



FOOD CONCEPT
DAIRY
PRODUCTS
FOR
ELDERLY

According to WHO,

The pace of population ageing globally is increasing dramatically where the world's population aged 60 years and older is expected to reach 2 billion by 2050, up from 900 million in 2015 (WHO, 2018). There are 125 million people whose aged 80 years or older in 2018.





KEY TRENDS IN DAIRY PRODUCTS 2020

Key Trends in Food, Nutrition and Health 2020

Healthy Ageing





PRODUCT CONCEPTS & PROPOSED INGREDIENTS

Product Concepts

Bone Health

Strawberry Banana



FORTIBONE®
Collagen Matrix Stimulation



HEXAGON NUTRITION
Nutritionally Yours.....

Digestive Health

Vanilla



beneo
connecting nutrition and health



HEXAGON NUTRITION
Nutritionally Yours.....

Energy Provision

Chocolate



beneo
connecting nutrition and health



HEXAGON NUTRITION
Nutritionally Yours.....

Product Concepts & Market Trends

Bone Health

Strawberry Banana



FORTIBONE®
Collagen Matrix Stimulation



HEXAGON NUTRITION
Nutritionally Yours.....



Product Concepts & Market Trends

**Digestive
Health**

Vanilla



beneo
connecting nutrition and health



HEXAGON NUTRITION
Nutritionally Yours.....



Product Concepts & Market Trends

Energy
Provision

Chocolate



beneo
connecting nutrition and health



HEXAGON NUTRITION
Nutritionally Yours.....





PRODUCT
CONCEPT:
BONE HEALTH

Product Concept : Bone Health

TARGET MARKET

- Elderly

PROPOSED INGREDIENTS

- Gelita: Fortibone
- Hexagon: Vitamin D & Calcium

BENEFITS

- Promotes bone health
- Stimulates synthesis of bone collagen matrix
- Helps to improve bone density



FLAVOR

- Strawberry Banana



COLLAGEN FOR
BONE HEALTH

Collagen

- Collagen is the most abundant protein in human body where there is about 30 % of our total body protein is collagen.
- Collagen is crucial for mobile joints, stable bones, healthy muscles, strong ligaments and tendons, smooth skin, glossy hair and healthy finger nails



Osteoporosis

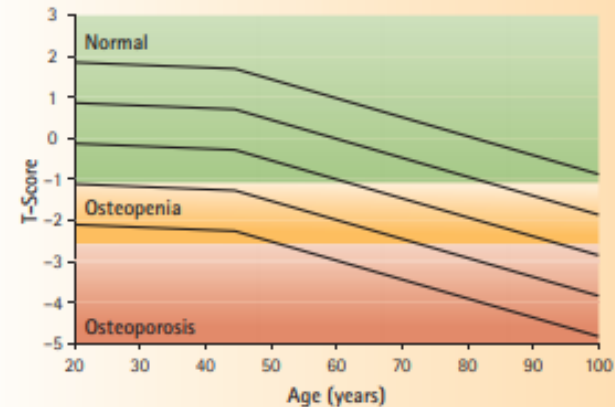
- A well-defined skeletal disease which is characterized by low bone density and skeletal microarchitectural deterioration with a consequent increased risk of fracture (Eastell, 2017).
- A classical age-related disease and its prevalence increases with advancing age and the incidence of fracture rise exponentially with age.
- It is three times more common in women than in men at least partly because of the hormonal changes that occur at the menopause around the age of 50 years (WHO, 2003).



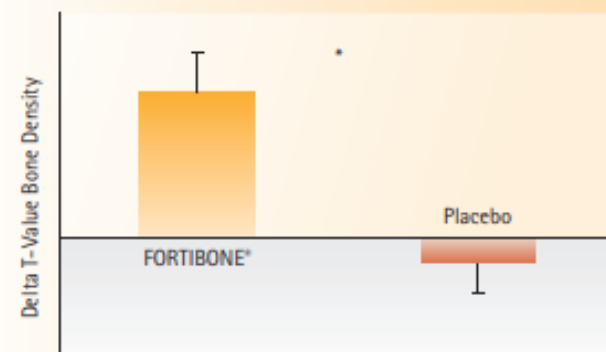
Benefits of Fortibone

- The specific peptides of FORTIBONE® stimulate bone cells to increase the synthesis of bone components such as collagen.
- They have a kind of 'signaling effect' on osteoblasts to counterbalance the collagen degradation in the extracellular bone matrix, which is the essential framework for bone mineralization.
- FORTIBONE® influences degenerative processes in bones by reducing osteoclast activity, resulting a considerably higher synthesis of collagenous bone matrix.

