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FOUNDATIONS OF HEALTH

Other areas beyond sports nutrition are starting to harness the considerable potential of amino acids.

Amino acids are the building blocks of protein and perform a variety of crucial functions in the body. Amino acids are divided into two categories: non-essential amino acids, which the body can make, and essential amino acids, which we must obtain from our diet. Our improved understanding of the role played by amino acids in nutrition has led to their increased use in the food industry. Much of the focus has been on the benefits of amino acids in sports nutrition where they have been found to improve performance and reduce the time taken to recover from strenuous exercise. Other areas of nutrition, however, are also starting to harness the considerable potential of amino acids.

BISCUIT APPROVAL

As recently as September 2006, the European Food Safety Authority (EFSA) approved the use of the amino acid L-cysteine in biscuits for infants and young children. Infant nutrition products must of course adhere to strict regulations. In reaching its decision, EFSA took into account that cysteine is already abundant in young children's diets and that its inclusion in biscuits will enable baby food manufacturers to reduce fat and sugar content. Clinical nutrition is another important application area for amino acids. When people's abilities to digest normal foods is compromised, amino acids, as the building blocks of protein, can play a key role in supporting the body's return to health. Amino acids are used widely in

enteral and parenteral nutrition. In this way, amino acids provide patients with an important source of nutrition following, for example, surgery. The increasingly sedentary way of life in the developed world is one of the major contributors to rising obesity levels. We are simply not burning enough calories. There is growing evidence of the importance of the branched-chain amino acids in optimising the beneficial effects of exercise. Several studies have demonstrated that the intake of branched-chain amino acids during exercise improves both mental and physical performance. During prolonged exercise, our bodies can use our muscles as a source of fuel for energy. This causes the stiffness, tenderness and pain in the muscles that we experience between 24 and 48 hours after exercise. Often these feelings, particularly for those people who do not exercise strenuously on a regular basis, can cause discomfort for a significant period of time.

AIDING RECOVERY

There is growing evidence that the essential branched-chain amino acids (leucine, isoleucine and valine) can help to speed up the recovery process. In 2000, a study conducted by Coombes and McNaughton examined the effect of branched-chain amino acid supplementation on cyclists. The researchers gave the cyclists 6g of the amino acids twice a day and found significantly reduced levels of creatine kinase and lactate dehydrogenase (indicators of muscle damage) for up to five days after exercise.

This early research has been followed up with more scientific investigation. A more recent study by a group of Japanese researchers at the Nagoya Institute of Technology showed that administration of the same mixture of branched-chain amino acids (leucine, isoleucine and valine) caused a considerable reduction in delayed-onset muscle soreness and fatigue

up to five days after exercise. The Japanese scientists attributed the increased recovery rate to the synergistic action of the branched-chain amino acids.



PRODUCT ACTIVITY

As functional foods and drinks move from a niche market to an established sector, consumers are starting to expect additional benefits for their money, guaranteeing that the functional phenomenon is here to stay. In 2006, The Coca Cola Company launched a range of functional waters containing amino acids, with each product specifically formulated to provide different benefits to consumers. Vaam (Vespa Amino Acid Mixture) was developed by Japanese biochemist Dr. Takeshi Abe. Dr. Abe studied the biochemistry of giant hornets and discovered that they feed on an acidic liquid produced by their larvae. This liquid, which contains a combination of 17 amino acids, is the secret behind their amazing stamina. The Amino Vital range was developed through the Ajinomoto Amino Science programme and is formulated according to the latest scientific research. In Japan, it is not just beverages that have benefited from the addition of amino acids. In 2005, Kellogg's launched new Frosties, supplemented with 400mg of branched-chain amino acids. The introduction of amino acids into staple foods indicates their transition from niche products to part of the mainstream market.

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