

# The Moss Nutrition Digest

## Timely Tidbits to Support Your Practice

October, 2021

### Betaine HCL for Healthy Body Composition?

Betaine hydrochloride (HCl) is one of the original and most often prescribed dietary supplements to support healthy digestion. As a safe source of hydrochloric acid, betaine HCl is well known to help counter the effects of hypochlorhydria or insufficient stomach acid, a common condition generally associated with aging which also may exist in younger patients.

Healthy gastric HCL levels are required to enable numerous digestive activities—from the initiation of protein breakdown to the absorption of vitamin B12, the liberation of bound calcium and other minerals, and the neutralization of harmful foodborne or commensal microbes and parasites, notably *Candida albicans*, *Helicobacter pylori*, and countless others.

“Betaine HCl granular” is the raw material used in Moss Nutrition **Betaine HCl**. This ingredient is made up of roughly 75% betaine and 25% hydrochloride. The product is taken primarily to obtain the HCl component and support digestive processes. However, its betaine may also provide benefits.

Betaine (aka trimethylglycine) is a modified amino acid consisting of glycine, an osmolyte, plus three methyl groups. As a methyl donor, betaine is highly regarded for its role in regulating homocysteine metabolism, providing up to 60% of the methyl groups required for the transmethylation of homocysteine to methionine in the liver and kidneys. As an osmolyte, betaine helps regulate water balance in cells, enabling them to adapt appropriately to conditions of dehydration or fluid excess.

Betaine owes its name to being first discovered in sugar beets but it also is present in wheat and other foods, notably shellfish and spinach. In addition to dietary sources, the body manufactures betaine from choline, itself a major physiological methyl donor. The average betaine intake for adults is estimated to be between 100–400 mg daily. There is no recommended daily intake for betaine, but the Daily Value for choline, its precursor, is 550 mg.

In addition to homocysteine regulation and homocystinuria, supplemental betaine has been used to help support liver health and to enhance athletic performance. To date, most sports-related betaine research has been carried out in men, but a new double-blind, placebo-controlled trial investigated the effects of betaine on body composition and anaerobic performance in 23 female college students.

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## Betaine HCL for Healthy Body Composition? ctd.

Participants took either 2.4 grams per day of betaine, or a placebo, for two weeks. Various diagnostic and performance response levels were measured both before and after the intervention. The tests, which utilized a cycling ergometer, included a series of increasingly difficult 3-minute “stages” on the bike, and three sequential 10-second sprints interspersed with 2.5 minute recovery periods, performed against a resistance of 7.5% of body mass.

At the end of the two week study period, members of both the betaine and placebo groups exhibited improvements in body composition. However, only the betaine group showed a significant increase in fat-free mass, i.e. muscle tissue or lean body mass. In addition to improving their percentage of fat-free mass, women in the betaine group increased their mean power output and decreased their “perceived rate of exertion” during the sprint challenge, whereas those taking placebo did not. In other words, they became and felt stronger.

The mechanism underlying the hypertrophic and physical performance enhancing effects observed with betaine supplementation in this and other studies is yet to be determined conclusively. Some surmise the positive results may be related to the role betaine plays as an osmolyte, helping to maintain healthy intracellular fluid levels and saline balance—both critical for muscle health and performance.

Based on molecular weight, each 750 mg capsule of Moss Nutrition **Betaine HCl** provides slightly over 560 mg of betaine or, essentially, one fourth of the 2.4 gram dose used in the above study. Based on individual needs and tolerance levels, it is not uncommon for patients to take two or more capsules of **Betaine HCl** per meal.

In addition to correcting issues of low stomach acid, is it possible this time-honored digestive support supplement might also contribute to promoting reduced fat mass, muscle growth, and healthy body composition in exercising adults? Certainly it couldn't hurt.

### REFERENCES

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3. Van Every DW et al. Betaine Supplementation: A Critical Review of Its Efficacy for Improving Muscle Strength, Power, and Body Composition. *Strength and Conditioning Journal*. Aug 2021 Vol 43; Issue 4; 53-61.