Bone mineral density measurement



Bone mass increase in the spine



Clinical Study	Findings	References
Collagen Peptides Improve Bone Mineral Density and Bone Markers in Postmenopausal Women	<ul style="list-style-type: none">• Study showed a significant improvement of bone density with daily intake of 5g FORTIBONE® for 12 months.• The results showed a pronounced increase in BMD (Bone Mineral Density) after FORTIBONE® supplementation in women suffering from osteopenia or osteoporosis.• This demonstrated that FORTIBONE® is an interesting option to counteract bone degeneration.	Konig et al., 2018
A Calcium-Collagen Chelate Dietary Supplement Attenuates Bone Loss in Postmenopausal Women with Osteopenia	<ul style="list-style-type: none">• The loss of whole body bone mineral density in women taking calcium-collagen chelate (CC) was substantially lower than that of the control group at 12 months.• The CC group had significantly reduced levels of sclerostin (main function of sclerostin is to stop (inhibit) bone formation) and tartrate-resistant acid phosphatase isoform 5b (TRAP5b) ($P<.05$), and higher bone-specific alkaline phosphatase/TRAP5b ratio ($P<.05$) than control at 6 months.• These results support the use of CC in reducing bone loss in osteopenic postmenopausal women.	Elam et al., 2015



HEXAGON NUTRITION
Nutritionally Yours.....



VITAMINS &
MINERALS FOR
BONE HEALTH

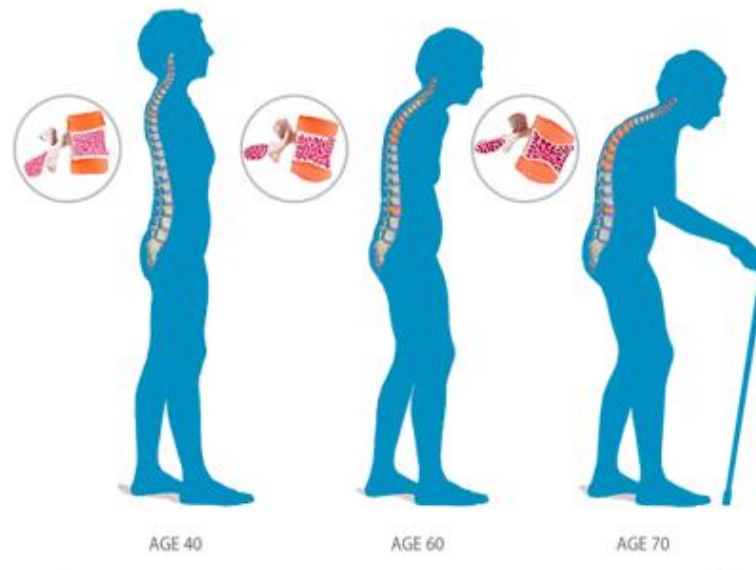
Vitamin D for Stronger Bone

- Important for normal development and maintenance of the skeleton
- Facilitates intestinal calcium absorption and thereby provide calcium necessary for bone mineralization (Carmeliet et al., 2015).
- Supplementation of calcium and vitamin D in clinical trials of older individuals can decrease bone resorption, increase bone density, decrease fractures, and decrease the risk of falling.
- Deficiency of Vitamin D may lead to osteomalacia - impairment of the mineralisation phase of bone remodeling and thus an increasing amount of the skeleton being replaced by unmineralized osteoid (Christodoulou et al., 2013).



The role of Calcium for bone health

- The most abundant mineral in the body with 99% found in teeth and bone (Beto, 2015).
- Performs in bone mineralization, especially in bone health, from the formation and maintenance of the structure to the rigidity of the skeleton (Beto, 2015).
- The average absorption rate is approximately 30% which is mainly occurs in the small intestine (Beto, 2015) where the rest is transformed to the large intestine where another 10% is absorbed (Warzecha & Czerwiński, 2016).
- Low calcium intake was significantly related with low bone mineral density (Kim et al., 2014)





MARKET
EXAMPLES with
COLLAGEN

MARKET EXAMPLES

DPO INTERNATIONAL

Anlene Concentrate UHT Milk - Fat Free with Collagen

Ingredients: Skimmed Milk Powder, Tricalcium Phosphate, **Collagen Powder** (Fish), Calcium Carbonate, Stabilizer (E339(ii), E407, E418, E440, E460, E466), Dimagnesium Phosphate, Vitamin Premix (Maltodextrin, Vitamin C, Vitamin E, Vitamin B6, Vitamin D3, Vitamin B12), Emulsifier (E322(ii)), Zinc Oxide



