This comprehensive report is based on in-depth interviews with food companies completed by a desk review. It provides for DECISION MAKERS a global understanding of the sector as well as an outlook on its future.

MARKET ANALYSIS
• New trends and perspectives
• Usage of ingredients in volume and value
• Sports food manufacturers expectations towards ingredients
• Sports food and dietetic meals manufacturers profiles

APPLICATIONS
• Sports Foods
• Slimming Products
• Protein Meals

COUNTRIES COVERED
• Western Europe
• Central Europe
• Eastern Europe

INGREDIENTS COVERED
• Milk & whey proteins
• WPI & whey fractions
• Whey hydrolysates
• Casein hydrolysates
• Bioactive peptides
• Soy-wheat-pea proteins
• Glutamine peptides
The European sports nutrition market offers promising growth potential to manufacturers of sports-product ingredients, with the market forecast to grow by 5.7 per cent between 2009-2013 according to some industry experts.

The "sports nutrition" market has changed in recent years from being a niche sector of specialist sports products to being a mass-market. Lifestyle changes and particularly the body cult have driven this change.

One main challenge is the decreasing differentiation between performance enhancing products and mass market sports foods. This trend is also linked with the difficulty to promote very sophisticated, high quality but also high price products. The sports-nutrition industry must continue to satisfy the demand from high level athletes as well as the mainstream market. Therefore, the industry must be careful that each target market remains satisfied. This situation is aggravated by the fragmentation of an industry with limited communication budgets. Without strongly differentiated products supported by clinical studies, sports foods manufacturers have to fight on price which explains the current price war situation.

Furthermore, the emergence of new athletes has also corresponded to a research of "fast muscle building" with a favour to steroids at the detriment of proteins. This "competition" conjugated to the price war situation, has impacted on the progressive regression in the quality of protein use and consequently in the difficulty to sell value added proteins.

Companies are expecting that suppliers address their need for bulk density consistency, solubility, low foam and tasty products. They also expect that ingredient suppliers would actively help them to promote their benefits in a bid to develop the market further.

The structure of the European market itself with regional, economic, cultural and legislative and taste differences makes the marketing of sports foods difficult. U.S. manufacturers that have been successful in the USA have to consider this when entering the European market.

The slimming food and protein meals industry is on its side growing rapidly. The companies involved in that sector acknowledge better growth than in the sports foods.
As exercise will increase the global muscle protein turnover, it is necessary to support the muscle protein renewal supplying fresh building blocks (i.e. AAs & peptides). For example the Australian Institute of Sports advises athletes to consume 10-20 g of protein plus 1g of carbohydrate per kilogram of body weight within 30 minutes of finishing training.

Food proteins supply the body with all kind of amino-acids which are used as structural building blocks or transformed into hormones, neuro-transmitters, regulating factors, etc., so the comparative performance of various protein sources cannot be only based on their nitrogen content or their biological value.

The regulation of protein anabolism & catabolism depends on the availability of AAs and on the activity of insulin. The third main parameter is the « protein timing », i.e. the digestion speed and the repartition and composition of protein meals during the day.

So, whey proteins which are quickly digested and caseins which are less rapidly degraded result in different metabolic response to meal ingestion.

Yet, high protein intake can create dehydration. It may also increase the amount of calcium excreted in the urine which can cause problems with athletes at risk of weakened bones. High protein intake is also known to accelerate the progression of pre-existing kidney diseases, so it may be necessary to increase fluid requirements. However, the main concern is that an excessive focus on high protein foods may displace other valuable foods (e.g. fruit and vegetables) or other important nutrients such as carbohydrate and fiber from the diet. Daily protein intake under 2 g per kg BM in healthy people is unlikely to cause side effects. Less is known about the long-term side effects of protein intake above 2g/kg/BM.
The bodybuilding market is frequently segmented in body mass, recovery and fat burner products.

Recent studies have tended to demonstrate that alpha-lactalbumin could also play a role in body recovery from sports. However, the price of this ingredient is still limiting its use. L-glutamine, the most prevalent amino-acid, because of the depletion of energy as a result of catabolic stress, can drop by more than 50% during intensive workout. This makes glutamine peptide a very useful ingredient in sport nutrition.

