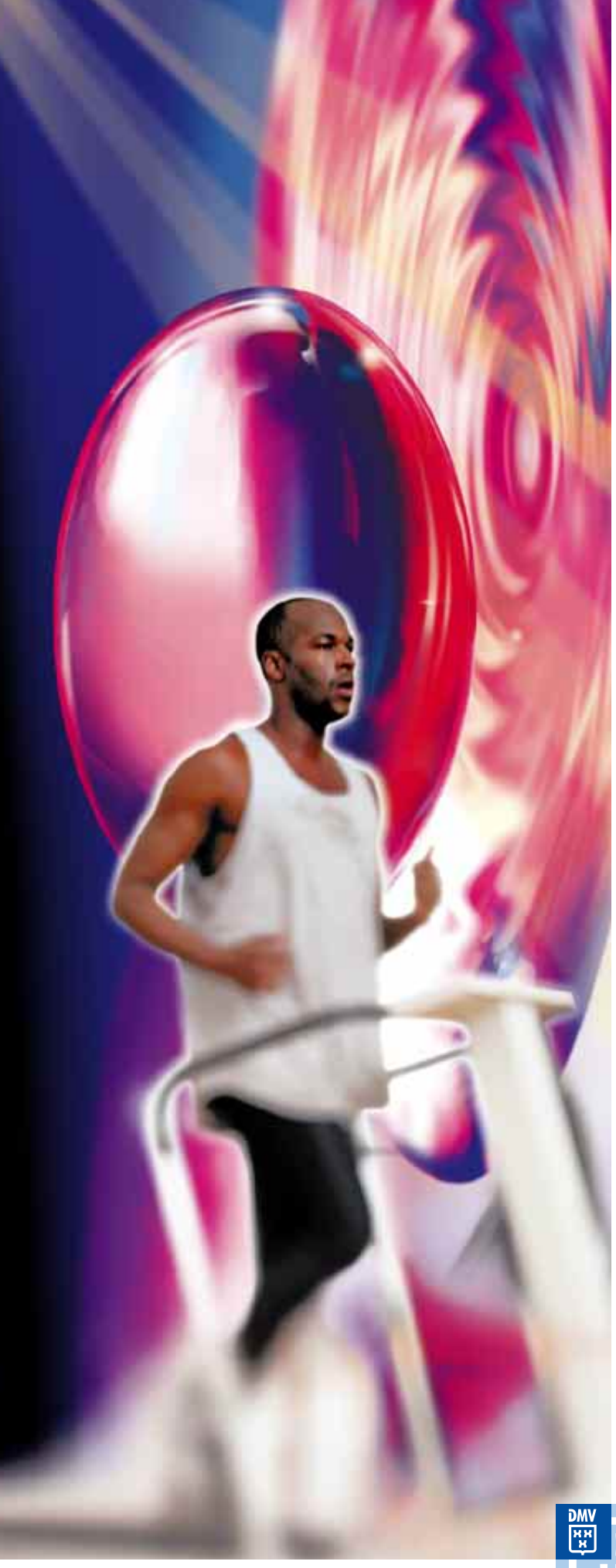

Glutamine Peptide

Immune stimulation and enhanced recovery for sports & medical nutrition

Glutamine Peptide, the natural source of glutamine for:

- Increased immune response
- Prevention of fatigue and overtraining syndrome
- Enhanced glycogen replenishment

Application areas

- Sports nutrition
- Immune stimulating clinical nutrition
- Functional foods

Creative technologists in healthy nutrition

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Nutritionals

Immunostimulation and enhanced recovery with Glutamine Peptide

Glutamine, a conditionally essential amino acid

Glutamine has recently been the focus of much scientific interest. It appears that during stress, whether inflicted on the body through heavy exercise[1], severe illness or a (viral) infection, the body's glutamine requirements increase considerably. This amino acid may therefore be regarded as "conditionally essential".
A growing body of evidence suggests that the body's defence system requires increasing amounts of glutamine during stress to respond to health threatening events. In the long term low plasma and muscle glutamine levels may lead to net muscle protein loss and decreased resistance against infections.

Benefits of glutamine supplementation:

- improved nitrogen-balance
- increased immuno-responsiveness[2]
- prevention of fatigue and overtraining syndrome[3]
- better gut performance against infections
- enhancement of glycogen replenishment[4]
- high BCAA/Trp ratio[5]

Easy digestible protein, supplying glutamine, with carbohydrates are recommended by sport nutrition experts for speeding up glycogen recovery after heavy physical exercise[6].

Glutamine supplementation, but how?