Beneme Collagen Nutritional Milk Drink

Ingredients: Skim Milk Powder, **Hydrolysed Collagen**, Whole Milk Powder (Milk, Emulsifier (Soy Lecithin)), Cocoa Powder 5%, Minerals (Magnesium Oxide, Ferric Pyrophosphate, Zinc Sulphate, Cupric Sulphate, Selenomethionine, Chromium Chloride, Manganese Sulphate, Sodium Molybdate, Potassium Iodide), Natural Flavor, Vegetable Gum (415), Digestive Enzyme Blend (Contains Amylase, Protease, Cellulase, Lipase, Lactase), Vitamins (Vitamin C, Vitamin E, Niacin, Riboflavin, Pantothenic Acid, Pyridoxine, Thiamin, Vitamin A, Folic Acid, Vitamin K, Vitamin D, Biotin, Vitamin B12), Sweetener (Steviol Glycosides)



Vitagen Collagen Less Sugar

Ingredients: Fructose, Milk Solids, Dietary Fibre (Inulin), Sucrose, **Marine Collagen Peptides** (Fish Origin), Glucose, Vitamin C and Live Cultures; Lactobacillus Acidophilus and Lactobacillus Casei , Contains Permitted Food Conditioner and Flavouring



Lactasoy Light Collagen

Natural soymilk with collagen from deep sea fish containing a low in sugar and fat content

Ingredient :Soy milk 94.13% , Sugar 4.50%, Vegetable Oil 1.20% , Vitamins and Mineral 0.12%, **Collagen** 0.05%



MARKET EXAMPLES

DPO INTERNATIONAL

Yobick Lite+ Yogurt Flavoured Drink

Ingredients: Water, Sugar, Skim Milk Powder, Maltodextrin, Non Dairy Creamer, Acidity Regulator, Soybean Polysaccharide, **Collagen** (Fish), Flavouring, Pasteurised Yogurt Powder (Whey, Streptococcus Thermophilus, Lactobacillus Bulgaricus), Honey, Inulin And Sweetener (Acesulfame-k E950, Sucralose E955).



OsteoSoy-Collagen Soy

High content of Marine (Fish) Collagen, Calcium (3x of Soymilk) and 100% Organic De-Skinned, Non-GMO Soya Beans and No Cane Sugar added.

Ingredients : 100% Organic Soya Bean, Calcium Carbonate, **Marine Collagen** (Fish), Vitamin D



The Protein Drinks Collagen+ Beauty Milk

Ingredients: Skimmed milk, Whole milk, **Hydrolysed Collagen**, Vitamins; Ascorbic Acid, Vitamin E Acetate, Vitamin B12, Nicotinamide, Pyridoxine, Vitamin D3, Maltodextrin, Green Tea extract, Colour; Beta Carotene, Carmine, Flavour, Stabiliser ; Carrageenan, Dextrose, Sweetener, Acidity Regulator ; Disodium Phosphate.



Valio PROfeel Blueberry Protein Yogurt Drink With Collagen

Varieties : Wild Berry, Blueberry, Banana
Skimmed Milk, Water, **Collagen** Peptides 4.1%,
Milk Proteins, Blueberries 3%, Modified Starch,
Flavourings, Food Colours (Anthocyanins),
Acidity Regulator (Sodium Citrates), Sweeteners
(Potassium Acesulfame, Sucralose), Starter.





PRODUCT
CONCEPT:
DIGESTIVE
HEALTH

Product Concept : Digestive Health

TARGET MARKET

- Elderly

PROPOSED INGREDIENTS

- Beneo Orafit: Inulin
- Hexagon: Vitamin E

BENEFITS

- Good for digestive health
- Reduces overall calorie intake
- Supports a lower rise in blood glucose response



FLAVOR

- Vanilla



INULIN FOR DIGESTIVE HEALTH

INULIN (ORAF TI HSI) PROMOTES GOOD DIGESTIVE SYSTEM

- Enriched with the goodness of Orafti HSI, a natural prebiotic dietary fibre that positively improves our gastrointestinal health and support the growth of healthy bacteria.
- Support for blood glucose management which is crucial for elderly.
- One gram of sugar and fat contain 4 kcal and 9 kcal respectively whereas Orafti HSI contains only 1.5-2kcal for every gram.
- Inulin is dietary fibre which promotes the feelings of satiety and may reduce appetite and energy intake.





HEXAGON NUTRITION
Nutritionally Yours.....



