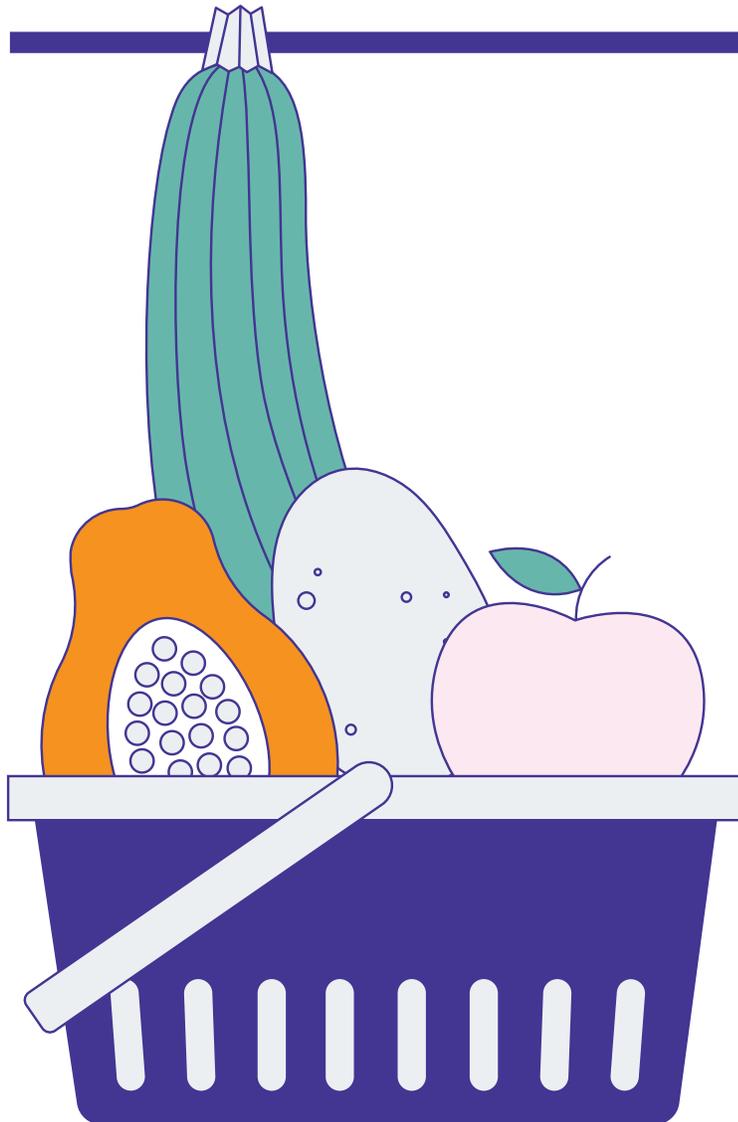


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# GMOs AND YOUR HEALTH

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## What is a GMO?

A GMO (genetically modified organism) is a plant, animal, or microorganism that has had its genetic material (DNA) changed using technology that generally involves the specific modification of DNA, including the transfer of specific DNA from one organism to another. Scientists often refer to this process as [genetic engineering](#).<sup>1</sup>

## Are GMO foods on the market safe to eat?

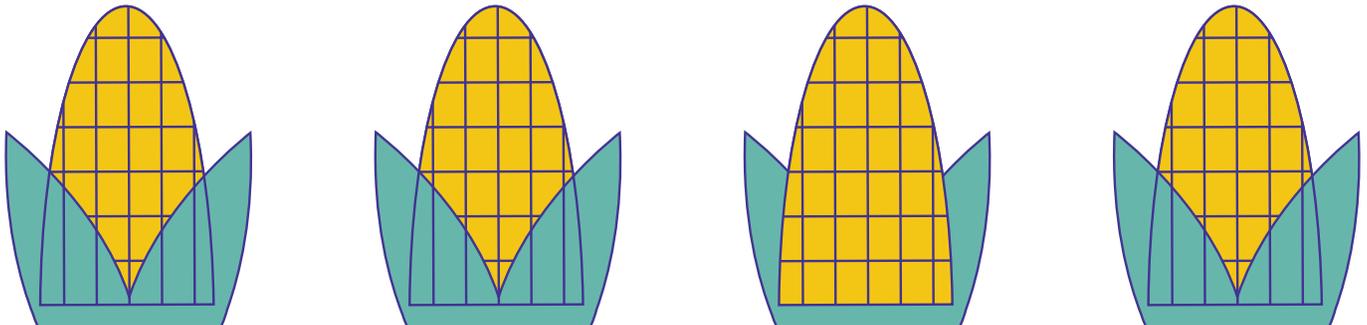
Yes. GMO foods are carefully studied before they are sold to the public to ensure they are [as safe as](#)<sup>2</sup> the foods we currently eat. These [studies](#)<sup>3</sup> show that GMOs do not affect you differently than non-GMO foods.