Glutamine in peptide-bonded form has a number of advantages over the free form amino acid.
The benefits of Glutamine Peptide include:

- natural source of glutamine, derived from 100% vegetable protein by food grade enzymatic hydrolysis
- peptides are the natural way of absorbing amino acids in the gut and have better absorption characteristics
- higher solubility
- heat stability over a wide temperature range

Compared to synthetic glutamine dipeptides, Glutamine Peptide is much cheaper per unit of glutamine.

Application areas for Glutamine Peptide

Based upon the functional and nutritional properties of Glutamine Peptide it can be used as a bioactive ingredient in functional foods, sports beverages and supplements and clinical nutritional formulas targeted at recovery and immunostimulation[7].
Glutamine Peptide can be used in drink formulations of neutral and low pH and is completely stable during pasteurisation and (retort) sterilisation treatment. In addition, Glutamine Peptide can be used in tablets, bars and instant drink mixes.

	number of participants	% of participants without infections
glutamine	72	80.8
placebo	79	48.8

Figure 1: incidence of infections reported during 7 days for runners, given either glutamine or placebo after a full marathon or an ultra-marathon[8]

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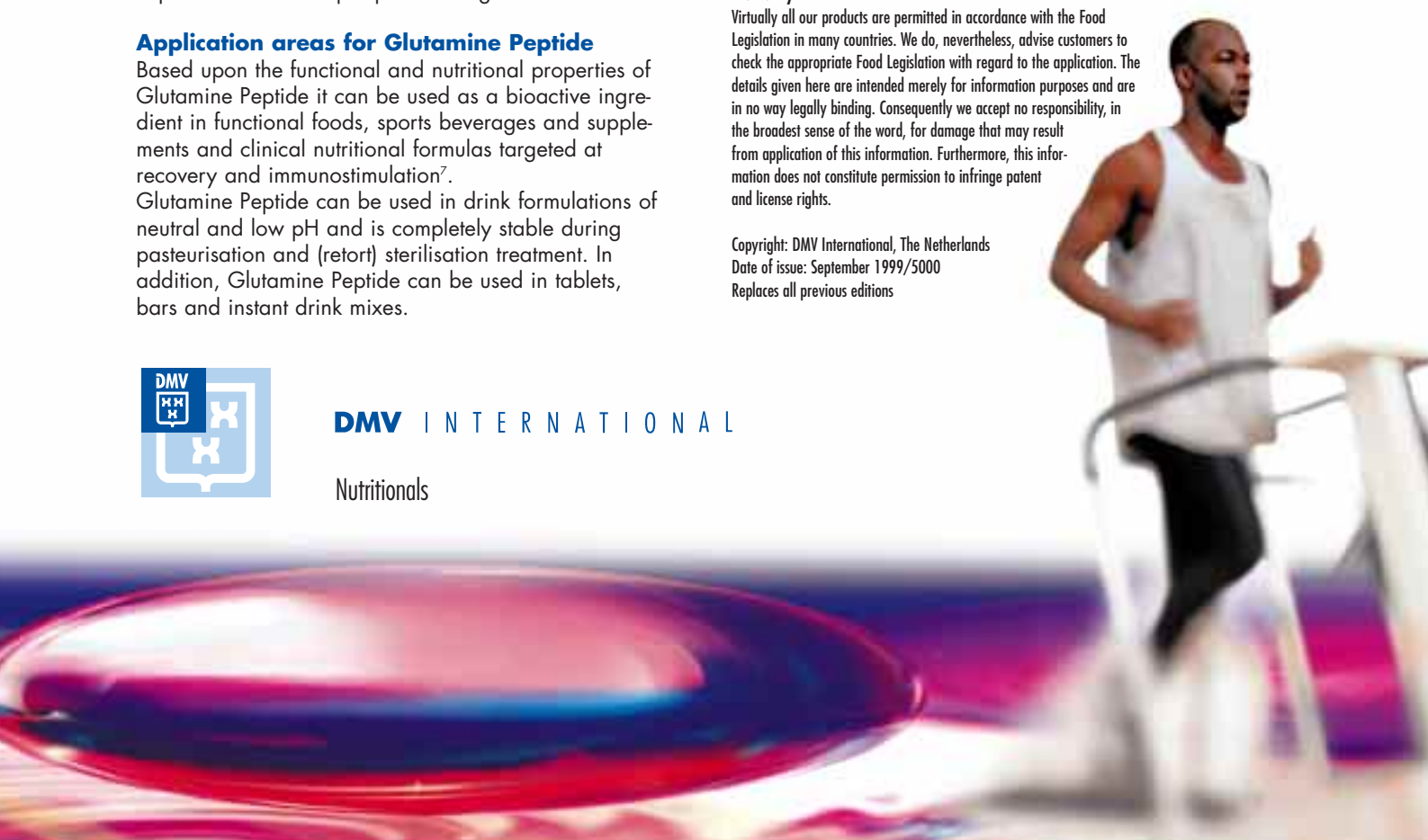

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