

Mushrooms, Nature's Hidden Treasures

Participant Handout



Enjoying Mushrooms in Family Meals Care and Handling

Nutrient dense and savory, mushrooms complement almost any everyday favorite meal. Follow these tips to be sure mushrooms taste as good as they should.

Selection:

- Purchase mushrooms that are firm with a fresh, smooth appearance.
- Surfaces should be dry, but not dried out, and appear plump.
- A closed veil under the cap indicates a delicate flavor, while an open veil and exposed gills mean a richer flavor.

Storage:

- Mushrooms keep for up to a week in the refrigerator.
- Keep mushrooms in original packaging until ready to use.
- Once opened, store mushrooms in a porous paper bag for a prolonged shelf-life.
- Avoid storing in airtight containers - they cause condensation, which quickens spoilage.
- Raw mushrooms should be blanched or sautéed before freezing. Frozen sautéed mushrooms will keep for up to one month.

Cleaning:

- Brush off any dirt with a damp paper towel or fingers—there is no need to peel mushrooms.
- Rinse fresh mushrooms only briefly under running water and pat dry with a paper towel. Never soak them - they absorb moisture.
- Trim the end of the stem before using. Remove the whole stem of the shiitake mushroom.
- Use immediately after cleaning to prevent darkening.

How much to purchase:

| | |
|---|---|
| 1 pound Crimini or White mushrooms | = 5 cups sliced (lightly packaged) |
| 1 pound sliced Crimini or White mushrooms | = 2 cups sautéed |
| 1 pound Crimini or White mushrooms | = approximately 35 medium sized mushrooms |
| 4 ounces Shiitake mushrooms without stems | = 1 1/2 cups sliced or chopped |
| 6 ounces trimmed Portobello mushrooms | = 2 1/4 cups coarsely chopped |

Basic Preparation:

- When clean, slice thin or thick, cut in quarters or halves, chop coarsely or finely using a sharp knife. For large quantities, use a food processor.
- If a recipe calls for caps, twist stems loose or separate them from the caps with the tip of a knife. Keep the stems for another use: scrambled eggs, soup, in vegetables and more!

Cooking Mushrooms

Sauté: Brush pan lightly with oil and heat on high. Add a single layer of mushrooms. Don't overcrowd – which will steam rather than browning them. Mushrooms become reddish brown on one side after a few minutes. Turn once. Cook until the other side turns the same color. Remove from heat. Usage Idea: Add to any dish!

Grill and Broil: Best for larger capped mushrooms, such as Portabellas. Lightly brush caps and stems with oil and season as desired. Grill or broil 4 to 6 inches from heat source for 4 to 6 minutes on each side, brushing once or twice. Tip: Make these savory mushrooms the "main stage" of the meal.

Roast: Roast for great mushroom flavor. Preheat oven to 450 degrees. Brush mushrooms with oil (about 1 tablespoon of oil for each 8 ounces of mushrooms). Place mushrooms on a shallow baking pan in oven. Stir occasionally until brown (about 20 minutes).

Microwave: Mushrooms cook extremely well in the microwave. Place 8 ounces of sliced mushrooms in a microwaveable bowl. Cover and cook on 100% power for 2-3 minutes. Stir once. Toss onto a hot sandwich, chili, soup or packaged meal. The mushrooms will steam and not brown in the microwave.

How to Use in Meals

How to Season: Mushrooms are very similar to meats and other vegetables. Virtually any and all seasonings go well with mushrooms. Garlic goes particularly well with mushrooms when stir fried. If serving as a side dish, use seasonings compatible with the main dish.

Freshen Up Your Meals: Toss fresh mushrooms in your everyday meals like lasagna or soup to add key nutrients with no fat, few calories and no cholesterol (and nice taste).

Burger or Sandwich Swap: Cut slices of Portabella mushrooms for your favorite sandwich instead of meat for a healthy inexpensive swap. Try swapping your burger for a grilled Portabella on a bun with your favorite condiments. Try the meaty texture—your body will appreciate the swap.

