

OXALATE AND ITS EFFECTS ON YOUR FOOD



FEW PEOPLE KNOW ABOUT OXALIC ACID, EVEN THOUGH IT IS FOUND IN MOST OF OUR FOODS AND CAN BECOME HARMFUL IF WE EAT TOO MUCH.

This acid can also show up in a different form, called oxalate, which you may have heard of if you've ever visited the doctor for a kidney stone. Your doctor may even have given you a list of foods that are high in oxalate for you to avoid.

BUT WHAT IS OXALATE, AND WHY IS IT SO BAD?

Oxalic acid is the chemical outcome of metabolism in plants. When we eat vegetables with high oxalate content such as spinach, beets, and rhubarb – otherwise healthy,

nutritious foods – they may actually do more harm than good, because oxalate can block calcium and other minerals from being absorbed by our bodies. Oxalate can also pair up with calcium to create “calcium oxalate stones,” the most common type of kidney stone.



Your body creates oxalic acid itself, but consuming excess oxalate on top of that can cause health problems in the kidneys and throughout the body.

HIGH OXALATE FOOD'S EFFECT ON CALCIUM

When we take in oxalate, it forms a strong bond with the calcium and iron in our food, which then prevents those important nutrients from being absorbed by our bodies. Once bound together, they are carried out of the body as a waste product.

Therefore, foods with a high oxalate content can have a negative impact on the availability of both calcium and iron, leaving us with less of both. In effect, oxalate blocks our access to nutrients in the foods we eat. For this reason, oxalate is sometimes referred to as an “anti-nutrient.”

This anti-nutrient can have an especially strong effect in foods where the oxalate to calcium ratio is greater than 9:4. One study comparing calcium absorption from spinach (a high-oxalate food) and milk (a low-oxalate food) can help illustrate this. The study showed that calcium in the milk was free to be absorbed by the body while calcium in the spinach was not immediately available— suggesting that it was inhibited by the high levels of oxalate in the spinach leaves.

This study tells us that for calcium to be effectively absorbed by our bodies, we should try to eat foods that are much higher in calcium content than they are in oxalate content. Dairy products, such as milk and cheese, are great examples.



HOW DOES OXALATE GET IN OUR FOOD, ANYWAY?

When consumed by humans, oxalate is a waste product that can't be used by the body. However, it serves important growth and regulatory functions in the plants that we eat, and possibly even helps protect them from grazing by herbivores. Studies have shown that oxalate content increases as a plant ages and becomes overripe. The more mature a plant is, the higher its oxalate content will be.

Generally speaking, plant oxalate levels are highest in the leaves, second highest in the seeds, and lowest in the stems, as examinations of oxalate levels in spinach, beets, and rhubarb have demonstrated. The concentration of oxalic acid is generally higher in plants than it is in meats, which can help explain why vegetarians typically have a higher oxalate intake than meat eaters.



Vegetarians are at higher risk for kidney stones because a majority of their diet is high in oxalate. Without meat, vegetarians have to get protein from other sources, so they tend to eat vegetables and legumes that are higher in oxalate. A common source of protein for vegetarians is tofu, which is a curd made from mashed soybeans. However, tofu is known to be high in oxalate, with about 200 mg of oxalate per 100 g serving. Vegetarians also frequently turn to nuts as a protein alternative, but tree nuts such as almonds, cashews, and pecans contain about 200 mg of oxalate per 100 g serving as well.

Because experts recommend eating only 100 mg of oxalate per day to effectively prevent kidney stones, vegetarians could easily wind up

taking in substantially more of the anti-nutrient than they should if they aren't careful about where they get protein.

— HOW TO — SAFELY REDUCE OXALATE INTAKE

It may seem like almost all healthy foods are high in oxalate content, but there are actually many nutritious options for people who want to reduce their oxalate intake. With the low-oxalate diet, we can reduce our consumption of the anti-nutrient, as well as increase calcium to bind with excess oxalate and carry it out of the body.

A crucial element of this diet is eating high-oxalate foods only in moderation. Dieters should become familiar with the oxalate content of

the vegetables and other foods that they like to eat, and it also helps to reduce oxalate content as part of the cooking process. For example, you can eat spinach more safely by blanching it first.

However, low-oxalate dieters do not have to avoid all fruits and vegetables. There are numerous vegetables with a low oxalate content, including asparagus, broccoli, cauliflower, cucumbers, squash, sweet red peppers, and turnips. Low-oxalate fruits include cranberries, cherries, melons, seedless grapes, peaches, and plums.



**LOW
OXALATE**

For those on a low-oxalate diet, it's important to also eat a lot of dairy, such as milk, yogurt, cheese, butter, and sour cream. All of these foods are very low in oxalate and high in calcium, which means the calcium will be easily absorbed by your body.

Both vegetarians and meat-eaters can be conscious of oxalate levels in their protein. Some examples of low-oxalate meats include chicken, turkey, fish, and mollusks (such as clams, oysters, and mussels). Red meats are also low in oxalate and can satisfy our iron intake. For vegetarians, a few low-oxalate sources of protein include black-eye peas, green peas, and flaxseeds.

Following a low-oxalate diet does not mean that you have to give up all of your favorite foods and enjoyable meals. There are still a lot of delicious foods that we can consume and recipes that we can make that will follow a low-oxalate diet. Fortunately, there are also new solutions on the rise that will allow you to enjoy your favorite meals without guilt or concern for how much oxalate you may be taking in.



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