MONTEREY® MUSHROOMS

Everything You Need to Know About

High Vitamin D Mushrooms

EXCELLENT SOURCE OF VITAMIN D

The Dietitian's Guide to the Benefits of Stocking High Vitamin D Mushrooms in Your Stores

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What is Vitamin D?

Vitamin D is a fat-soluble vitamin— the only vitamin our body produces when exposed to sunlight. Because this special vitamin results from exposure to natural sun rays, it's often called "the sunshine vitamin."

But shockingly, nearly 42% of Americans lack adequate vitamin D. Why? Modern indoor lifestyles keep us out of the sun's helpful rays; and even when we are outside, sunscreen, sunglasses and protective clothing can block our skin from adequate exposure.

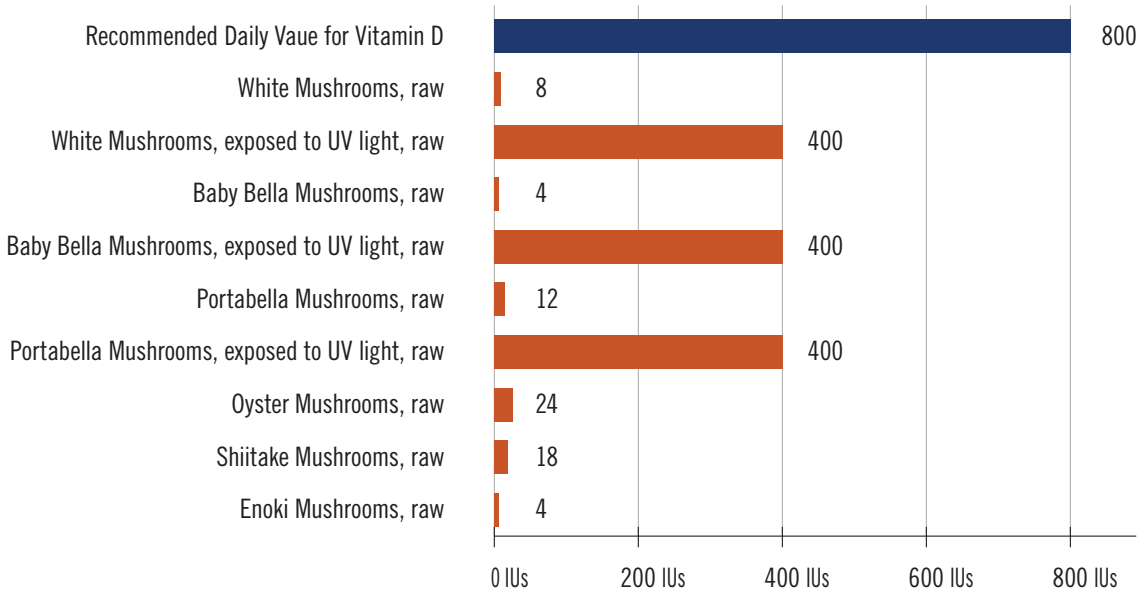
Because of this, people often try to source vitamin D from their diet. Yet very few foods naturally include significant levels of vitamin D – and when they do, they are animal-based. Meat and dairy sources are surprisingly, rarely a beneficial source.

When it comes to beef and pork, only the animal's organs (like the liver and kidneys) contain significant vitamin D levels— and not even all animal organs contain this important nutrient. For instance, chicken livers provide no trace of vitamin D whatsoever.

Even chicken eggs, which are commonly assumed to contain high levels of vitamin D, only contain the nutrient in the yolks, not the whites. Beyond animal products, USDA data shows that fruits and vegetables typically don't contain substantial levels of the vitamin at all.

Some fortified products like cereal and juices contain added vitamin D, but "High Vitamin D" mushrooms are the only readily available produce item naturally containing vitamin D— making these fungi an incredibly valuable addition to your shelves.