Though sports food companies make a number of claims in respect of high levels of tryptophan, beta-lactoglobulin and other bioactive components, the main ingredients used remain essentially whey protein concentrates and isolates. Whey protein isolate that contains 90 % protein rich in BCAA were particularly appreciated. The price and marketing cost are usually mentioned as reasons for limiting the use of separate bioactive components.

Thus, it would appear that their potential in the performance nutrition segment is still somewhat under-achieved. In particular, since it has been demonstrated that whey peptides naturally bypassing the ordinary digestion processes, are superior to free-form amino acids in the promotion of better nitrogen retention.

Furthermore, their global functional advantages could also be better utilized, even if it is not a main target of sports nutrition, at least in the health-conscious segment. This could open the door to an array of new sports food products.

Slimming products, on their side tend to include a high level of proteins. This trend has been increased with the low-carb movement. Functional aspect like texture, resistance to heat, also plays a more important role in that segment.
OBJECTIVES

MARKET

Food consumption trends and expectations
Consumer market trends by food segments
Prospective

MANUFACTURERS

Food industry orientations
Applications in food segments
Consumption

RESEARCH

New researches and new developments

COUNTRIES STUDIED AND COMPANY PROFILES

<table>
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<tr>
<th>Countries Studied</th>
<th>Company Profiles</th>
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<td>Greece</td>
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DESCRIPTION IN EACH COUNTRY

INGREDIENTS USED IN THE EUROPEAN SPORTS FOOD AND SLIMMING PRODUCTS MARKET

136 Profiles: Sports Food Companies & Contact Manufacturers
Company Example uses WPC, WPI, very few hydrolysates, caseinates and different sources for their ingredients: milk, soy, lupin, pea, wheat.

It is very difficult to evaluate the different products. First of all, sports people are following trends. So, they are looking for a new ingredient that is fashionable. Then, there is a personal reaction to the product. For the same product, one individual will eat a lot with satisfaction while another individual may react negatively with digestion troubles. So, it is necessary to blend several sources.

Also, sport people get used to a product and need to change to obtain new sensations. But they cannot tell if the protein comes from TMP or WPC or vice versa.

Nutritionist cannot tell either. There are no comparative studies today on the efficiency of TMP vs Isolates vs Soy isolates vs pea isolates. It would be very long to realize. So, the nutritionist concentrates on measurable things like digestibility and glycaemia index. It reassures the consumers. What is tangible is the correlation between the intake of protein and body mass creation. The level of protein plays a role while the aminogram’s role is not clear. Also, the organoleptic part is important. Some flavours at 1% are already beyond their chemical threshold and the consumer will have a persistent aftertaste.

Once again some physiological differences between people may interfere.

“Company Example” buys WPC 80 or 90%. At 80% it costs nothing. At 90% it is very expensive. Why? This is not coherent. The suppliers explain many things. He comes with technical calculation and arguments, but nothing is demonstrated. It is mostly marketing.

At the sportive’s level, they ignore nearly everything. They cannot tell if it is a TMP from supplier A or a calcium caseinate from Supplier B. They are not aware of the alpha-lactalbumin or amino-acid content. As long as the aspect and taste do not change, the consumer will not see the difference. Lactose intolerance is something different and concerns many people.

Of course, they are looking for very dispersible proteins. Since they heat them. They face no pH problem. Our products are at pH 7 or close to. Just for acidulate recipes, the pH may be lower.

<table>
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<tr>
<th>Ingredient</th>
<th>Volume</th>
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<td>WPC 80%</td>
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<td>Supplier D</td>
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<tr>
<td>WPI</td>
<td>1 tons/y</td>
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<tr>
<td>Hydrolysates</td>
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<td>Total milk</td>
<td>TMP 38-40 tons/ year</td>
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<td>Calcium</td>
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<td>Suppliers A and B</td>
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<td>caseinate</td>
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<tr>
<td>Glutamine</td>
<td>A few</td>
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<tr>
<td>peptide</td>
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<tr>
<td>Soy proteins</td>
<td>5 tons/y</td>
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<tr>
<td>Pea proteins</td>
<td>1 ton/y</td>
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<td>Lupin</td>
<td>Lab. Trials</td>
<td>Supplier C</td>
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<td>Wheat protein</td>
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