

## Making and Maintaining Muscle How Much Protein Do You Need?

The idea of eating more **protein** has gained popularity in the past few years. Some people may think the way to build body muscle is to eat high-protein diets and use protein powders, supplements and shakes. But there's no solid scientific evidence that most Americans need more protein. Most of us already get all we need. Some of us may even be eating much more than we need.

Proteins play a key role in our bodies. They make up about 15% of the average person's body weight. You probably know proteins as the major component of muscle. Muscles flex arms and legs, contract our hearts and create waves in the walls of our intestines to move food along. All this muscle activity accounts for most of the energy our bodies burn. The more muscle you have, the more **calories** you burn and the more food you need to maintain your weight.

Proteins also perform crucial activities within all the **cells** of your body. They move molecules from one place

to another, build structures, break down toxins and do countless other maintenance jobs. Proteins play an important structural role in cells as well, making up a sort of miniature skeleton.

Proteins are actually chains of small molecules called **amino acids**. Some of these chains are constantly being broken down, and new ones are strung together to take their place. Your body can make some of these amino acid building blocks, but not all of them. The ones you can't make are called essential amino acids.

Meat in general is a good source of protein, with a full mixture of all the essential amino acids. However, it can be high in fat. Try to select lean cuts such as top round and sirloin. Poultry, fish, eggs, nuts, seeds and legumes (dry beans or peas such as lentils, chickpeas and kidney beans) are also good sources of protein.

Most Americans already eat about 12-18% of their calories as protein. Dr. Van S. Hubbard, director of the NIH Division of Nutrition Research Coordination, says that most Americans don't need to worry about getting enough protein. "Unless they have some other medical problem, most people are meeting or exceeding their protein requirements," he says. "Since protein is such a common component of most foods that you eat, if you're eating a relatively varied diet, you're getting enough protein."

Some people, such as vegetarians, do have to pay attention to the



protein in their diets. While animal proteins have all the essential amino acids, plant-based proteins can have low amounts of some. That's why vegetarians have to eat protein from several different sources to get all the different amino acids they need. As Dr. Hubbard explains, "If you don't eat enough of certain amino acids, it doesn't matter if you have more of others."

Vegetarian food combinations

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### Definitions

#### Amino Acids

The molecular building blocks of proteins.

#### Calories

The amount of energy stored in food.

#### Cells

The basic building blocks of life that make up our bodies.

#### Protein

A class of molecule that makes up a key component of our bodies, particularly in muscle.

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## Wise Choices Are You Eating Enough Protein?

Most people's bodies can adjust to a wide range of protein intake. If you eat a varied diet, you probably don't need to worry too much about how much protein you eat. If you fall in one of the following categories, however, check with your doctor or a nutritionist to make sure you're eating the right amount:

- **Vegetarians** need to eat protein from a number of different sources to make sure they

get enough of all the amino acids they need.

- **Older adults**, like anyone, can lose muscle if they don't eat enough protein. This may make them more likely to fall and have injuries. They may also have more trouble with other activities they're used to doing.
- **People with certain diseases** like diabetes or kidney disease may want to cut back on protein because it can increase the amount of work for the kidney. If you need to follow a reduced-protein diet, make sure to work with a dietitian to ensure adequate nutrition.

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that give you complete protein, for example, include rice and beans or peanut butter and bread. Eggs are also a good source of complete protein. People who don't eat eggs or dairy products need to be particularly careful to get all the essential amino acids they need.

Another group that may not get enough protein is older adults. A recent NIH study of men and women in their 70s found that those who ate the least protein lost significantly more muscle than those who ate the most protein. Maintaining muscle is particularly important as you age. Older adults who lose muscle in their

legs and hips are more likely to fall and have injuries like broken hips. Those who don't maintain strong muscles as they age might also have trouble doing basic things like getting up from a chair, walking up stairs or taking a stroll through the park.

For most Americans, however, there's little benefit to eating more protein than they already do. In long-term studies of high-protein diets, researchers have found that most differences in weight loss can be explained by the amount of calories people eat rather than their protein intake. High-protein diets may make some people feel fuller, but that



## Web Links

For links to more information about protein in your diet and building and maintaining muscle, see this story online:

- [http://newsinhealth.nih.gov/2008/March/docs/01features\\_01.htm](http://newsinhealth.nih.gov/2008/March/docs/01features_01.htm)

effect has been hard for researchers to tease out, because many high-protein diets are also high in fat.

