

So Many Cruciferous Vegetables!

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Cruciferous or brassica vegetables are highly prized for their flavor and health benefits. They have been a part of my daily diet for as long as I can remember. When my son was 2 years old, I took a head of broccoli out of the fridge to prepare it for dinner and it suddenly disappeared. I thought I was losing my mind. I looked around my kitchen, but it was nowhere to be found. Then, I entered the living room and discovered my toddler hiding behind the couch eating the stolen goods. I was too amused to be upset with the little broccoli burglar.

If cruciferous vegetables are seldom featured on your plate, I hope this article helps to turn that around. I have included 3 of my favorite recipes at the end.

What are Cruciferous Vegetables?

Cruciferous vegetables are part of the Brassicaceae family, a group of vegetables characterized by their cross-shaped (cruciferous) flowers, from which the family name derives. These vegetables are renowned for their high nutrient density and are incorporated into cuisines worldwide. The most common cruciferous vegetables include:

- Arugula
- Bok Choy
- Broccoli
- Broccolini
- Broccoflower
- Brussels Sprouts



- Cauliflower
- Cabbage (green, purple, red, savory)
- Chinese broccoli (Gai Lan)
- Collards
- Daikon
- Horseradish
- Kale
- Kohlrabi
- Napa cabbage
- Radish
- Rutabaga
- Turnips
- Watercress



What are the nutritional attributes of cruciferous vegetables?

Cruciferous vegetables are widely regarded as among the most nutrient-dense foods available. They are packed with vitamins, minerals, fiber, and protective phytochemicals.

Vitamins and Minerals

These nutrition powerhouses are excellent sources of vitamins, including vitamin A (as pro-vitamin A carotenoids), vitamin C, vitamin K, and folate. Pro-vitamin A carotenoids and C are powerful antioxidants. Vitamin C, in broccoli, kale, Brussels sprouts, and cabbage, also supports the immune system, aids in collagen production, and enhances iron absorption. Vitamin K, abundant in kale and Brussels sprouts, is essential for blood clotting and bone health. Folate (vitamin B9) is found in many cruciferous vegetables, particularly Brussels sprouts, and broccoli. Folate is essential for DNA synthesis and repair, making it critical during periods of rapid growth, such as pregnancy.

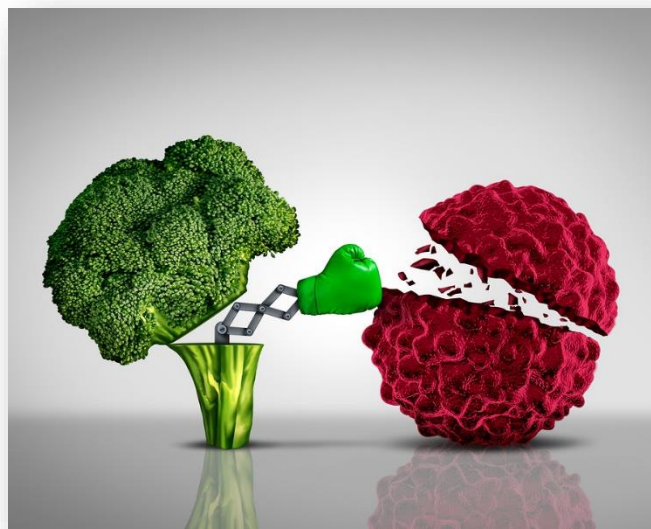
Cruciferous vegetables are also good sources of minerals such as calcium, potassium, and magnesium. Calcium, vital for bone health, is particularly abundant in broccoli, collard greens, and kale. Potassium, important for maintaining healthy blood pressure and heart function, is plentiful in broccoli and Brussels sprouts. Magnesium, which supports muscle and nerve function, energy production, and bone health, is also found in several cruciferous vegetables, especially broccoli, Brussels sprouts, collards, kohlrabi, and watercress.

Fiber

Cruciferous vegetables are a source of dietary fiber which helps prevent constipation and maintain a healthy gut microbiome. Most cruciferous vegetables provide about 2-4 grams of fiber per serving.