Vitamin D Levels in Mushrooms Per Serving*



*A serving is 85g /3.0 oz which is about 5 medium mushrooms or 2/3 C sliced

IUs = International Units

Types of Natural Vitamin D

Vitamin D2

(ergocalciferol)

Found in specially labeled
"High Vitamin D" mushrooms

- Mushrooms (exposed to UV light)
- Foods made with "High D" mushrooms
- Dietary supplements

Vitamin D3

(cholecalciferol)

Found in animal sources

- Oily fish and fish oil
- Select Types of Liver
- Egg yolks
- Dietary supplements

"It used to be thought that D2 was less potent and bioavailable in the body than D3," according to Berkeley Wellness. However, a number of reputable studies "comparing D2 from mushrooms with D3 from supplements… has found that D2 is as effective as D3 in boosting the biologically active form of the vitamin in the body."

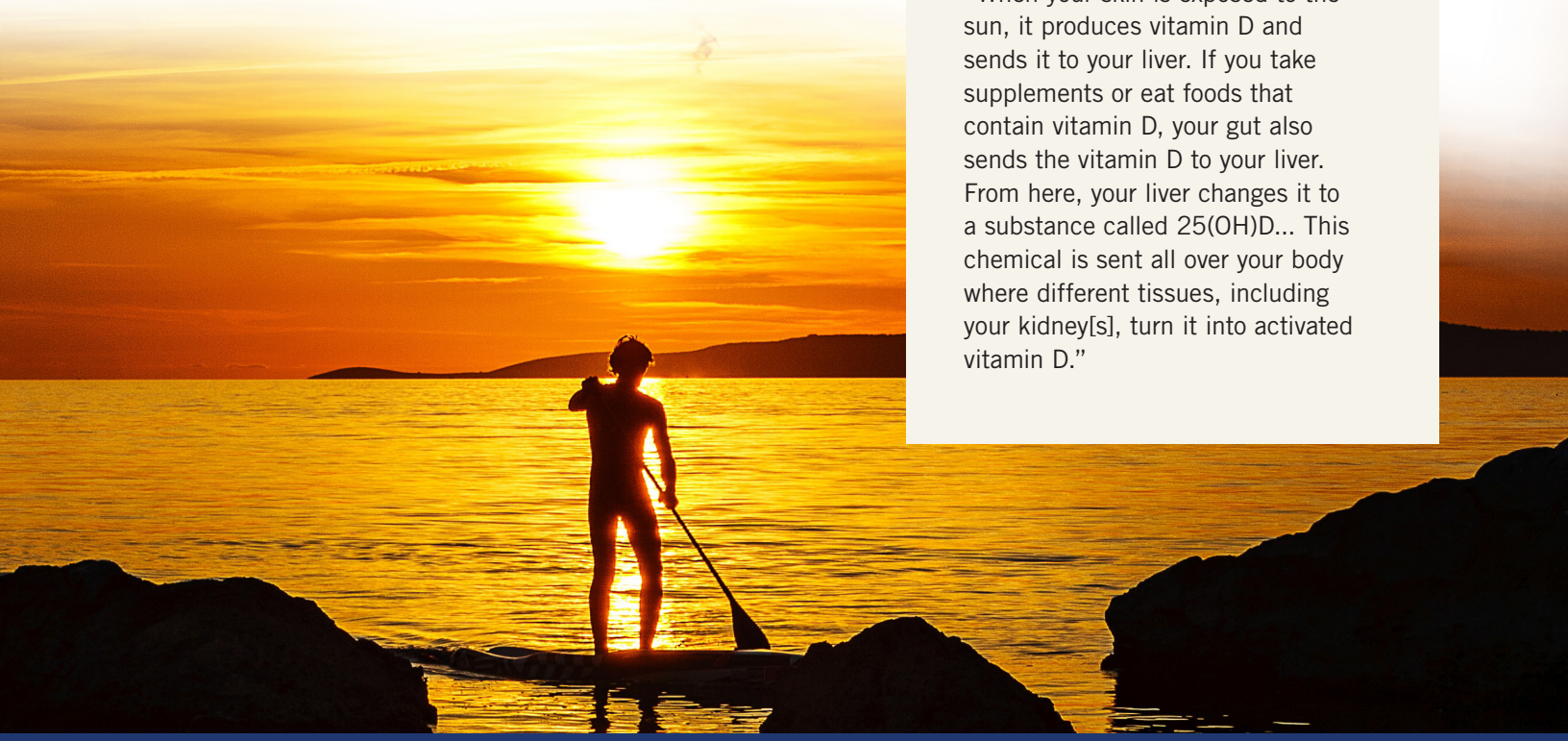
There's a huge lack of this important nutrient in your produce department and in the diets of your health-conscious shoppers.

