

# Think Outside the Blender with Dairy Protein



Whey and casein are the two proteins found in milk.

Dairy proteins are high-quality, complete proteins that, as part of a higher protein diet, can help you feel full, build and repair muscle after exercise, and maintain muscle to support healthy aging.

These proteins can be removed from milk and used in powder form to increase the protein content of a number of foods and beverages.

## Considerations when choosing a dairy protein:

1. Applications in foods and beverages
2. Flavor profile and texture/consistency desired
3. Rate of digestion/absorption

## Tips



1. 1 Tbsp. dairy protein  $\approx$  4 g protein
2. Unflavored dairy proteins will work best in most recipes.
3. Avoid using casein in acidic beverages such as orange juice because it will curdle.
4. Whey protein is not heat stable. Stir in at the end of the cooking process for soups, gravies, sauces, etc.
5. When adding dairy proteins to foods, start with 1-2 Tbsp. and add more gradually to preferred taste and texture.

## Examples of which dairy proteins to use and when

### Micellar Casein

Slow rate of digestion, compared to whey, results in a more gradual and prolonged release of amino acids to muscle.<sup>1</sup>

#### Suggested time of use

New research in young, healthy men performing resistance exercise suggests consuming casein before sleep may improve post-exercise recovery<sup>2</sup> and may increase muscle mass.<sup>3</sup>



#### Stir it in

Yogurt, smoothies, dips, coffee, oatmeal, soups and sauces.



For a creamy substitute, try adding 1-2 Tbsp. of micellar casein or WPC 80 into coffee. Use flavored proteins as desired.

## Whey Protein Concentrate (WPC) 80\*

Fast rate of digestion, compared to casein, results in a rapid, more transient release of amino acids to the muscle.<sup>1</sup> Contains 80% protein by weight and has a slightly higher percentage of fat and lactose than WPI.

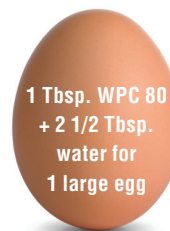
#### Suggested time of use

Following a tough workout, research shows that whey protein helps to promote muscle repair and recovery after exercise.<sup>4</sup>



#### Mix it in

Yogurt, smoothies, dips, coffee, oatmeal, soups, sauces, salad dressings, meatballs, burgers and meatloaf.



1 Tbsp. WPC 80 + 2 1/2 Tbsp. water for 1 large egg

#### Substitute it in

For eggs in fresh pasta, cakes, cookies, granola bars and other baked goods to achieve similar functional properties.

## Whey Protein Isolate (WPI)\*

Fast rate of digestion, compared to casein, results in a rapid, more transient release of amino acids to the muscle.<sup>1</sup> Contains 90% protein by weight and minimal amounts of lactose,<sup>†</sup> so it may be a good option for lactose intolerant individuals.

#### Suggested time of use

Following a tough workout, research shows that whey protein helps to promote muscle repair and recovery after exercise.<sup>4</sup>



#### Shake it up

WPI mixes better in beverages like water, juice and sports drinks and will not result in a cloudy appearance.

Find recipe inspiration at: <http://wheyprotein.nationaldairyCouncil.org/recipes/>



\*WPC 80 and WPI are the two most readily available whey proteins on the market. Whey protein concentrates range from 34-80% protein concentration.

<sup>†</sup>Lactose content can vary from ingredient to ingredient, so it is important to read ingredient lists and contact the manufacturer for specific information.

1. Boirie Y, et al. Proc Natl Acad Sci U S A. 1997; 94: 14930-5.
2. Res PT, et al. Med Sci Sports Exerc. 2012; 44: 1560-9.
3. Snijders T, et al. J Nutr. 2015; 145: 1178-84.
4. Devries MC, et al. J Food Sci. 2015; 80 Suppl 1: A8-A15.