Phytochemicals

Cruciferous vegetables stand out as concentrated sources of protective phytochemicals or bioactive compounds, particularly glucosinolates. These are sulfur-containing compounds that give cruciferous vegetables their pungent aroma and unique flavor. These vegetables are also rich sources of other bioactive compounds such as carotenoids, flavonoids, anthocyanins, coumarins, and terpenes.



What are the health benefits of cruciferous vegetables?

Cruciferous vegetables have been extensively studied for their disease-fighting properties. High intakes are associated with a reduced risk of many chronic diseases.

Cancer

One of the most compelling reasons to include cruciferous vegetables in your diet is their potential role in cancer prevention. These vegetables are rich in glucosinolates, which are broken down during digestion into biologically active substances like isothiocyanates and indoles. These compounds have been shown to have anti-cancer properties.

Sulforaphane (an isothiocyanate) is found in high concentrations in broccoli and especially broccoli sprouts. It has been extensively studied for its ability to inhibit the growth of cancer cells and promote the detoxification of carcinogens. It works by inducing enzymes that neutralize carcinogens before they can damage cells, and by promoting apoptosis, or programmed cell death, in cancerous cells. Research suggests that regular consumption of cruciferous vegetables may reduce the risk of breast, prostate, lung, and colorectal cancers.

Heart Health

Cruciferous vegetables are rich in fiber, which helps lower cholesterol levels and reduce the risk of heart disease. Fiber binds to cholesterol in the digestive system, preventing its absorption into the bloodstream. This, in turn, helps maintain healthy blood cholesterol levels and lowers the risk of plaque formation in the arteries.

These vegetables are also rich in potassium, a mineral that helps regulate blood pressure. Potassium counteracts the effects of sodium, which can contribute to high blood pressure, by helping to relax blood vessel walls and excrete excess sodium through urine. Regular consumption of potassium-

rich foods like Brussels sprouts and kale can help maintain healthy blood pressure levels and reduce the risk of hypertension.

Digestive Health

The fiber in cruciferous vegetables also adds bulk to stool, promoting regular bowel movements and preventing constipation. It also supports a healthy gut microbiome by providing food for beneficial bacteria in the colon. A healthy gut microbiome is essential for overall digestive health and is linked to improved immune function, better mood, and reduced inflammation. The fiber in cruciferous vegetables also lowers the risk of developing gastrointestinal disorders, such as diverticulitis and irritable bowel syndrome.

Anti-Inflammatory and Antioxidant Properties

Cruciferous vegetables are rich in antioxidants, including vitamin C, beta-carotene, lutein, and zeaxanthin. These antioxidants help neutralize free radicals, unstable molecules that can cause oxidative stress and damage cells. Oxidative stress is linked to chronic inflammation, which is a contributing factor to many diseases, including heart disease, diabetes, and neurodegenerative disorders. Indole-3-carbinol, a compound found in these vegetables, has been shown to reduce inflammation by modulating the production of inflammatory cytokines, proteins involved in the body's inflammatory response.

Bone Health

Cruciferous vegetables like kale and broccoli are good sources of vitamin K, which is crucial for bone health. Vitamin K is involved in the production of proteins that help bind calcium to the bone matrix, making bones stronger and less prone to fractures. Adequate vitamin K intake is associated with improved bone density and a lower risk of osteoporosis.

Cruciferous vegetables work well in raw and cooked dishes. Aim for at least 2 servings a day. Below are some of my favorites!

Recipes

Gado Gado

Makes 4 servings

Gado Gado is one of the 5 national dishes of Indonesia. It consists of steamed and raw vegetables and fried tofu or tempeh, topped with a spicy peanut sauce. We give the dish a health-lift by baking rather than frying the tofu or tempeh and omitting the oil in the sauce. Get creative with the vegetables and vary to include local and seasonal choices. For the vegetables that are cooked, steam just until tender-crisp. If you are serving for company, put all the items on a buffet and let your guests assemble their plates. While the toppings are optional, they make the meal fun and flavorful. Prepare the sauce before you begin to make this dish.