There are questions about the benefits of protein supplements as well. Advertisements for protein powders and shakes say their products have essential amino acids that the body can't make. "That is true," Hubbard says, "but if you're eating a varied diet, particularly animal protein, there is skimpy, if any, data that it's better to eat protein in supplement form than in food."

In special cases, these products can prove useful. For elderly people who can't eat enough protein or patients with diseases that leave them malnourished, a protein supplement can be one way to help get enough protein. But be sure to talk to a doctor or nutritionist before trying this.

Is it possible to eat too much protein? Hubbard says, "There is insufficient data to say that a person can eat too much protein." He says there is evidence to suggest that people with certain diseases and conditions should limit their intake. For people with kidney disease, for instance, a reduced-protein diet may help delay the progression towards kidney failure.

If you're like most Americans, though, you don't need to worry about eating enough protein. Recent weight loss, muscle fatigue or a drop in muscle strength may be signs you're not eating enough protein. But they may be signs of other problems as well. If you have any of these symptoms, you need to see your health care provider to pinpoint their cause. ■

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# Living with Crohn's Disease

## More Options for Treatment

For the half-million Americans with Crohn's disease, finding relief from abdominal pain and digestive problems is an ongoing challenge. Conventional therapies like steroids are often effective, but some patients find that they don't do enough to calm their troubling symptoms.

Fortunately, in the past few years a wider range of treatments has become available for people with Crohn's disease. Other experimental drugs are showing promise in clinical trials. But even the newest treatments have pluses and minuses. That's why NIH researchers are continuing to investigate Crohn's disease. They hope to discover who's at risk so they can block the disease before it appears. And they're exploring a variety of new treatments.

Crohn's disease arises from inflammation, or swelling, of the digestive tract, usually in the small intestines. Its symptoms include abdominal cramps, diarrhea, weight loss, malnourishment and rectal bleeding. In some cases, the intestine can become blocked or develop open sores, or ulcers. The ulcers sometimes tunnel through to other tissues.

### Definition

#### Immune System

The system that protects your body from invading viruses, bacteria and other microscopic threats.

Most people are diagnosed with Crohn's disease in their 20s, although it can affect people of any age. The symptoms often come and go throughout a person's life. In many cases, they get worse over time.

Scientists are not yet certain what causes Crohn's disease. Many believe it's set off when the **immune system** misidentifies harmless bacteria, foods and other substances in the digestive tract as dangerous invaders. White blood cells are sent to attack these "invaders" and may build up in the lining of the intestines. The buildup of cells can cause long-term inflammation and ulcers.

The current treatments available for Crohn's disease each come with their own risks and benefits. NIH-funded research helped lay the groundwork for some of the newest therapies. One new type of drug blocks an inflammation-causing molecule called tumor necrosis factor (TNF). So far, the U.S. Food and Drug Administration (FDA) has approved 2 anti-TNF drugs—Remicade and Humira—for treating Crohn's disease. About half of Crohn's patients find anti-TNF drugs helpful.

In January 2008, the FDA approved another new drug, called Tysabri, that blocks white blood cells from moving to inflamed tissues. Tysabri seems to help many patients who don't respond to anti-TNF drugs. But the new drug can have severe and even deadly side effects, so patients have



to be carefully monitored.

Another promising approach was developed more than a decade ago by NIH researchers. This experimental treatment blocks immune molecules called interleukins. In 2004, a clinical trial showed that up to 3 out of every 4 patients with Crohn's disease responded to an interleukin-blocking drug. Up to half had long-term freedom from symptoms. The drugs, which are not available to the public, are now being tested in large clinical trials.

If you have ongoing abdominal pain and digestive problems, don't suffer in silence. If you have Crohn's disease, the symptoms can be treated. Talk to your doctor about your options. ■



### Wise Choices Treating Crohn's Disease

Here are some treatment options you can discuss with your doctor:

- **Conventional medications** include corticosteroids, immune system suppressors and anti-inflammation drugs.
- **Newer medications** use geneti-

cally engineered antibodies to block molecules that cause inflammation. These drugs include anti-TNF medications and a drug that blocks the movement of white blood cells.

- **Surgery** is sometimes needed to remove diseased parts of the intestine. Crohn's disease can return after surgery, so patients and doctors need to carefully weigh the benefits and risks.