In this ebook, we're going to focus on the power of adding vitamin D options to your produce shelves.

How Does it Work?

The Vitamin D Council explains the process quite well:

"When your skin is exposed to the sun, it produces vitamin D and sends it to your liver. If you take supplements or eat foods that contain vitamin D, your gut also sends the vitamin D to your liver. From here, your liver changes it to a substance called 25(OH)D... This chemical is sent all over your body where different tissues, including your kidney[s], turn it into activated vitamin D."



Why Is Vitamin D Important?

Although new benefits are being discovered and studied every day, vitamin D is well known as an essential component of bone health. Why? This nutrient is essential for absorption in the body of calcium, phosphorus and magnesium, which helps to maintain bone strength.

In general, vitamin D is critical to your overall health and is a major contributor to the immune system.

Benefits of Vitamin D*

- Contributes to bone health
- Helps manage blood sugar
- Helps maintain cardiovascular health
- Enhances immune system
- Promotes hormone regulation
- Helps with concentration and memory

*Note: These benefits only come with a well-rounded diet that includes more than just a source of vitamin D. Often it works in combination with other essential nutrients, such as calcium, magnesium and vitamin K.

The Research

Women who took vitamin D supplements in one study were 41% less likely to develop multiple sclerosis compared with those not taking the daily multivitamin.

Another study at Boston University found that those who were exposed to UVA and UVB light naturally normalized their high blood pressure.

The Impact of Vitamin D Deficiency

While receiving the right amount of vitamin D comes with a fair share of benefits, a lack of this important nutrient can mean bad things for your customers.

Vitamin D deficiencies can increase chances of developing ailments with age, such as type 1 diabetes or muscle and bone pain.

Those with chronically low levels of the nutrient are also at a higher risk of developing cancers of the breast, colon, prostate, ovaries, esophagus and lymphatic system, according to WebMD.

In fact, one reputable clinical study found a "great body of evidence… that patients with vitamin D deficiency have increased cardiovascular risks and total mortality."

Beyond being essential for bone health, vitamin D deficiency has been associated with:

- Diabetes
- Hypertension
- Depression
- Multiple sclerosis
- Arthritis
- Etc.

By adding vitamin D enhanced mushrooms to your produce section, you are offering your customers an easy way to reduce their risk of developing these ailments.

How Mushrooms Become High in Vitamin D

Humans produce vitamin D when the sun's rays touch our skin. Unlike other fruits and vegetables, the penetrable tissue of mushrooms responds to light similarly to the way people do: by increasing vitamin D content when exposed to sunlight.

Unfortunately, most commercially raised mushrooms are grown in the dark and, thereby, lack vitamin D.

But here at Monterey Mushrooms, we saw an opportunity to boost the nutritional value of our fungi. We teamed up with the U.S. Department of Agriculture to replicate vitamin D-rich sunlight indoors.*

*Don't Worry!

We don't use additives, supplements or chemicals to manipulate the nutrition of our mushrooms. All that's needed is our specially devised proprietary "sunlight" (also known as ultraviolet light)!

As a result of our specially developed lighting system, three of our medium-sized "High Vitamin D" mushrooms provide 5 mcg (200 IU) of vitamin D— 25% of your recommended Daily Value.

Eating a dozen of our medium-sized "High Vitamin D" labeled mushrooms gives you all the vitamin D you need in a day (20 mcg = 800 IU 100% DV).

Other Nutrients Found in Mushrooms

In addition to vitamin D, mushrooms have a robust nutritional profile.

Selenium

Though not as popularly known as vitamin D, our bodies need small amounts of selenium for a number of health reasons.