Tofu or tempeh

12 ounces (360 g) firm tofu or tempeh cut into $\frac{3}{4}$ inch (2 cm) cubes

1 tablespoon (15 ml) tamari

1 teaspoon (5 ml) seasoning blend of your choice

$\frac{1}{2}$ teaspoon (2 ml) turmeric

Vegetables

4 cups (1 L) finely chopped leafy greens, steamed for 3 minutes

2 cups (500 ml) green beans cut into 1-inch (2.5 cm) pieces, steamed for 7-8 minutes

2 cups (500 ml) broccoli florets and pieces, steamed 5-7 minutes

2 cups (500 ml) bean sprouts, steamed for 1-2 minutes

2 cups (500 ml) finely shredded red or purple cabbage

2 medium-sized sweet potatoes, cut into $\frac{3}{4}$ inch (2 cm) cubes, steamed for 10 minutes

2 carrots, shredded

1 cucumber, thinly sliced

1 red pepper, sliced in strips

Toppings

½ cup (125 ml) sliced green onions

½ cup (125 ml) chopped cilantro, lightly packed

¼ cup (60 ml) crushed peanuts

1-2 limes cut into wedges

Hot sauce



Gado Gado Sauce

Makes 1 ½ cups (375 ml)

Tahini replaces the more traditional sesame oil used in peanut sauce, and dates replace the sugar. Although tamarind paste is optional, gives this Gado Gado sauce a more authentic flavor. If refrigerated, Gado Gado sauce may thicken too much. Add a little water or unsweetened coconut or other nondairy milk if too thick.

Ingredients

¾ cup (185 ml) water, boiled and slightly cooled

½ cup (125 ml) peanut butter

2 tablespoons (30 ml) lime juice

2 tablespoons (30 ml) tahini

1 tablespoon (15 ml) tamari

2 medjool dates (or 6 Deglet Noor dates)

1 teaspoon (5 ml) tamarind paste (optional)

2 tablespoons (30 ml) ginger peeled and coarsely chopped

2 cloves garlic

1-3 small hot peppers or ½ teaspoon (2 ml) hot sauce



Directions

1. Make sauce.

- a. Put the water, peanut butter, lime juice, tahini, tamari, dates, tamarind paste, ginger, garlic, and hot peppers in a blender and process until smooth. Refrigerate until ready to use.
2. Prepare Gado Gado Platter
 - a. Preheat oven to 350 degrees F (177 degrees C). Place tofu or tempeh in a medium sized bowl. Coat with tamari, seasoning blend, and turmeric.
 - b. Transfer tofu or tempeh onto a baking sheet lined with a silicone mat or parchment paper. Bake for 20 minutes or until crispy. Transfer to a bowl.
 - c. Prepare vegetables as suggested.
 - d. Arrange vegetables on a large platter so each diner can fill their plates
 - e. Sprinkle with toppings of your choice.
 - f. Pour the Gado Gado sauce generously over the dish.



Red Cabbage Salad

Makes 6 servings

Red (or purple) cabbage is generally higher in vitamin C, anthocyanins (a type of flavonoid that is a powerful antioxidant), and beta-carotene than green cabbage. Otherwise, the nutritional profile is quite similar. This is a simple salad that is lovely with veggie burgers. Feel free to replace the apples with chopped pineapple or combine the two. Add in fresh herbs such as cilantro or parsley, if desired.

Ingredients

Salad

6 cups shredded cabbage (to get a finer shred, use a food processor or grater)

2 apples, chopped

½ small thinly sliced red onion (optional)

2 tablespoons seeds (e.g. black sesame, sunflower, or other)

Dressing

¼ cup apple cider vinegar

1 tablespoon tamari

1 tablespoon maple syrup

1 teaspoon Dijon mustard

1 clove garlic, minced



Directions

1. Prepare dressing.
 - a. Place the vinegar, tamari, maple syrup, mustard, and garlic in a blender and blend until smooth.
2. In a medium-sized bowl, gently combine cabbage, onion, and apples.
3. Toss with dressing.
4. Sprinkle seeds on top.
5. Store in refrigerator until serving.



Braised Brussels Sprouts

Makes 4 servings.

Brussels sprouts are one of the vegetables that people seem to love or hate. I am definitely in the LOVE camp. While I usually eat Brussels sprouts simply steamed, this is a tasty alternative.

