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Beta-hydroxy-beta-methylbutyrate Supplement

National Cancer Institute

Source

National Cancer Institute. *Beta-hydroxy-beta-methylbutyrate Supplement*. NCI Thesaurus. Code C102547.

A nutritional supplement containing the active metabolite of the essential amino acid leucine, with potential anti-catabolic and anabolic activities. Upon oral administration of beta-hydroxy-beta-methylbutyrate (HMB), this leucine metabolite may decrease protein breakdown and increase protein synthesis thereby increasing muscle strength and mass. Although the exact mechanisms remain to be fully elucidated, multiple mechanisms have been proposed: 1) HMB is a precursor of cholesterol synthesis in skeletal muscle cells thereby increasing sarcolemmal integrity; 2) HMB may inhibit the ubiquitin-proteasome proteolytic pathway responsible for the specific degradation of intracellular proteins, thereby preventing muscular proteolysis; and/or 3) HMB may stimulate protein synthesis through a mammalian target of rapamycin (mTOR)-mediated mechanism.