VITAMIN FOR
DIGESTIVE
HEALTH

VITAMIN E FOR GOOD DIGESTION

- Vitamin E is fat soluble with a low water-solubility.
- After ingestion, vitamin E released from the food matrix and then solubilized within mixed micelles formed by bile salts and phospholipids, as well as any free fatty acids and monoacylglycerols resulting from lipid digestion, before being transported to the epithelium cells where absorption occurs (Mayer et al., 2013).
- The metabolization of vitamin E in the upper GI tract includes emulsification, incorporation into micelles, transport through the unstirred water layer, uptake by the apical membrane of the enterocyte, solubilization into intestinal lipoproteins, and secretion out of the intestinal cell into the lymph or into the portal vein (Borel et al., 2013).





MARKET EXAMPLES with INULIN

MARKET EXAMPLES

DPO INTERNATIONAL

Sustagen® Optimum 800g

Ingredients: Maltodextrin, Milk Proteins (Whey, Potassium Caseinate), Vegetable Oil (High Oleic Sunflower Oil, Sunflower Oil, Rapeseed Oil), Sucrose, Prebiotic Fibres (**Fructo-Oligosaccharides**, **Inulin**), Minerals (Potassium Phosphate, Sodium Phosphate, Calcium Chloride, Calcium Carbonate, Magnesium Chloride, Zinc Sulphate, Ferrous Sulphate, Copper Sulphate, Manganese Sulphate, Potassium Iodide, Chromium Chloride, Sodium Selenate, Sodium Molybdate), Flavour (Vanilla), Emulsifier (Soy Lecithin), Food Acid (330), Vitamins (DI-Alpha-Tocopheryl Acetate, Sodium Ascorbate, Nicotinamide, Calcium Pantothenate, Pyridoxine, Retinyl Acetate, Riboflavin, Thiamine Mononitrate, Phylloquinone, Folic Acid, D-Biotin, Cholecalciferol, Cyanocobalamin), Sweetener (Acesulfame Potassium), Probiotic Culture (Lactobacillus Paracasei). Contains Milk and Soy.



Follow Your Heart Vegan Gourmet Cheddar

Ingredients : Filtered Water, Organic Expeller-Pressed Soybean Oil, Organic Soymilk Powder (Organic Soybeans), Natural Flavors (contains Autolyzed Yeast), **Inulin (Chicory Root Extract)**, Agar-Agar, Nutritional Yeast, Sea Salt, Organic Soy Protein, Annatto, Lactic Acid (Vegetable Source). CONTAINS: Soy



Diamondpure Milk with Inulin Fibre

Ingredients: Filtered Water, Milk Solids, **Inulin Fibre** and Permitted Food Conditioner



Nancy's Organic Whole Milk Kefir

Varieties : Plain, Blueberry, Ginger Peach, Vanilla

Ingredients: Organic Pasteurized Wholemilk, Organic Pasteurized Non-fat Milk, **Organic Inulin**, Lactase Enzyme, and Live Cultures (including 11 prebiotic strains : Bifidobacterium lactis BB-12, L. acidophilus LA-5, L.rhamnosus LB3, L.casei [2 isolated strains], L.acidophilus [2 isolated strains], Bifidobacterium lactis [2 isolated strains]).



MARKET EXAMPLES

DPO INTERNATIONAL

Kroger® Pineapple Kiwi with Spinach Nonfat Greek Yogurt Smoothie

Ingredients : Cultured Skim Milk, Milk Protein Isolate, **Inulin**, Sugar, Water, Pineapple Juice Concentrate, Spinach, Kiwi Puree, Natural Flavor, Cultured Dextrose, Corn Starch, Pectin, Lemon Juice Concentrate, Spirulina Extract and Turmeric (Color), Vitamin A Palmitate, Vitamin D, Active Cultures with L. Acidophilus and B. Bifidum.



Yobick Lite+ Yogurt Flavoured Drink

Ingredients: Water, Sugar, Skim Milk Powder, Maltodextrin, Non Dairy Creamer, Acidity Regulator, Soybean Polysaccharide, Collagen (Fish), Flavouring, Pasteurised Yogurt Powder (Whey, Streptococcus Thermophilus, Lactobacillus Bulgaricus), Honey, **Inulin** And Sweetener (Acesulfame-k E950, Sucralose E955).



MARKET EXAMPLES

DPO INTERNATIONAL

Brown Salted Caramel Ice-Cream

Ingredients: Cultured Pasteurized Grade A Nonfat Milk,
Inulin (Oligosaccharide), Pectin



Iskream Banana Reduced Fat Frozen Dairy Dessert

Ingredients: Milk, Banana Puree, Maltodextrin, Cream,
Inulin, Erythritol, Glycerine, Natural Flavors, Ground
Nutmeg, Guar Gum, Carob Bean Gum, Stevia Leaf
Extract





PRODUCT CONCEPT: ENERGY PROVISION

Product Concept : Energy Provision

TARGET MARKET

- Elderly

PROPOSED INGREDIENTS

- Beneo Palatinit: Palatinose
- Hexagon: Vitamin Bs

BENEFITS

- Provides balanced and sustained energy supply
- Supports a low glycaemic diet
- A greater reliance on fat oxidation



