft. Add cooked potatoes, turn up heat and cook until potatoes are crisped and brown.
4. Add mushrooms, kale, herbs/spices, and more oil if needed.
5. Stir-fry until cooked through, about another 10 minutes.
6. Taste and season with salt and pepper.
7. Serve in individual bowls, each topped with 2 poached eggs.
8. Sprinkle with pepper and chopped fresh parsley.

**Nutrition Facts**
- Calories: 530
- Total Fat: 49g
- Saturated Fat: 27g
- Cholesterol: 370mg
- Sodium: 230mg
- Protein: 19g
- Total Carbohydrate: 21g
- Dietary Fiber: 3g
Recipe: Grilled Rosemary Mushroom Skewers

Servings: 4

Ingredients
4 tablespoons olive oil
1 tablespoon minced fresh rosemary
salt/pepper
4 fresh rosemary sprigs
8 medium button mushrooms – stems removed
4 grape tomatoes
4 1” pieces yellow bell pepper

Directions
1. Preheat grill (or grill pan).
2. In a small bowl whisk together the olive oil, minced rosemary and salt/pepper to taste.
3. Remove 75% of the rosemary needles from the rosemary sprigs creating a “skewer.”
4. To assemble the skewers, place a mushroom, tomato, pepper and another mushroom onto an individual rosemary skewer. Continue until all skewers are complete.
5. Brush marinade onto the skewers. Place the skewers onto the hot grill and cook for approximately 2 minutes on each side.
6. Serve and enjoy.

Nutrition Information:
Calories: 147
Total Fat: 6.5g
Saturated Fat: 2.9g
Cholesterol: 0mg
Sodium: 28.5mg
Protein: 4.3g
Total Carbohydrate: 21g
Dietary Fiber: 3g
Nutrition in The News!

At Yale University, mushrooms were the secret ingredient in a recent culinary competition. Twelve residential colleges competed in “Iron Chef style” where they had one hour to make an appetizer and entrée using mushroom as the main ingredient. The recipes were judged by a panel of esteemed judges. The first prize went to Berkeley College for their Thai Soup dish. The second place was won by Branford College for their Mushroom Risotto and Grilled Salmon with Caramelized Mushrooms and Brussels Sprouts. Trumbull College came in third with their Pesto Salmon with Couscous and Mushroom Crepe.

For more Information, Visit these great websites:

- Fresh Mushrooms, www.mushroominfo.com/
- Mushroom Council, Research and Information Website, www.mushroomcouncil.org/
  - For more great recipes, www.mushroominfo.com/search-recipes/
  - The Mycological Society of America, www.msafungi.org/
- Academy of Nutrition and Dietetics, www.eatright.org/default.aspx
**You Could Win!!!**

Visit the Healthy Tip of the Month bulletin in the University Hospital Cafeteria for an opportunity to win a prize! At the end of month of June, one lucky winner will be randomly selected to win a prize! Please provide your name, address, e-mail address, and phone number which will be used to contact the winner.

The prize for this month’s winner is....

**A Mushroom Growing Kit!**


Use the kit to grow delicious, edible, and gourmet mushrooms. This line of kits are very easy to use even by someone who is inexperienced. These kits are also environmentally friendly! All the kits are guaranteed to produce delectable mushrooms.

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References