

# Nutrients in Action

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## Let's talk about nutrients.

Nutrients are the building blocks for every little thing our bodies do. Much like a really complicated machine, there are many different things we need, and they come from different foods. Like a car needs gas, oil, air in the tires, brake fluid, and other things to run, our bodies need **water, carbohydrates, protein, essential fatty acids, vitamins, and minerals.**

So what do we mean when we say something is an **essential nutrient**? It means the body can't make it, or can't make enough of it and we need to get it from food.

*Turn the page to learn more about different nutrients!*



### Did you know?

All foods contain nutrients, but some have more than others. Foods that are packed with healthy nutrients are called ***nutrient-dense***.



## Macronutrient or a Micronutrient?

One of the ways we talk about nutrients is **macronutrients** and **micronutrients**.

A macronutrient is one that we need to eat a lot of. These include **protein**, **carbohydrates**, and **fat**.

Micronutrients are nutrients that we only need in small amounts. These include **vitamins** and **minerals**.



## Protein, Carbs, and Fat And why we need them

Protein, carbohydrates, and fats are the three nutrients that our bodies can use for energy. Let's dive into what else these do for us.

**Protein** is made up of **amino acids**, which are then used for a variety of functions in the body. Generally, when people think of protein, they think of building and maintaining muscle, but proteins in our bodies perform a wide variety of tasks. Proteins transport nutrients in our blood, support DNA and immune function, and are the building blocks for enzymes and hormones. When we have more protein than we need, it gets burned for energy or converted to fat to be stored and used for energy later.

**Carbohydrates** primarily serve as a source of energy for our bodies. In fact, carbohydrates are the main fuel for our brains. When we eat too much, carbs are converted to fat to be stored and used for energy later. **Fiber** is a type of carbohydrate that our bodies can't digest, but is important for digestive health. It keeps us regular, and might help prevent diseases like diverticulitis and colon cancer.

**Fat** not only serves as a primary fuel used by the body for energy, but also contributes several important functions. Fats are made up of fatty acids, which are used for a variety of functions in the body. The outside barriers of our cells, the cell membrane, are made up of a substance called phospholipid, which contains fatty acids. Fat is also needed for nerve and immune function and is the main way our bodies store energy to use later.

# The Skinny on Different Kinds of Fats



There are two main types: **solid fats**, which are solid at room temperature, and **oils**, which are liquid at room temperature. These have different effects on our health.

## Solid Fats

Solid fats, which include *trans* fat and saturated fat, are generally considered unhealthy, because they have been linked to a higher risk for heart disease.

What kinds of foods have solid fats? Some of the main ones can be easy to recognize: butter, shortening,

lard. But Americans actually get a lot of their solid fats from foods like cheese, pizza, and desserts. Eating these foods less often and eating smaller portions are two ways a lot of people can eat less solid fat.

## Oils

Oils generally contain mostly unsaturated fats. Unsaturated fats come in two types:

**monounsaturated** and **polyunsaturated**. These are often called healthy fats, because they might help reduce risk of heart disease. Our bodies need certain types of

polyunsaturated fatty acids, called **essential fatty acids**, because we are not able to make them on our own. These include **omega-6 fatty acids**, and **omega-3 fatty acids**.

You can find omega-6 fatty acids in corn oil, soybean oil, and nuts and seeds.

Omega-3 fatty acids can be found in fatty fish (salmon, mackerel, and tuna) and also in walnuts and flaxseed.

## Swap it out!

Try these easy substitutions to eat more healthy fats.



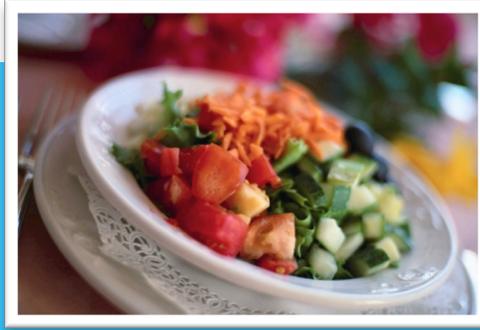
Sautee veggies in olive or canola oil instead of butter.