This trace mineral is an antioxidant, meaning it helps to remove free radicals that are linked to cancer, heart problems, inflammation, premature aging and more. It's also an immune system booster, fueling the antibodies that build your resistance to sickness.

In addition, the thyroid gland requires selenium to function properly and regulate your heart and digestive function. It also helps to stabilize your mood and foster continual brain development.

Adults require a minimum of 55 mcg of selenium a day, while those pregnant or breastfeeding may require more.

With about 8 mcg of selenium in three ounces (85 g) of white mushrooms, this serving provides 15% your daily value (DV). Brown mushrooms have even higher levels of selenium per serving, packing 40% DV in just three ounces.

Selenium can also be found in foods such as eggs, pork, shrimp and Brazil nuts. Encourage your customers to mix them into their diet in addition to mushrooms to fuel their cells.

Cancer-Fighting Properties

"One study published last year by Chen and other City of Hope researchers found that powder made from white button mushrooms reduced the level of protein specific antigen, or PSA, in prostate cancer patients. This is a promising discovery, considering that a rise in PSA levels in men who have been treated for prostate cancer is often associated with disease recurrence."

Quick summary?
Eating mushrooms could help to reduce the development and the recurrence of prostate cancer!

Fiber

Though not as high as some other vegetables, mushrooms are still a viable source of dietary fiber. One cup of raw white mushrooms contains about two to four percent of your daily value of fiber, most of which is insoluble and can help to lower your risk for constipation.

Other types of mushrooms contain even more fiber, like chanterelles, which contain 2.1 grams of fiber per cup when raw— or enoki mushrooms at 2.3 grams per cup.

Super Delicious & Super Nutritious

Long celebrated as a superfood, fresh mushrooms contribute powerful nutrients to any meal.

Cooked mushrooms pack an even bigger punch, containing more fiber per cup simply because they are more concentrated. Three cups of raw mushrooms, for example, becomes less than one cup when cooked. One cup of cooked white mushrooms has 3.4 grams of fiber, which can easily be eaten when served on top of steak or chicken.

Unfortunately, most adults only average about 15 grams of daily fiber, when in reality we should have between 25 to 30, according to the UCSF Health study. Mushrooms are a convenient way to incorporate more fiber into your daily diet.

Other foods with high levels of fiber include raspberries, artichokes, chickpeas, lentils, chia seeds, almonds and dark chocolate. Tell your customers to pair these nutritious foods with a serving of mushrooms to get closer to reaching the daily recommendation.

Potassium

Mushrooms often land on lists of vegetables high in potassium as well. A cup of white button mushrooms contains roughly 6% of your daily value, while other varieties like baby bella offer 8% and portabella 9%.

Those who lack this essential nutrient often feel fatigued and irritable, experience leg cramps, or suffer from increased blood pressure.

Consuming adequate potassium helps your body to regulate fluids and maintain electrolyte balance. It also helps promote muscle function and protects your blood vessels from oxidative damage.

Swiss chard, spinach, and other leafy greens offer a high source of potassium, as do potatoes and various squashes—making them great foods for your customers to eat in tandem with mushrooms.

Freezing

Mushrooms maintain their vitamin D nutritional value after freezing.

Check out how easy it is to freeze your mushrooms to save your fungi for later!

B Vitamins

In addition to vitamin D, mushrooms also contain five of the eight essential B vitamins such as riboflavin (B2), folate (B9), thiamine (B1), pantothenic acid (B5) and niacin (B3). White and brown mushrooms see significant levels of B2, B3 and B5, especially.

That sounds great, but how do B vitamins help the body?

Not only do they help you form red blood cells, which carry oxygen and remove carbon dioxide, but these vitamins also allow your body to turn food into energy. A number of B vitamins are important for a healthy brain too.

Each B vitamin offers unique benefits, from B2, which helps to maintain healthy skin and sharp vision, to B9, which helps your metabolism function properly. Learn more about the roles of individual B vitamins here.

The body isn't able to produce essential B vitamins on its own in quantities great enough to be beneficial, so the only way we get them is through our dietary choices.