FLAVOR

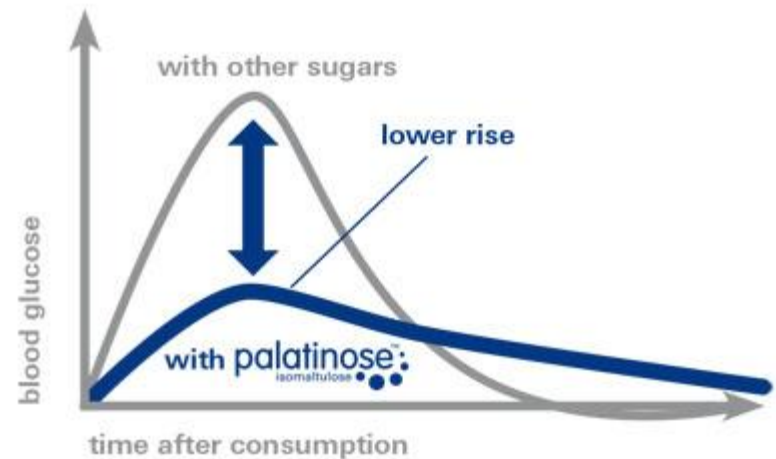
- Chocolate



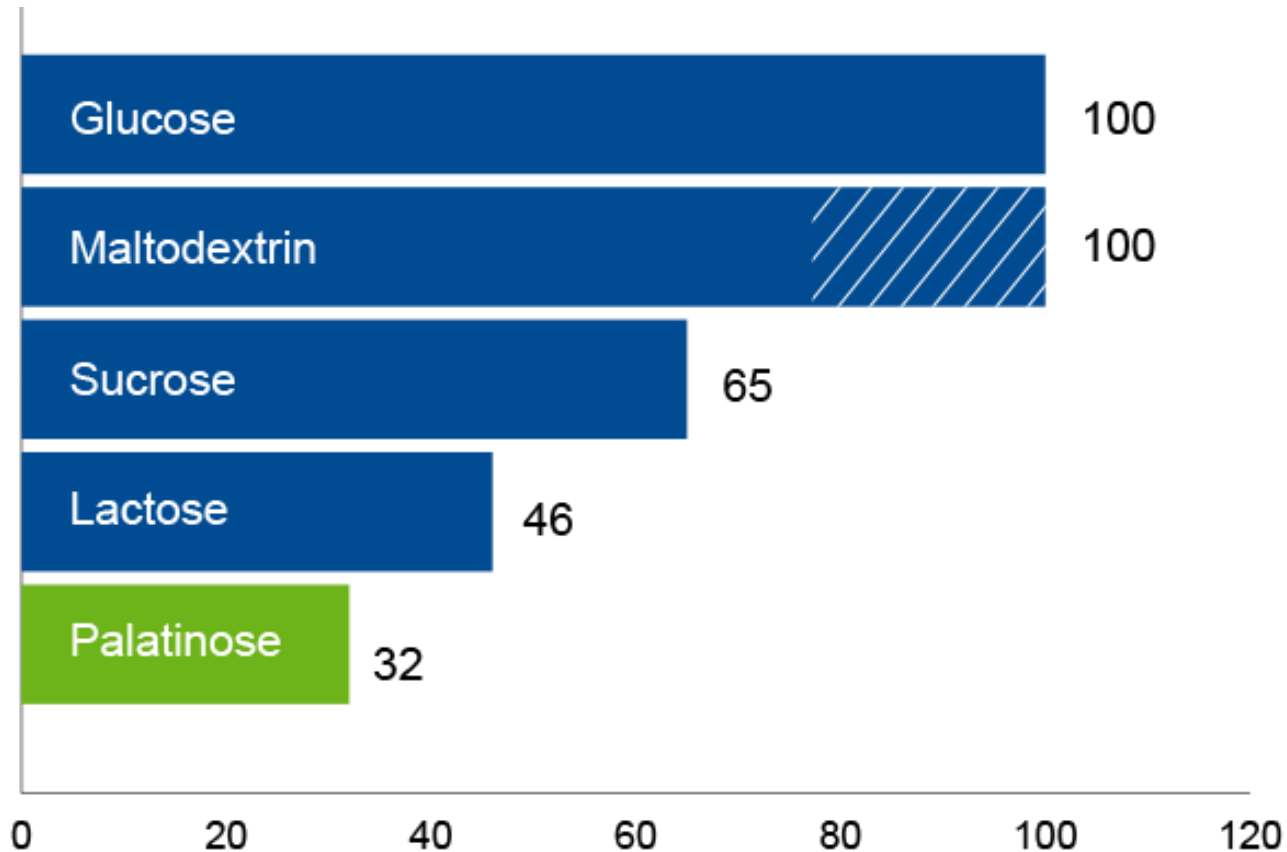
PALATINOSE FOR ENERGY PROVISION

PALATINOSE PROMOTES BALANCED AND PROLONG ENERGY SUPPLY

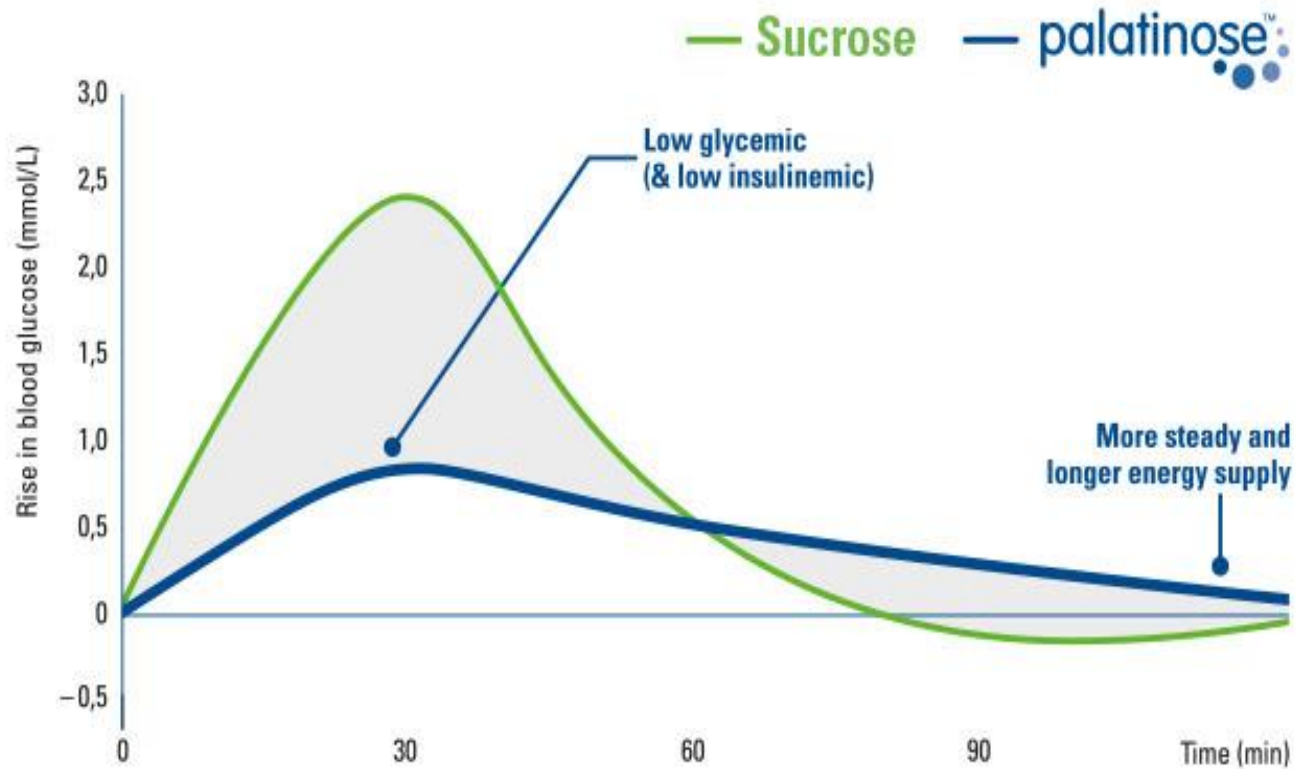
- Palatinose is a slow releasing carbohydrate that is naturally sourced from sugar beets.
- Palatinose gives a gradual rise in blood sugar level and lasts longer after consumption which is crucial for elderly.
- Palatinose is able to replace sucrose or other high glycemic carbohydrates on a gram-to-gram basis (Beneo, 2013) as the glycaemic index (GI) of Palatinose is only at 32 whereas that of sucrose is much higher at 72.