Have a small handful of nuts instead of chips for a snack.



Use a little bit of avocado on your sandwich instead of cheese.



## Quiz: Are you a vitamin or mineral?

1. Which would you rather have as your computer desktop background?
  - a. Photo of adorable cows munching on grass
  - b. Photo of the Grand Canyon
2. Which of these would you rather have in your kitchen?
  - a. A really nice bottle of olive oil
  - b. A cast iron skillet
3. How do you feel on a really hot day?
  - a. Some heat is okay. Too much heat – no thanks!
  - b. Handle it just fine. Heat doesn't bother you.

*If you chose mostly A's:*

You're a vitamin! Vitamins are made by plants and animals, some are found in oil, and some vitamins can be destroyed by too much heat.

*If you chose mostly B's:*

You're a mineral! Minerals originally come from the soil, cooking in a cast iron skillet can add a little bit of iron (a mineral) to your food, and minerals aren't affected by heat.

# Vitamins and Minerals

## Micro and Mighty

Vitamins and minerals are micronutrients that are used to help our bodies carry out all the processes we need for life. Unlike macronutrients, they can't be burned for energy.

### Vitamins

Vitamins are substances made by plants and animals that our own bodies are generally not able to make, and we need to get through food. There are two major types: fat-soluble and water-soluble.

#### Fat-Soluble Vitamins

**Vitamins A, D, E, and K** are the fat-soluble vitamins. This means that they dissolve in fat, but not water (generally). These vitamins serve different purposes in the body. For example, vitamin K is needed for blood clotting, while vitamin D is needed for bone health and immune function.

#### Water-Soluble Vitamins

Water-soluble vitamins include the **B vitamins** and **vitamin C**. These dissolved in water and are important in helping our bodies turn food into energy. Vitamin C also acts as an antioxidant. It helps protect our cells from damage.

### Minerals

Minerals are essential micronutrients that originally come from the soil. Our bodies need quite a few different minerals, some of which are **iron, calcium, magnesium, and zinc**. Like vitamins, different minerals serve different purposes. For example, iron is important in our red blood cells for moving oxygen around our bodies, while zinc is important for wound healing and immune function.

### Too much of a good thing?

If some is good, more is better, right? Not always. When it comes to some essential nutrients, there can be some serious health risks from excessive intake. While it can be easy to take too many vitamin and mineral pills to the point where you've eaten an unsafe amount of certain nutrients, a healthy balanced diet has everything you need, without the risk of going over! Eat all the fruits and veggies you want – just go easy on the supplements.

## Test your knowledge! Take our nutrient quiz!



### The Results are In!

*If you got all five right:*

You are a nutrient rock star! You know what nutrients do and where to find them. Keep getting out there and learning more!

*If you got three or four right:*

You're on the right track! Try finding the information you missed in other pages of this newsletter to become a nutrient master!

*If you got one or two right:*

It just means you have more opportunities to learn. Read through the newsletter again, or try contacting your local Cooperative Extension office to get reliable nutrition information. Find your Cooperative Extension office at [http://ucanr.edu/County\\_Offices/](http://ucanr.edu/County_Offices/)

1. Which of these nutrients is needed for blood clotting?
  - a. Vitamin K
  - b. Vitamin E
  - c. Vitamin A
  - d. Vitamin C
2. If you eat more protein than your body needs, what happens to the extra?
  - a. You build more muscle with it.
  - b. It gets used for energy or stored as fat.
  - c. It gets turned into vitamin E.
  - d. Nothing. It's impossible to eat more protein than you need.
3. Iron is what kind of nutrient?
  - a. Fat-soluble vitamin
  - b. Water-soluble vitamin
  - c. Carbohydrate
  - d. Mineral
4. Which of these nutrients helps protect our cells from damage by acting as an antioxidant?
  - a. Vitamin B12
  - b. Potassium
  - c. Vitamin C
  - d. Protein
5. True or false – Taking a lot of vitamin and mineral supplements is never a problem.

True – It's perfectly safe  
False – Taking too many can have health risks.

*Check your answers at the bottom of the page!*

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