

# Dry Beans

## 1. What are the characteristics of “complete” and “incomplete” proteins?

### Primary-level response:

Protein is found throughout the body in muscle, bone, skin, and hair. Proteins are made up of building blocks called amino acids. Complete proteins contain all of these essential building blocks necessary for the body to build new proteins. Complete proteins come mostly from animal sources such as meat. Incomplete proteins lack one or more essential building blocks that the body needs to build new proteins. Incomplete proteins come from plant-based sources such as fruits, vegetables, grains, and nuts.

### Secondary-level response:

Protein is found throughout the body in muscle, bone, skin, and hair. Proteins are made up of building blocks called amino acids. Complete proteins contain all the essential amino acids necessary for the body to build new proteins. Complete proteins come mostly from animal sources such as meat. Incomplete proteins lack one or more essential amino acids necessary to build new proteins. Since the human body cannot make essential amino acids, it is important to eat a variety of protein each day. Incomplete proteins come from plant-based sources such as fruits, vegetables, grains, and nuts.

## 2. According to MyPyramid, which two food groups are beans classified in and why?

### Primary-level response:

Beans are classified in both the Meat and Beans group and the Vegetable group because of the nutrients they contain. Beans are a part of the Vegetable group because they are an excellent source of dietary fiber and nutrients such as folate. In addition, beans are classified under the Meat and Beans group because they are excellent sources of plant-based protein and are sources of other nutrients such as zinc and iron.

### Secondary-level response:

Beans are classified in both the Meat and Beans group and the Vegetable group because of the nutrients they contain. Beans are categorized as a subgroup of the Vegetable group because they are an excellent source of dietary fiber and nutrients

such as folate. Folate is important in producing and maintaining new cells. Beans are also classified under the Meat and Beans group because they are excellent sources of plant-based protein and are sources of other nutrients such as zinc and iron. Zinc helps the body's immune system function properly and iron carries oxygen in the blood. Many people consider beans a vegetarian alternative to meat and are able to acquire their daily recommended amounts in this group by eating a variety of beans and other non-meat protein sources.

### 3. Why do beans cause gas? How can this be prevented?

Primary-level response:

Beans cause gas due to the sugars and soluble fiber contained in the beans. As the beans move through the intestines, gas is produced when bacteria living in our large intestines begin to breakdown the sugars and soluble fiber. Gas can be prevented by soaking dry beans prior to cooking them in a fresh pot of water. Soaking beans helps break down some of the sugars that eventually cause gas. Other options to prevent gas include adding more beans to your diet on a regular basis or switching to canned beans since some of the gas-producing substances are eliminated in the canning process (rinse canned beans to wash off excess salt).

Secondary-level response:

Beans cause gas due to the sugars and soluble fiber contained in the beans. The sugars contained in beans are complex sugars and our bodies do not have the enzyme to break them down. Therefore, bacteria in our large intestine begin to break down the sugars and subsequently release gas. Gas can be prevented by soaking dry beans prior to cooking beans in a fresh pot of water. Soaking beans helps break down some of the sugars that eventually cause gas. Other options to prevent gas include adding more beans to your diet on a regular basis or switching to canned beans since some of the gas-producing substances are eliminated in the canning process (rinse canned beans to wash off excess salt).

For information, visit:

[www.hsph.harvard.edu/nutritionsource/what-should-you-eat/protein-full-story/index.html](http://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/protein-full-story/index.html)

[www.usdrybeans.com](http://www.usdrybeans.com)

[www.mypyramid.gov](http://www.mypyramid.gov)

<http://digestive.niddk.nih.gov>

[www.fruitsandveggiesmatter.gov](http://www.fruitsandveggiesmatter.gov)

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