Carbohydrate quality depends on the glycaemic index



Blood glucose profile of sucrose versus Palatinose™





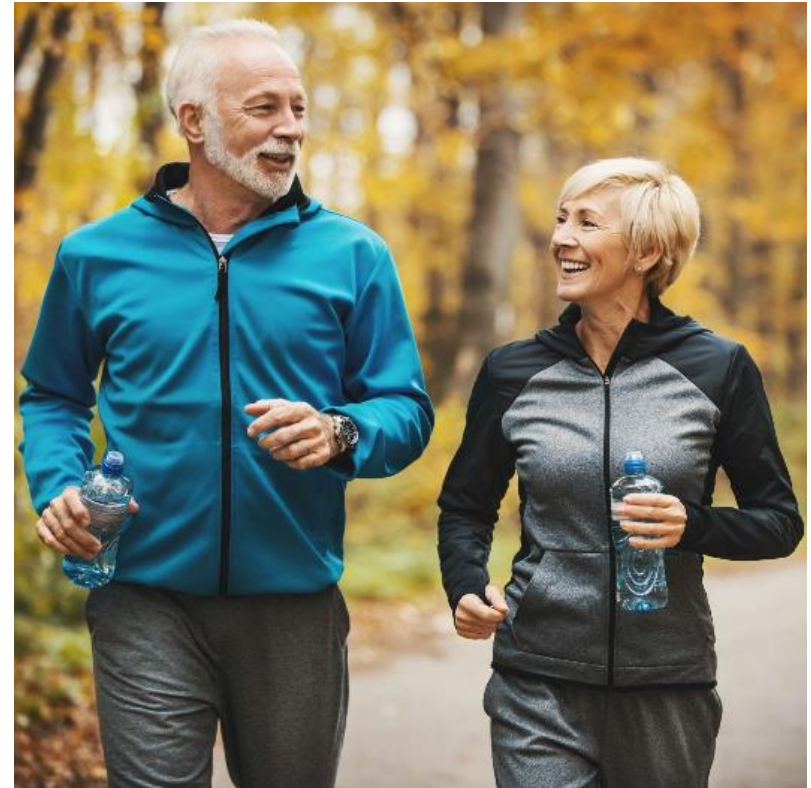
HEXAGON NUTRITION
Nutritionally Yours.....



VITAMIN Bs FOR
ENERGY
PROVISION

VITAMIN Bs FOR ENERGY ENDURANCE

- Energy boosting **B vitamins** deliver high-potency energy supports as well as reduce tiredness and fatigue where they helping to break down **energy** from food.
- The brain is by far the most metabolically active organ in the body, representing only 2% of body weight but accounting for over 20% of the body's total energy expenditure (Kennedy, 2016).





MARKET EXAMPLES with PALATINOSE

Prohance-D Chocolate Drink

Ingredients: Maltodextrin, Sunflower Seed Oil (High Oleic Acid), Calcium, Whey Protein Isolate, **Isomaltulose 6.0%**, Soy Protein Isolate, Rapeseed, Fructose, Gum Arabic, Oligofructose, cocoa Powder (3.1%), Sunflower Seed Oil, Antioxidant (Soya Lecithin, L-ascorbic Acid, vitamins, Taurine, Carnitine, Artificial Sweetener (Sucralose).



Soylent Cacao Drink

Ingredients: Soy Protein, High Oleic Canola Oil, Maltodextrin, **Isomaltulose**, Soluble Corn Fiber, Modified Food Starch, Potassium Chloride, Magnesium Phosphate, TriCalcium Phosphate, Soy Lecithin, Dipotassium Phosphate, Mono & Diglyceride, Salt, Chlorine Chloride, Natural Flavor, Xanthan Gum, Sodium Ascorbate, Mixed Tocopherol, DL-Alpha-Tocopheryl Acetate, Ferrous Gluconate, Panthotenate, Niacinamide, Sucralose, Thiamine Hydrochloride, Copper Gluconate, Pyridoxine Hydrochloride, Manganese Sulfate, Riboflavin, Vitamin A, Palmitate, Potassium Iodide, Chromium Chloride, Biotin, Folic Acid, Sodium Molybdate, Phytonadione, Sodium Selenite, Vitamin D2, **Vitamin B12**,



MARKET EXAMPLES

DPO INTERNATIONAL

SUSTAGEN® Diabetic Ready to Drink

Ingredients: Water, Tapioca Dextrin, Vegetable Oil (High Oleic Sunflower, Low Erucic Acid Rapeseed), Milk Protein Concentrate, Whey Protein (Milk), **Isomaltulose**, Guar Gum, Stabilizers (414, 460, 466, 407), Minerals (Sodium Citrate, Potassium Chloride, Sodium Phosphate, Magnesium Oxide, Ferrous Sulphate, Zinc Sulphate, Copper Gluconate, Manganese Sulphate, Chromium Chloride, Potassium Iodide, Sodium Molybdate, Sodium Selenite), Maltodextrin, Fructo-Oligosaccharides, Inulin, Emulsifier (Soy Lecithin), Acidity Regulator (330), Inositol, Choline Bi-tartrate, Vitamins (C, Calcium, Pantothenate, Nicotinamide, B6, B1, A, B2, E, Folic Acid, K1, Biotin, D3, B12), Artificial and Natural Flavourings, L-Carnitine, Sweetener (Potassium Acesulfame), Taurine. Contains Milk and Soy.