Dried Mushrooms: Dried mushrooms are available in most large markets and specialty stores. Dried shiitake, morel, chanterelle and porcini mushrooms are commonly available, as are blends of several varieties. Experiment to find the flavors you like best. Dried mushrooms can be expensive, but shiitake and other Asian dried mushrooms are much cheaper at Asian markets than at supermarkets.

Use reconstituted dried mushrooms or seasoning powder as an enhancement in any recipe that calls for fresh mushrooms. Add the dried mushrooms early in the recipe so that they have time to cook and blend in. Make seasoning powder by placing the dried mushrooms on a baking sheet at 250 degrees F. for 15 to 20 minutes to remove the last traces of moisture. Then grind the mushrooms in a food processor or spice mill. Sift out the larger pieces, and use the fine powder as a seasoning for seafood, gravies and soups.

Mushroom Varieties

Agaricus (White or Button)

These mushrooms are the most common variety representing about 90 percent of mushrooms consumed in the US; available fresh, canned, or frozen. White mushrooms are mildly flavored. They're tasty when eaten raw but even more flavorful when cooked.



Crimini or Italian

These mushrooms are similar to the button variety, yet they are darker in color, have a richer flavor, and have a denser texture. Criminis were once an imported mushroom but are now grown domestically. Cook almost any way. Their hearty, full-bodied taste makes them an excellent addition to beef, wild game and vegetable dishes.



Portabella (o)

These are large crimini-like mushrooms that are sometimes the size of a regular hamburger. These tan or brown fungi are circular, flat, and long, with a dense, chewy texture. They have a deep, meat-like texture and flavor. Portobellos are excellent for grilling, broiling or roasting. They're used often as a vegetarian alternative for meat.



Enoki, or Enokitake

This fungi takes on a sprout-like appearance with small button-shaped caps and thin, long, stems. Native to Japan, white in color, crunchy, with a light fruity taste, these mushrooms are excellent when served raw in soups and salads. Try them in sandwiches or as an ingredient in soups, such as stock made with soy sauce and tofu.



Oyster, or Pleurotus

These mushrooms grow in clusters, and range in color from off-white to shades of brown, pale yellow and even blue. Oysters have a very delicate flavor. Sauté with onion and butter to bring out the flavor. Serve with pasta and vegetables sprinkled with parmesan cheese.



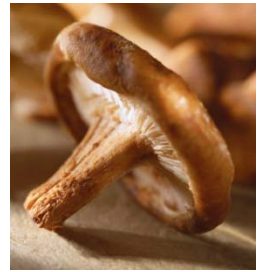
Maitake (Hen of the Woods)

They appear rippling and fan-shaped, without caps. Maitake have a distinctive aroma and a rich, woody taste. Sauté lightly. These mushrooms add a richer taste to in any recipe calling for mushrooms. Use as main dish or in side dishes and soups.



Shiitake

Shiitake mushrooms were originally cultivated on natural oak logs and only grown in Japan, but are now available domestically. These mushrooms are large, dark brown, and have broad, umbrella-shaped caps, wide open veils, tan gills, and curved stems that should be removed. Having an earthy rich flavor, this fungi is enjoyed in stir-fries, soups, or even a meat substitute. They taste best when cooked. Dried Shiitakes have more intense flavors and are sometimes preferable to fresh.



Chanterelles or Girolle

These trumpet shaped fungi are highly regarded mushrooms that are favored for their gold to yellow color, and rich flavor, ranging from apricot to earthier tasting. Gathered from the wild usually in the fall, Chanterelles are best eaten fresh, although they are also available dried or canned.



Porcini or Cep

Porcini mushrooms are well valued for their meaty texture, interesting flavor, and distinguishing shape. These mushrooms vary in size and are domestically grown or imported from Europe depending on the season. This variety is usually expensive, but is considered one of the finest-tasting mushrooms.



Morel

These mushrooms are highly priced and highly prized for their intense earthy flavor. They are usually found in the wild in the spring, although can now be grown commercially. Check for trapped dirt when cleaning. They should be dry and springy but still firm. This conical shaped, honey combed surface fungi is small with dark brown hues. It is suitable for stuffing and is ideal for sauces and stews.