Besides mushrooms, other foods contain these vitamins, such as brown rice, red meat, spinach, oysters, citrus fruits and avocados.

It's worth noting that some B vitamins are sensitive to heat.

Leafy greens, for example, can lose their vitamin benefits if cooked at too high of a temperature, so be sure to tell your customers to steam them until partway between tender and crisp.

Nutrients in Monterey Mushrooms UV Exposed Mushrooms, Per Serving

- 8 oz and 16 oz Sliced White High Vitamin D Mushrooms
- 8 oz and 16 oz Sliced Baby Bellas High Vitamin D Mushrooms
- 8 oz Whole Portabella Caps High Vitamin D Mushrooms

400 IU | 50% DV VITAMIN D
Vitamin D is critical to your overall health and is a major contributor to the immune system

8 - 22 mcg | 15% - 40% DV SELENIUM
Selenium helps to remove free radicals that are linked to cancer, heart problems, inflammation, premature aging and more.

381 mg | 6% - 8% DV POTASSIUM
Potassium plays an important role in helping your body maintain fluid and electrolyte balance. It also helps promote muscle function and protects your blood vessels from oxidative damage.

B VITAMINS
Not only do they help you form red blood cells, which carry oxygen and remove carbon dioxide, but these vitamins also allow your body to turn food into energy. A number of B vitamins are important for a healthy brain too.

- 1 mg | 20- 25% PANTOTHENIC ACID
- 0.1 mg - 0.4 mg | 8% - 30% RIBOFLAVIN
- 3 - 4 mg | 20 - 25% NIACIN

*One serving is equal to 3 ounces (85 grams), about 5 medium mushrooms or 2/3 cup sliced mushrooms

Antioxidants

Any variety of mushroom contains two antioxidants that might help fight aging and bolster health, according to Penn State researchers.

These antioxidants— ergothioneine and glutathione— can help our bodies recover from oxidative stress. High levels of oxidative stress can become toxic over time, having been linked to diseases like cancer, coronary heart disease and Alzheimer's. **Mushrooms are the highest dietary source of these two antioxidants taken together.**

These antioxidants are both heat stable and water soluble. Encourage your customers to retain the liquids when sautéing mushrooms so that they preserve these important nutrients.

White button mushrooms, for example, have more antioxidant capacity than tomatoes, green peppers, pumpkins, zucchini, carrots or green beans.

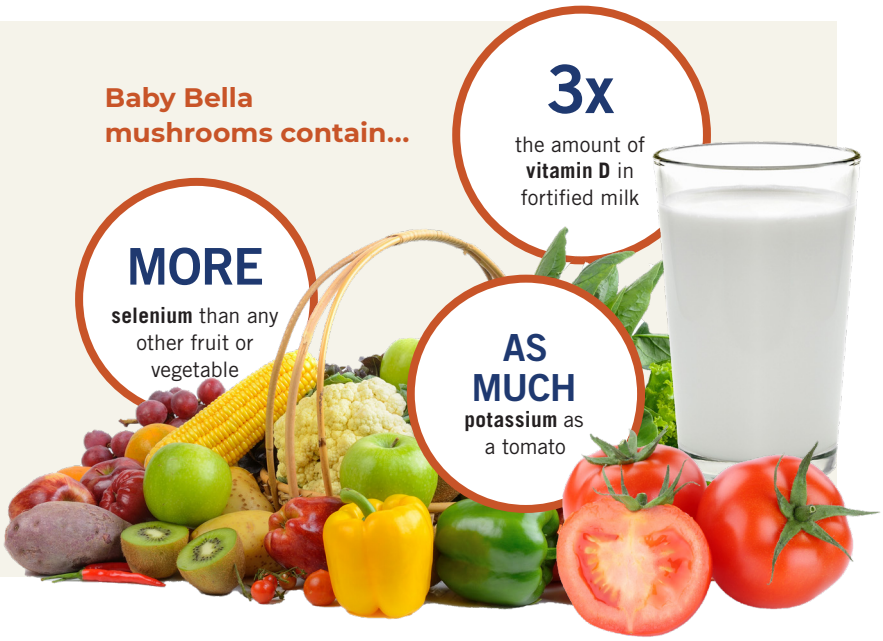
Paired with these antioxidant-friendly veggies, your customer's next meal could help to reduce aging and stress.