### Web Links

For links to more information about Crohn's disease, see [this story online](#):

- [http://newsinhealth.nih.gov/2008/March/docs/01features\\_02.htm](http://newsinhealth.nih.gov/2008/March/docs/01features_02.htm)

# Health Capsules

## Supplement Use and Cancer

Many current and former cancer patients take vitamin and mineral supplements. They may believe these supplements can help reduce treatment side effects. They may think extra vitamins will keep cancer from coming back or help them live longer. But research in these areas hasn't yet found whether many of these beliefs are true. And some doctors worry that supplements can interact with cancer treatments or have other unintended consequences.

NIH-funded researchers at the Fred Hutchinson Cancer Research Center wanted to investigate how common supplement use among cancer patients might be. They analyzed 32 studies published between 1999 and 2006 that looked at how many adult cancer patients and survivors used vitamin and mineral supplements.

The researchers found widespread

supplement use nationwide. Overall, up to 4 out of 5 cancer patients and survivors took some kind of vitamin or mineral supplement. Breast cancer survivors had the highest rates of use. Up to about 9 in 10 took supplements. In comparison, about half of all U.S. adults take vitamin or mineral supplements.

Up to 70% of cancer patients and



### Web Links

For links to more information from NIH about the topics in these stories, visit this Health Capsules page online:

- <http://newsinhealth.nih.gov/2008/March/docs/02capsules.htm>

## Why Be Shy About Incontinence?

Many people think of incontinence as a shameful secret. But you shouldn't suffer in silence if you have incontinence. You can take action to prevent or manage it. The first step is to talk with your health care provider.

"Incontinence" means losing control of your bladder or bowel movements. You may have trouble getting to the toilet in time. You may leak urine or stool unexpectedly when you sneeze or run. Some people who have incontinence may avoid social situations, fearing an embarrassing "accident."

Incontinence can happen to anyone, but it's most common in women and older people. It can occur for many reasons, but it's not caused by aging. Women who've had children are especially at risk for incontinence. Sometimes other medical conditions, like diabetes or physical injuries, can

make you lose control over urinary or bowel muscles and lead to incontinence. Treating these other conditions may help restore your control.

Many people can prevent incontinence by making simple lifestyle changes. Your diet, physical activity, weight and smoking behavior all play a role.

Remember, if you have incontinence, you're not alone. For millions of men and women nationwide, incontinence can be treated. Your doctor can help you find the approach that's best for you.

Learn more about incontinence by visiting our web page. You can also contact 1-800-891-5390 or [nkudic@info.niddk.nih.gov](mailto:nkudic@info.niddk.nih.gov) for more information about bladder control. To learn more about fecal incontinence, contact 1-800-891-5389 or [nddic@info.niddk.nih.gov](mailto:nddic@info.niddk.nih.gov). ■

survivors who used supplements did not discuss it with their doctors. Yet it's important for physicians to know when their patients are taking supplements, said Dr. Cornelia M. Ulrich, one of the researchers. "Some vitamins, such as folic acid, may be involved in cancer progression while others, such as St. John's wort, can interfere with chemotherapy," she explained.

This study suggests that scientists need to learn more about how dietary supplements affect cancer treatment, survival and quality of life. In the meantime, no matter what your medical condition, it's always a good idea to discuss any supplement use with your doctor. ■



### Featured Web Site NIHSeniorHealth.gov: Exercise Stories

<http://nihseniorhealth.gov/stories/stories.html>

No matter what your age, moving your body and having fun is good for your health. Read the stories of more than 2 dozen adults—ranging in age from their 60s to their 90s—who enjoy a variety of physical activities, including yoga, dancing, tennis and ice hockey. If you're 60 years or older and exercise regularly, you can submit your own story.

NIH SeniorHealth: Exercise Stories - Mozilla Firefox

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NIH SeniorHealth

Main Menu Site Index

People of all ages and physical conditions benefit from exercise and physical activity. These stories feature diverse older adults and the activities they enjoy. If you are age 60 years or older and exercise regularly, we invite you to send us your story.

**Exercise Stories**

 Name: Grace  
Age: 91  
Location: California  
Activity: Walking, Yoga, Tennis, Weight Lifting

[Click image to enlarge](#)

[The Full Story](#)

 Name: Ramesh  
Age: 65  
Location: California  
Activity: Tennis



For more health information from NIH, visit

<http://health.nih.gov>