Sources:

- CDC, Fruit and Vegetable of the Month: <http://www.fruitsandveggiesmatter.gov/month/mushroom.html>
- “Popular Mushroom Varieties”, Fresh Mushrooms, Natures Hidden Treasurers, Mushroom Council: <http://www.mushroominfo.com/aboutmushrooms/>
- Wikipedia, mushrooms photo galleries
- “Choice Ingredient: Morel Mushrooms” Cooking Light.com: <http://www.cookinglight.com/cooking-101/essential-ingredients/>

Mushroom Recipes

There are many recipes that use mushrooms as part of the recipe, adding complexity of flavor and great seasoning. These recipes feature mushrooms as the focal part of the recipe—enjoy the yummy flavor of this nutritious fungus.

Mushroom Soup

Yield: 4 – 12 ounce servings

Ingredients:

- 12 oz. sliced white button* mushrooms (4 cups sliced, lightly packed)
- 2 tablespoons vegetable oil (or butter)
- ½ cup onion, chopped
- 1 clove fresh garlic, minced
- 2 tablespoons flour
- 1 cup milk
- 1 cup half and half or light cream (or fat free half and half)
- 1 cup low sodium chicken broth
- 1/2 teaspoon salt or to taste
- 1/8 teaspoon each nutmeg and black pepper
- Parsley, chopped

Directions:

1. Rinse mushrooms, pat dry, slice and set aside.
2. In medium saucepan, sauté onion and garlic in vegetable oil until tender (about 3 minutes). Add mushrooms and sauté 5 more minutes or until mushrooms are golden.
3. Sprinkle flour over mixture; cook and stir until a smooth paste is formed, about one minute. Combine milk, half and half, broth and seasonings. Add to mixture slowly, stirring about 5 minutes until thickened.
4. Garnish with chopped parsley.

Note: *add flavor complexity to this soup by using several varieties of mushrooms

| Nutrition Facts | |
|--|---------------------------|
| Serving Size 1 1/2 cup (285g) | |
| Servings Per Container 4 servings | |
| Amount Per Serving | |
| Calories 190 | Calories from Fat 110 |
| % Daily Value* | |
| Total Fat 12g | 18% |
| Saturated Fat 3.5g | 18% |
| Trans Fat 0g | |
| Cholesterol 15mg | 5% |
| Sodium 370mg | 15% |
| Total Carbohydrate 14g | 5% |
| Dietary Fiber 1g | 4% |
| Sugars 7g | |
| Protein 8g | |
| Vitamin A 6% | Vitamin C 6% |
| Calcium 15% | Iron 4% |
| *Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs: | |
| Calories: | 2,000 2,500 |
| Total Fat | Less than 65g 80g |
| Saturated Fat | Less than 20g 25g |
| Cholesterol | Less than 300mg 300mg |
| Sodium | Less than 2,400mg 2,400mg |
| Total Carbohydrate | 300g 375g |
| Dietary Fiber | 25g 30g |
| Calories per gram: | |
| Fat 9 • Carbohydrate 4 • Protein 4 | |

Mushroom Scramble Mug

1 serving

Ingredients:

- Non-stick cooking spray
- 1 cup mushrooms, sliced
- Pinch ground black pepper
- 1 whole egg
- 1 egg white
- 1 slice fat-free American cheese, torn in strips
- 1 tomato or red pepper, diced (optional)
- Whole wheat English muffin (optional)

Recipe analysis included ½ cup tomato but not English muffin.

| Nutrition Facts | |
|--|---------------------------|
| Serving Size 1 mug (248g) | |
| Servings Per Container 1 | |
| Amount Per Serving | |
| Calories 150 | Calories from Fat 50 |
| % Daily Value* | |
| Total Fat 6g | 9% |
| Saturated Fat 1.5g | 8% |
| Trans Fat 0g | |
| Cholesterol 215mg | 72% |
| Sodium 400mg | 17% |
| Total Carbohydrate 9g | 3% |
| Dietary Fiber 1g | 4% |
| Sugars 5g | |
| Protein 17g | |
| Vitamin A 15% | Vitamin C 25% |
| Calcium 20% | Iron 8% |
| *Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs: | |
| Calories: | 2,000 2,500 |
| Total Fat | Less than 65g 80g |
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| Sodium | Less than 2,400mg 2,400mg |
| Total Carbohydrate | 300g 375g |
| Dietary Fiber | 25g 30g |
| Calories per gram: | |
| Fat 9 • Carbohydrate 4 • Protein 4 | |