Ingredients

4 cups Brussels sprouts, trimmed and halved

1 cup water, for steaming

1 sweet onion, thinly sliced

1 tablespoon fresh grated ginger

4 cloves garlic, minced

1 tablespoon tamari

1 1/2 tablespoons balsamic vinegar

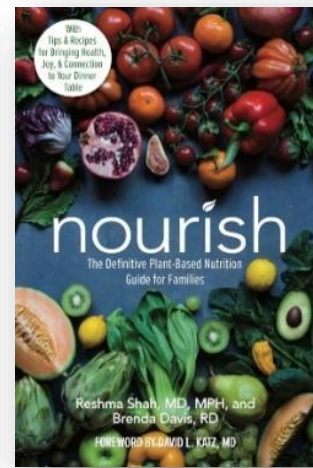
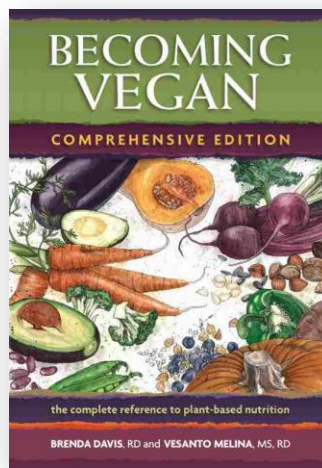
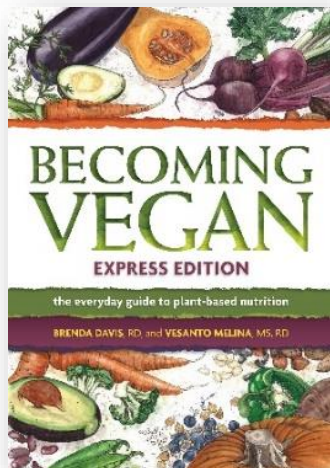
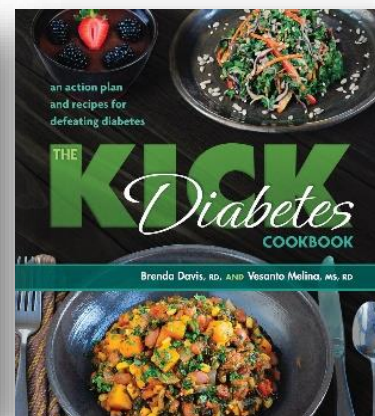
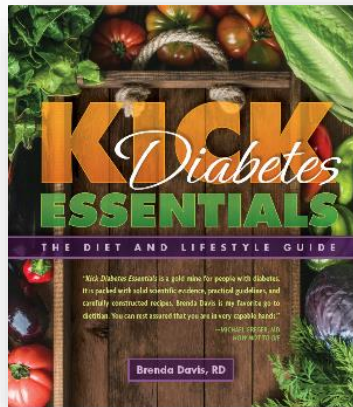
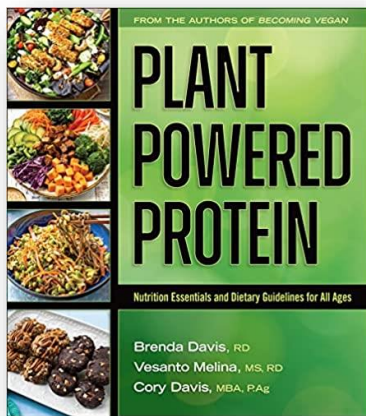
1 tablespoon maple syrup

Hot sauce or sriracha sauce to taste



Directions

1. Heat a large non-stick skillet. Add water, Brussels sprouts, and onions, and cook for about 10 minutes or until sprouts are tender. Drain any remaining water.
2. Add the ginger, garlic, tamari, vinegar, maple syrup and hot sauce. Braise for about 5 minutes.
3. Serve hot.



Brenda Davis, RD is a plant-based pioneer and author/co-author of 13 books on plant-based diets. She is co-author of Plant-Powered Protein, Nourish: the definitive plant-based nutrition guide for families, Becoming Vegan: Comprehensive and Express Editions, and Kick Diabetes Essentials.

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