In the Grocery Store

While there are certainly other ways to incorporate vitamin D into your diet, mushrooms beat the competition time and time again.

For instance, fortified milk and orange juice typically provide 20% of the recommended daily value of vitamin D, while a 3-ounce serving of High Vitamin D mushrooms provides 50%.

Baby Bella mushrooms contain...



How to Read the New NFP

(Nutrition Facts Panel)

The importance of adding vitamin D into your consumers' daily diets is hard to dispute after observing the U.S. Food and Drug Administration's stance on this core vitamin.

As of January 2020, FDA labeling requirements now mandate that vitamin D be listed in the Nutrition Facts table.

According to the FDA, "Vitamin D and potassium are now required on the label because Americans do not always get the recommended amounts" of these essential nutrients.

Now every label in your store will list the actual amount (in micrograms) in addition to the % DV of vitamin D.

Old

Nutrition Facts
Serving Size 3 oz. (85g)
Servings Per 10 oz. Container 3

Amount Per Serving
Calories 20 Calories from Fat 0

	% Daily Value*
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	0%
Cholesterol 0mg	0%
Sodium 15mg	0%
Potassium 300 mg	9%
Total Carbohydrate 3g	1%
Dietary Fiber 1g	4%
Sugars 1g	
Protein 3g	

Vitamin A 0% • Vitamin C 2%
Iron 2% • Calcium 0%
Vitamin D 100% • Riboflavin 10%

*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
Sat 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

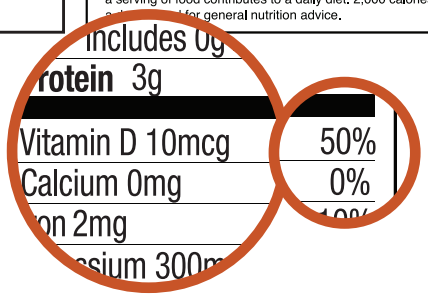
New

Nutrition Facts
About 3 servings per container
Serving size
2/3 cup sliced (85g)

Amount per serving
Calories 20

	% Daily Value*
Total Fat 0g	**0%**
Saturated Fat 0g	**0%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 15mg	**1%**
Total Carbohydrate 3g	**1%**
Dietary Fiber 1g	**4%**
Total Sugars 0g	
Includes 0g Added Sugars	**0%**
Protein 3g	
Vitamin D 10mcg	50%
Calcium 0mg	0%
Iron 2mg	10%
Potassium 300mg	6%

*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.



Where Else to Find Vitamin D

While vitamin D is available in certain seafood and fortified foods, fresh fungi that have been exposed to "sunshine" are the only natural source of this enriching nutrient found in your produce department.

Vitamin D is commonly found in many popular fortified cereal brands, as well as in fortified milk and juices.

In addition to beef and pork organ meats, the sunshine vitamin is produced by several varieties of seafood such as salmon, tuna, shrimp, oysters and more, according to Healthline.

An Easy Vitamin D-Friendly Recipe

Cooking with mushrooms specially labeled "High Vitamin D" is one of the easiest ways to add this important vitamin to your customer's diet.

Mushrooms make a terrific complement to many meals, like adding them to dishes you eat every day. Try them with delicious avocado toast, burgers, steaks, salads and eggs! Use this versatile recipe however you please.

Sautéed Mushrooms

Top anything your heart desires with sautéed mushrooms by saving this staple recipe. While you'll only need a few ingredients, these butter and olive oil coated mushrooms absorb an incredible amount of flavor from the thyme, onion, garlic and salt and pepper combo we've whipped up.

Make fresh to top your dinner plate, or sauté in bulk and freeze for later— the choice is yours.

Ingredients

2 tbsp	butter
1 tbsp	olive oil
8 oz	**Monterey Mushrooms "High Vitamin D" White or Baby Bella mushrooms**
1/2 tsp	dried thyme
1	shallot or onion, diced
2	garlic cloves, minced
	Salt and pepper, to taste

Hop over to our recipe blog for heat and time instructions or watch our video.