## Do GMOs affect your health?

GMO foods are as healthful and safe to eat as their non-GMO counterparts. Some GMO plants have actually been modified to improve their nutritional value. An example is GMO soybeans with healthier oils that can be used to replace oils that contain *trans* fats. Since GMO foods were introduced in the 1990s, [research](#)<sup>5</sup> has shown that they are just as safe as non-GMO foods. Additionally, [research](#)<sup>6</sup> shows that GMO plants fed to farm animals are as safe as non-GMO animal food.

## Could I be allergic to GMOs?

Not unless you're allergic to the [non-GMO version](#)<sup>7</sup> of that food. Most food allergies (90%) are caused by allergens found in just eight foods: peanuts, tree nuts, milk, eggs, wheat, soy, shellfish, and fish. For example, soy is an allergenic food available in a GMO version. If you are allergic to foods made with traditional (non-GMO) soy, you will be allergic to foods made with GMO soy. If you're not allergic to foods made with traditional soy, you won't be allergic to foods made with GMO soy. Scientists developing GMOs run tests to make sure allergens aren't transferred from one food to another. Research shows that GMO foods are no more likely to cause allergies than non-GMOs.



### *Did you know?*

*GMO crops are not changed in ways that would increase the risk of cancer for the humans or animals that eat them. An [analysis of data](#)<sup>4</sup> by the National Academies of Sciences, Engineering, and Medicine found that patterns of change in cancer rates in the United States are similar to Europe and the United Kingdom, where people eat less GMO foods. Cancer rates are not connected with eating GMOs.*

## Did you know?

The way GMOs are created allows scientists to know precisely which new proteins are produced in a plant. Scientists perform tests to make sure these proteins are not allergens. This type of testing, called *allergenicity testing*, is always part of the process for developing GMOs. Also, FDA regulations ensure that foods derived from GMOs must be *as safe as*<sup>8</sup> the non-GMOs you eat.

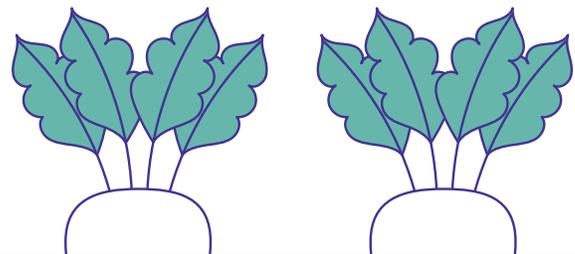
Some people wonder if the cases of celiac disease are rising because of GMOs. *Celiac disease*<sup>9</sup> is a serious condition that affects the digestive system. It is caused by an abnormal sensitivity to gluten, a protein found in wheat, rye, and barley. There is no evidence that GMOs on the market today cause celiac disease. Plus, there is no GMO wheat, rye, or barley for commercial sale in the United States.

## Is there a connection between GMO foods and antibiotics or steroids?

No. GMO foods do not contain more antibiotic or steroid residues than the non-GMO versions of those foods. There is no connection between whether a food is a GMO or non-GMO and whether or not it has any antibiotic or steroid residues.

## What's on the horizon for food production?

Scientists are continuing to look for new ways to develop foods with increased nutritional value or other useful traits. Scientists are also exploring a new technology called *genome editing*<sup>10</sup> that could have uses for food modification, such as CRISPR.



Get more information about GMOs at [www.fda.gov/feedyourmind](http://www.fda.gov/feedyourmind).



## Sources:

<sup>1</sup><https://www.fda.gov/food/food-new-plant-varieties/understanding-new-plant-varieties>

<sup>2</sup><https://www.medlineplus.gov/ency/article/002432.htm>

<sup>3</sup><https://www.fda.gov/food/food-new-plant-varieties/understanding-new-plant-varieties>

<sup>4</sup><https://www.nas-sites.org/ge-crops/2016/05/17/report/>

<sup>5</sup><https://www.nas-sites.org/ge-crops/2016/05/17/report/>

<sup>6</sup><https://www.nas-sites.org/ge-crops/2016/05/17/report/>

<sup>7</sup><https://www.fda.gov/food/food-new-plant-varieties/understanding-new-plant-varieties>

<sup>8</sup><https://www.fda.gov/food/food-new-plant-varieties/understanding-new-plant-varieties>

<sup>9</sup><https://www.ghr.nlm.nih.gov/condition/celiac-disease>

<sup>10</sup><https://www.nas-sites.org/ge-crops/2016/05/17/report/>