Probiogurt Sachet 30g Puravida

Ingredients: Coconut Milk Powder, Guar Gum, **Palatinose**, **Inulin**, Probiotic Fermentation Cultures (Streptococcus Thermophilus, Lactobacillus Belbrueckii Subsp. Bulgaricus, Lactococcus Lactis, Lactobacillus Salivarius, Bifidobacterium Lactis, Lactobacillus Acidophilus Lactobus Bifidum Lactobacillus, Lactobacillus Bifidulobidum) Lactic Acid, Natural Vanilla Aroma.



MARKET EXAMPLES

DPO INTERNATIONAL

Megabite Chocolate Brownie

Ingredients: Oligofructose Syrup, Dark Chocolate Coating With Sweetener (16.2%) [Cocoa Paste, Maltitol (Sweetener), Cocoa Butter, Soy Lecithin (Emulsifier) And Flavouring], **Isomaltulose (13.9%)**, Milk Protein, Cashew, Collagen, Coconut Oil, MCT Powder [Medium Chain Tryglicerides, Glucose Syrup, Caseinate, Dipotassium Phosphate, Tricalcium Phosphate], Cocoa Powder, Extruded Rice [Rice Flour, Sugar, Glucose Syrup, Fat Reduced Cocoa Powder, Milk Chocolate (Sugar, Cocoa Butter, Whole Milk Powder, Cocoa Powder, Sunflower Lecithin (Emulsifier), Sunflower Oil, Salt, Barley Malt Extract, Natural Flavourings], L-leucine, L-valine, L-isoleucine, Flavouring, Citric Acid (Acidity Regulator), Sucralose (Sweetener).



Runtime Liquid Meal Chocolate

Ingredients: Oatmeal (35%, Contains Gluten), Maltodextrin (19%), Whey Protein Concentrate (16%), **Isomaltulose (8%)**, Mct-powder, Collagen Hydrolysate, Soy Lecithin, Bcaa's (Leucine, Isoleucine, Valine), Psyllium Husk Powder, Cocoa Powder Fat Reduced, Minerals: Sodium Hydrogen Bicarbonate, Potassium Citrate, Calcium Carbonate, Magnesium Carbonate, Zinc Gluconate, Potassium Iodide, Sodium Selenite, And Copper Gluconate Flavor, Vitamins: L-ascorbic Acid (C), Tocopheryl Acetate (E, 50%), Nicotinamide (B3), Cholecalciferol (D3), Biotin (1%), Calcium-d-Pantothenate (B5), Cyanocobalamin (B12, 0,1%), Pyridoxine Hydro Chloride (B6), Riboflavin (B2), Phytomenadione (K), Thiamine Mononitrate (B1), Retinyl Acetate (A), Folic Acid (B9). Sweetener: Sucralose.



Saturo Milk Drink 330 ml

Ingredients: Water, Maltodextrin, Soy Protein Isolate, High Oleic Sunflower Oil, Cocoa Powder (2%), **Isomaltulose**, Canola Oil, Tricalcium Phosphate, Magnesium Oxide, Potassium Citrate, Calcium Carbonate, Zinc Sulphate, Sodium Selenite, Chromium Chloride, Manganese Sulphate, Potassium Iodide, Sodium Molybdate, Vitamins A, D, K, C, B1, B2, B6, B12, Niacin, Folic Acid, Biotin, Pantothenic Acid, Starch, Isomaltooligosaccharides, Emulsifier: Soy Lecithin; Stabilizers: Gellan Gum, Locust Bean Gum; Salt, Flavouring, Sweetener: Sucralose.



Saturo Ready Drink 330 ml

Ingredients: Water, Maltodextrin, Soy Protein Isolate, High Oleic Sunflower Oil, **Isomaltulose**, Canola Oil, Tricalcium Phosphate, Dimagnesium Phosphate, Potassium Citrate, Sodium Fluoride, Zinc Sulphate, Sodium Selenite, Chromium Chloride, Manganese Sulphate, Potassium Iodide, Sodium Molybdate, Vitamins A, D, K, C, B1, B2, B6, B12, Niacin, Folic Acid, Biotin, Pantothenic Acid, Starch, Oat Fiber Gluten Free, Isomaltooligosaccharides, Emulsifier: Soy Lecithin; Stabilizer: Gellan Gum, Locust Bean Gum; Salt, Flavourings





THANK YOU