FAQs About Vitamin D in Mushrooms

Whether you're a current vendor just curious about the vitamin D content of your stock or a grocer thinking about partnering with Monterey, we're here to address some frequently asked questions.

Do all mushrooms contain Vitamin D?

Mushrooms specially labeled as being high in vitamin D are the only mushrooms that contain a significant level of vitamin D. Monterey Mushrooms' high in vitamin D products are available to customers nationwide in 8-ounce and 16-ounce packages of sliced whites, sliced baby bellas and whole portabella caps.

Are the mushrooms darker when exposed to ultraviolet lights?

Vitamin D enhanced mushrooms will be slightly darker, but so slight that it takes a laboratory instrument to detect the difference. This is because we only expose them to light for a short interval of time under well-controlled conditions.

How do we increase the level of vitamin D?

The mushrooms are exposed to a precise wavelength of ultraviolet light within the UV spectrum. Naturally occurring ergosterol (previtamin-D) within the mushrooms is converted to ergocalciferol (vitamin D2) once exposed to UV light.

During the light exposure, there is a series of photochemical and thermal reactions that converts the ergosterol to vitamin D2.

This photochemical process is similar to the process by which vitamin D3 is produced in human skin. The vitamin D process is controlled with a specific time and intensity of light exposure in order to obtain specific levels of vitamin D2 in the mushrooms.

Is Vitamin D safe?

From a production standpoint, our vitamin D process is extremely safe. Our custom-built equipment is designed to protect and shield our employees from UV exposure.

Is it approved by the National Organic Program (NOP) for Organic Mushrooms?

Yes, our process, which uses custom-built equipment to expose mushrooms to UV light, is approved for use on organic mushrooms.

What about other sources of Vitamin D?

Vitamin D is present in pig skin, sheep wool, fish and liver, and most vitamin D supplements are derived from these animal sources.

UV-exposed mushrooms are the only vegetable with significant levels of naturally occurring vitamin D. Vitamin D is also found in dietary supplements and is frequently added to fortified foods, such as milk and breakfast cereal. Dietary supplements are available in two forms: D2 (ergocalciferol) and D3 (cholecalciferol). Both increase vitamin D in the blood.

What is the Daily Value (DV) for Vitamin D in Monterey Mushrooms?

This is the amount of vitamin D, measured in micrograms (mcg) or International Units (IU), that has been established by the FDA for recommended intake as part of a 2,000 calorie daily diet.

The FDA recently doubled the Daily Value for Vitamin D from the previous level of 400 IUs (10 mcg) per day up to 800 IUs (20 mcg) daily.

Can you consume too much Vitamin D?

There is a stated toxic intake level of 50,000 IUs per day. To achieve this level, however, a person would need to eat more than 9 pounds of mushrooms per day.

To become toxic a person would need to eat that much over a long, continuous period. Normally, any excess vitamin D is simply stored by the body within fat cells.

Monterey Mushrooms high vitamin D mushrooms provide 400 IUs (10 mcg) which is 50% DV per serving.

Social Media Post Ideas

Get the conversation about vitamin D going by promoting fun fungi facts on your store's social media channels. Here are a few creative posts to inspire your audience to shop for mushrooms:

Social Post #1

Similar to humans, mushrooms make vitamin D when exposed to sunshine. Monterey Mushrooms has a process that mimics sun exposure to produce High Vitamin D mushrooms. Add some of these nutritious fungi to your grocery list!

Click To Download This Image

Social Post #2

Vitamin D is considered a key nutrient for mental and physical well-being – and Monterey Mushrooms specially labeled high vitamin D mushrooms are a terrific source of it.
Oprah even agrees!

Read more https://hubs.ly/H0mt2cY0

Click To Download This Image

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Social Post #3:

A recent study indicated that vitamin D may be beneficial to vascular health.