Directions:

1. Lightly spray the inside of a microwaveable mug with non-stick cooking spray, place mushrooms in mug and sprinkle with salt and pepper. Cover and microwave for 1 minute. Let rest 30 seconds and drain any excess liquid.
2. Add whole egg and egg white to mug and mix well with a fork. Add cheese and tomato or red pepper (if desired) and microwave for 1 minute, stirring halfway through. Let rest 30 seconds to allow eggs to finish cooking. Enjoy in the mug or on a toasted whole wheat English muffin.

Source: Fruit and Veggies More Matter, Produce for Better Health

Super Mushroom Veggie Pasta

Serves 6

Ingredients:

- 1 box spaghetti (14.5 ounce)
- 2 tablespoons olive oil
- 1 pound mushrooms, sliced
- 1 red bell pepper, diced
- 1 large onion, diced
- 1 cup bite sized broccoli pieces
- 1 pint grape tomatoes
- ½ cup vegetable broth
- ½ cup prepared pesto
- 1 cup spinach leaves
- Freshly grated parmesan (for garnish)

Directions:

1. Prepare pasta according to package directions
2. Heat olive oil in large non-stick skillet over medium-high heat. Add a single layer of mushrooms, red bell pepper and onions and cook, without stirring, for about 5 minutes until mushrooms become red-brown on one side. Turn ingredients and cook until the other side is the same. Add broccoli, tomatoes and broth, and then stir in pesto. Bring to a simmer and then add spinach and cooked pasta.
3. Transfer to serving bowl and sprinkle with fresh Parmesan.

For more great mushroom recipes go online to www.mushroominfo.com.

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Reviewed and edited by: Dr. Carolyn Raab, Extension Foods and Nutrition Specialist

| Nutrition Facts | |
|--|---------------------------|
| Serving Size 1/6 of recipe (291g) | |
| Servings Per Container 6 | |
| Amount Per Serving | |
| Calories 440 | Calories from Fat 140 |
| % | |
| Total Fat 15g 23% | |
| Saturated Fat 3.5g 18% | |
| Trans Fat 0g | |
| Cholesterol 5mg 2% | |
| Sodium 440mg 18% | |
| Total Carbohydrate 61g 20% | |
| Dietary Fiber 5g 20% | |
| Sugars 6g | |
| Protein 16g | |
| Vitamin A 35% • Vitamin C 80% | |
| Calcium 20% • Iron 20% | |
| *Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs: | |
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| Total Carbohydrate | 300g 375g |
| Dietary Fiber | 25g 30g |
| Calories per gram: | |
| Fat 9 • Carbohydrate 4 • Protein 4 | |

PRESERVING MUSHROOMS

Mushrooms are not a true vegetable, but a fungus - a plant that does not have any roots or leaves and does not bear flowers or seed. Most varieties of mushrooms grow in the wild. There are over 38,000 varieties, some edible and some highly toxic. Unless you are an expert in mushroom identification, it is advisable to only preserve commercially sold mushrooms be preserved.

Mushrooms can be preserved by canning, freezing, drying, and pickling. Caution: **Because of density and texture differences only domestically grown button mushrooms may be safely canned.** Other varieties can be frozen or dried.

Canning (whole or sliced)

Mushrooms should only be canned in half-pint and pint jars. It takes an average of 2 pounds of mushrooms per pint and 1 pound per ½ pint.

Select brightly colored small to medium sized domestic button mushrooms. They should have short stems, tight veils (unopened caps), and no discoloration.

To can: Trim stems and discolored parts. Soak in cold water for 10 minutes to remove dirt. Wash in clean water. Small mushrooms can be left whole. Halve or quarter larger ones.

