



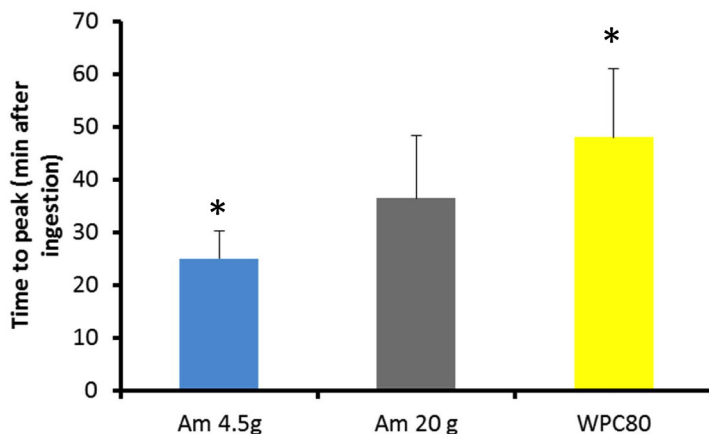
# FASTEST ABSORPTION OF AMINO ACIDS WITH AMIZATE® GIVES SPEEDIEST RECOVERY

New hydrolyzed salmon protein — amino acids, short peptides & micronutrients — molecular size not larger than 561 Dalton

*Study shows fastest absorption of amino acids to the blood stream with Amizate® - significantly faster than whey protein; Amizate® offers ideal nutrient timing for muscle re-generation and recovery.*

The rapid increase in blood amino acid levels observed in this study after ingestion of Amizate® confirms that the product is rapidly absorbed in the body. Time to peak blood concentration of branched chained amino acids (BCAA), and essential as well as non-essential amino acids were measured after ingestion of Amizate®. Compared to whey protein, peak amino acid concentrations were reached significantly earlier with Amizate® when ingested in equal amounts to WPC-80 (20 g protein). The rapid increase in blood concentrations of amino acids observed after ingestion resulted in a significant insulin response which reached similar peak concentrations, but peak insulin concentration occurred earlier with Amizate® than with WPC-80.

## Time to peak for EAA



\* = significantly different from Amizate 20 g

**Amizate®** is an all-natural dietary supplement made from marine sources. It contains the full range of free amino acids, short peptides and micronutrients required by the body for protein synthesis. The free amino acids and short peptides are readily absorbed in the digestive system (no molecules larger than 561 Dalton) and do not require further digestion. This makes for rapid replenishment of amino acids to the blood for muscle restitution and protein regeneration.

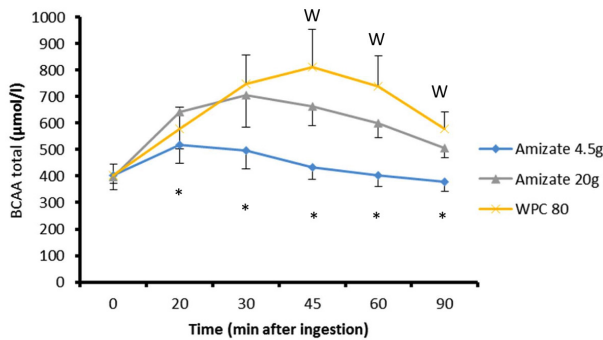
### Amizate® hydrolysed salmon protein gives:

- Rapid absorption of amino acids to blood stream
- Peak amino acid levels in 30 minutes or less
- Rapid insulin response





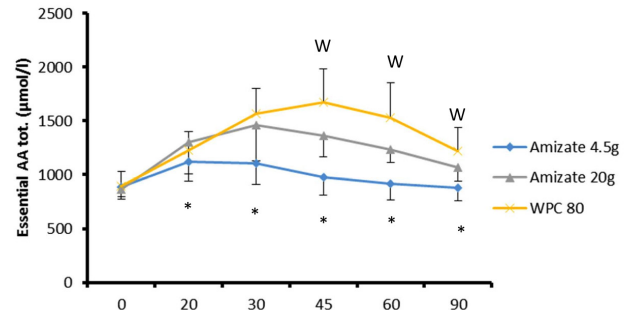
## Branched-chain amino acids (BCAA) total



W = WPC 80 > Am. 20g

\* = Am. 20 g > Am. 4.5 g

## Essential amino acids (EAA) total



W = WPC 80 > Am. 20g

\* = Am. 20 g > Am. 4.5 g

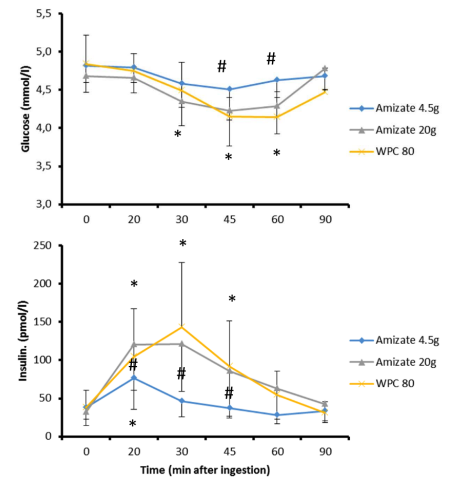
### Speed of absorption (in minutes) of branched chain amino acids (BCAA) and essential amino acids (EAA) after ingestion

#### Study of increase in blood amino acid levels after ingestion of Amizate® and whey protein

The increase in plasma levels of amino acids after ingestion of protein containing meals stimulates several important biological systems and is therefore an indicator of protein quality with regard to effects on health and bodily function. The peak amino acid level is a product of the dose of protein ingested, the amino acid content, the digestibility and the absorption rate of amino acids and short peptides. This study characterized amino acid levels in blood plasma after ingestion of two doses of Amizate® compared to whey protein. The study had a randomised double-blinded cross-over design. The products were given as 20 g protein doses. In addition all subjects ingested a lower dose of Amizate® (6 g product, corresponding to 4.5 g protein). A total of 10 young and healthy males completed the study. The first blood sample was collected just before ingestion of the protein drink, and thereafter blood samples were collected at 20, 30, 45, 60 and 90 min in order to follow the blood response for glucose, insulin and amino acids. Compared to WPC-80, peak amino acid concentrations were reached approximately 10 min earlier with Amizate®. The rapid increase in blood concentrations of amino acids observed after ingestion resulted in a significant insulin response which reached similar peak concentrations, but peak insulin concentration occurred earlier with Amizate® than with WPC-80. Surprisingly, ingestion of the small dose of Amizate® (4.5 g protein) resulted in a relatively higher peak level of amino acids and faster absorption. The increase in amino acid concentration after ingestion of the small dose (23% of the larger dose) reached up to 50% of the increase after ingestion of the larger dose of Amizate® indicating a higher efficiency in absorption of the smaller dose.

The study was performed by the **Norwegian School of Sports Sciences** in Oslo, Norway by professor Truls Raastad.

#### Glucose & insulin response



Amizate® is a product made of fresh Atlantic salmon harvested in fish farms located in the fjords of Norway. The enzymatic hydrolysis process is a proprietary and fully natural process which digests the protein into free amino acids and short peptides of molecular size no larger than 561 Dalton.

For more info: [www.zymtech.no](http://www.zymtech.no)