Our High Vitamin D mushrooms from Monterey Mushrooms are the perfect way to add this powerful nutrient to your diet.

https://hubs.ly/H0mt2yg0

Social Post #4:

Monterey Mushrooms teamed with the United States Department of Agriculture to replicate this sunlight effect— and that's why the mushrooms we stock contain a great source of vitamin D. Stop by our produce section for some fresh fungi!

Click To Download This Image

Social Post #5:

Vitamin D is often found in animal sources, but not everyone eats meat or animal products. Luckily, mushrooms can be a vegan source of vitamin D. Pick up some Monterey Mushrooms special High Vitamin D mushrooms today!

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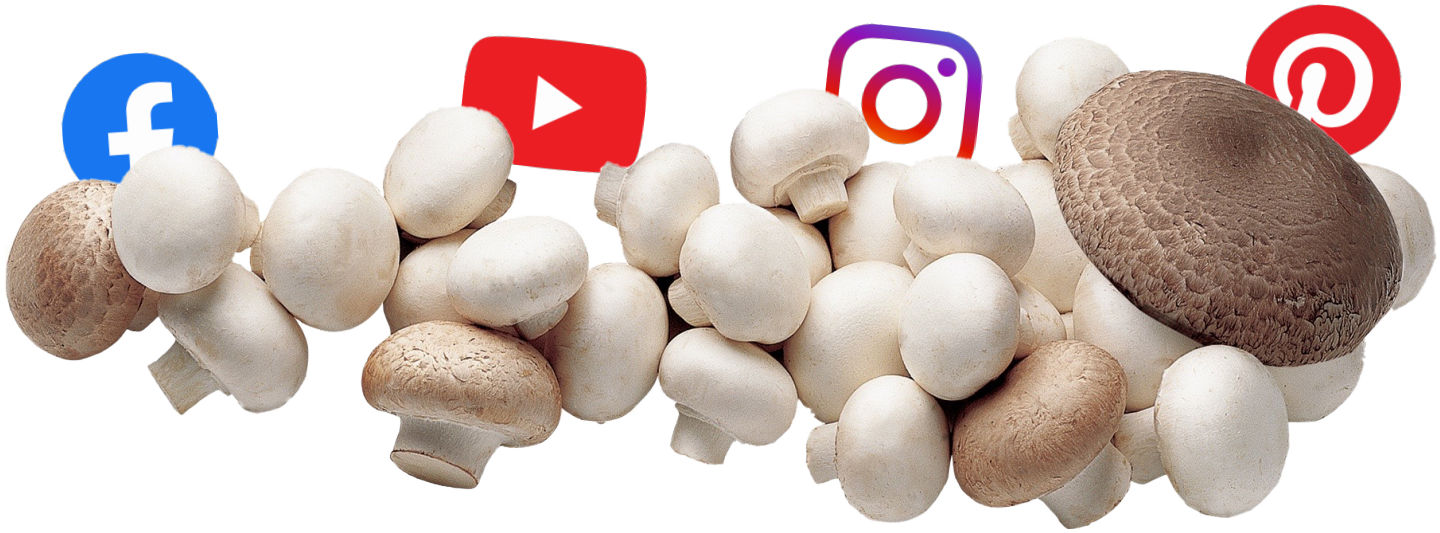
Use Mushroom Themed Hashtags

Encourage your audience to use these fun hashtags when purchasing Monterey's mushrooms, or your social media team to include them in posts.

#MontereyMushrooms

#HighVitaminDMushrooms

#VeganVitaminD



Add Vitamin D to Your Produce Department

High Vitamin D mushrooms are an instant way to give your produce section a boost of vitamin D, and that's why they're in such high demand. Grocers all across the country receive inquiries from curious consumers about our nutritious fungi, looking for these special mushrooms' extensive benefits.

Drive more traffic and sales to your produce aisles by stocking Monterey Mushrooms High Vitamin D mushrooms and promoting in store and on social media. Our rich vitamin D-laiden fungi are available to customers nationwide, in 8-ounce and 16-ounce packages of sliced Whites, sliced Baby Bellas and whole Portabella caps.

Ask us about how you can become a participating retailer today!

Contact Us