Put mushrooms in a saucepan and cover with water. Bring to a boil and simmer for 5 minutes. Pack hot into hot jars, leaving 1 inch head space. Add ½ teaspoon salt per pint if desired or ¼ teaspoon per half-pint. For better color, add ⅛ teaspoon of crystalline ascorbic acid powder, or a 500-milligram tablet of vitamin C. Add fresh hot water, leaving 1 inch head space.

Adjust lids and process half pints and pints in a pressure canner at 240°F, 10 pounds pressure weighted gauge and 11 pounds dial gauge, for 45 minutes. (Ask your county Extension Service for pressure adjustments if you live above 1,000 feet.) After processing, remove canner from heat and let pressure return to zero. Remove weight or slowly open petcock. Wait 10 minutes before removing lid.

Freezing

Most varieties of mushrooms freeze well. Choose edible mushrooms free from spots or decay. Sort according to size. Wash thoroughly in cold water. Trim off ends of stems. If mushrooms are larger than 1 inch across, slice them or cut into quarters.

Most mushrooms will freeze better if they are heat treated either by steam blanching or sautéing.

To steam: Mushrooms will hold their color better if pretreated before they are steamed. Soak mushrooms for 5 minutes in a solution containing 1 teaspoon lemon juice or 1½ teaspoons citric acid to 1 pint of water. Drain mushrooms. Place in a steamer basket and steam whole button mushrooms for 5 minutes, quarters for 3 ½ minutes, or slices for 3 minutes. Cool in ice water. Drain and package cold mushrooms in freezer containers. Seal, label and freeze.

To sauté: This is the preferred method for many varieties of mushrooms. Wash and slice or cut mushrooms into serving size pieces. Heat a small quantity of butter, margarine or oil in a heavy skillet. Add mushrooms and sauté until almost done. Remove from skillet and cool in air or set pan of mushrooms in cold water. When cold, pack into freezer containers. Seal, label and freeze.

Drying Mushrooms

Only dry cultivated or wild mushrooms that are safe to eat. Most mushrooms dry well. Good varieties for drying are button mushrooms, Chanterelles, and Morels.

Select fresh mushrooms with closed caps and visible gills under the cap. Clean them with a soft brush or cloth and quickly rinse to remove any dirt. Cut away any questionable parts and trim woody portions from the stem. Dry whole or sliced in half. Thickness should be approximately ½ inch thick.

Dry mushrooms in a dehydrator at 120°F until are crisp or brittle.

To use: Rehydrate dried mushrooms by soaking them in boiling water for a few minutes until softened. Lift out of the water with a slotted spoon and add to your favorite dish.

Pickling

Because mushrooms are low acid it is important to use only tested recipes. Only use commercially grown button mushrooms.

Marinated Whole Mushrooms

| | | |
|----|--------|--------------------------------------|
| 7 | pounds | small whole button mushrooms |
| ½ | cup | bottled lemon juice |
| 2 | cups | olive or salad oil |
| 2½ | cups | white distilled vinegar (5% acidity) |
| 1 | Tbsp. | dried oregano leaves |
| 1 | Tbsp. | dried basil leaves |
| 1 | Tbsp. | salt |
| ½ | cup | finely chopped onions |
| ¼ | cup | diced pimiento |
| 2 | cloves | garlic, cut into quarters |
| 25 | black | peppercorns |

Select fresh unopened button mushrooms with caps less than 1¼ inches in diameter. Wash. Cut stems, leaving ¼ inch attached to cap. Add lemon juice and water to cover. Bring to a boil. Simmer 5 minutes. Drain mushrooms. Mix oil, vinegar, oregano, basil and salt in a saucepan. Stir in onions and pimiento. Heat to boiling. Place ¼ garlic clove and 2-3 peppercorns in each ½ pint jar. Fill jars with mushrooms and cover with hot, well mixed oil/vinegar solution. Leave ½ inch head space. Remove air bubbles, Wipe jar rims. Adjust lids. Process half pints for 20 minutes in a boiling water canner. (For processing times for altitudes over 1,000 ft. call your local Extension Service.) After processing, remove canner from heat. Remove lid and wait 5 minutes before removing jars.

Yield: Approximately 8 half-pint jars.

Source: Family Food Education Program, Oregon State University Extension Service