
Change your
body age
– WITH WHEY PROTEINS AND MILK MINERALS
Arla Foods Ingredients
Discovering the wonders of whey
Arla

The V.I.P Generation waiting to be attended

The Very Important People (V.I.P) generation encompasses the 50+ adult segment, which is bigger than ever before. This segment will continue to grow in terms of size, purchasing power and age related health-specific needs. However, products are generally not designed with them in mind, and therefore this segment represents a golden market opportunity for both manufacturers and retailers.

Get to know the V.I.P generation

They are many

50+ represent **32%** of the total population in the US.[1]

They are wealthy

50+ are, and will remain, the most powerful consumers in the marketplace – they receive **$2.4 trillion** in annual income, which accounts for **42%** of all after-tax income in the U.S.[2]

They are wiser

In the US, consumers look for specific health attributes in their food: "high in protein" (**30%**), "calcium fortified" (**23%**), "minerals fortified" (**21%**) or "vitamin fortified" (**23%**)[3]. More concretely, +55 have a positive perception towards whey protein and are well aware of its benefits for staying active as they get older and for maintaining bone and joint health[4].

They feel younger

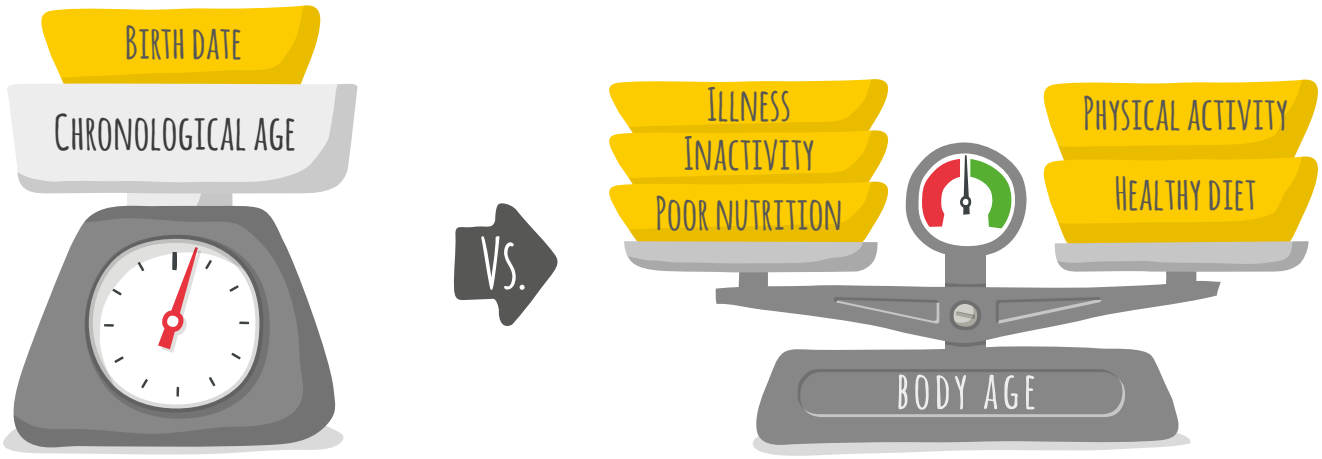
On average, older adults feel **10 years** younger than their chronological age[5].

They have health-specific needs

There is a **7 year** gap between life expectancy and healthy life expectancy globally[6]. The adult consumers want to stay active and independent and look for solutions that can help them achieve these goals. A healthy lifestyle combined with a healthy diet with key nutrients like **whey protein** and **milk minerals** may help to minimise the gap between healthy life expectancy and life expectancy.

YOU CAN'T CHANGE YOUR BIRTH DATE... BUT YOU CAN CHANGE YOUR BODY AGE

As we age, all functions and characteristics of our body are being modified. However, the chronological age of our body, dictated by our date of birth, can differ vastly from its biological age – or 'body age'. The body age reflects the age we actually look, feel and function at.



Our body ages faster by the combined effects of **inactivity**, **poor nutrition** and illness[7]. On the other hand, research shows that a **healthy diet** and **physical activity** are two key health-related behaviours that can positively affect our body age and play a vital role for our health, well-being and functional independence through life[8-9].

Muscle mass, **fat mass** and **bone density** are key influential physiological factors that affect our body age. These can be positively altered by a combined effect of physical activity and a healthy diet [10-11].

Whey proteins and **milk minerals** are among the key nutrients needed to build and maintain muscle mass and function, help reduce body fat mass, and develop dense and strong bones.

Improve your body age – Build and maintain muscle mass and function

As we age, the skeletal muscles which represent the major part of the body's lean body mass, gradually declines in mass and function[12-13]. The degree of decline in muscle mass varies between individuals and can be modified by various factors like nutrition and lifestyle (figure 1).

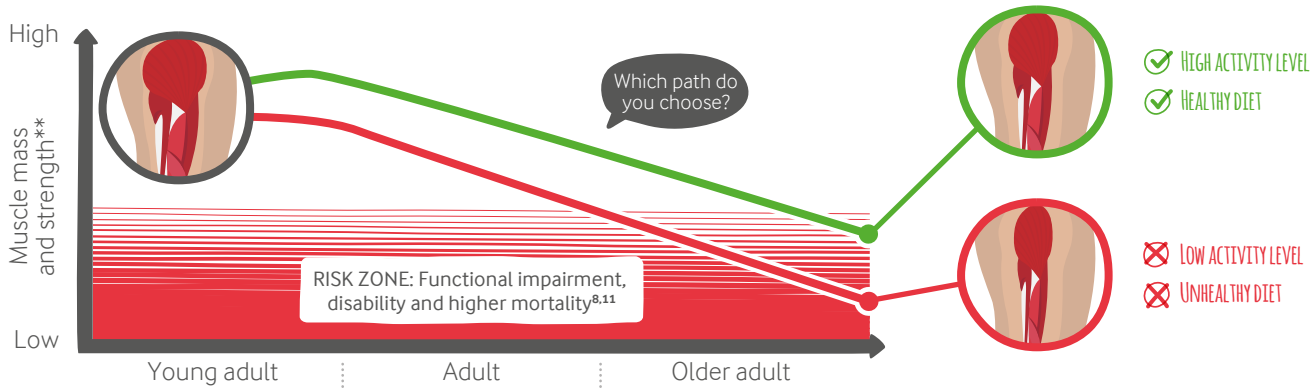


Figure 1

Nutrients like protein, calcium, magnesium and potassium can positively influence muscle mass and function

- § Protein contributes to growth and maintenance of muscle mass[14]
- § Calcium, magnesium and potassium contribute to normal muscle function[14]

Factors for stimulating and maintaining muscle mass as our body ages

Besides leading an active lifestyle, the amount, quality and timing of protein intake is crucial for muscle building and maintenance[15-17]. As our body ages, a larger amount of protein is needed for effectively stimulating muscle protein synthesis (0.40 g/kg BW per day vs 0.24 g/kg BW per day for young people)[17-19]. The protein intake needs to be of high quality and evenly distributed during the day over the three main meals to maximise muscle protein synthesis and lower muscle protein breakdown (figure 2)[16,20-22].

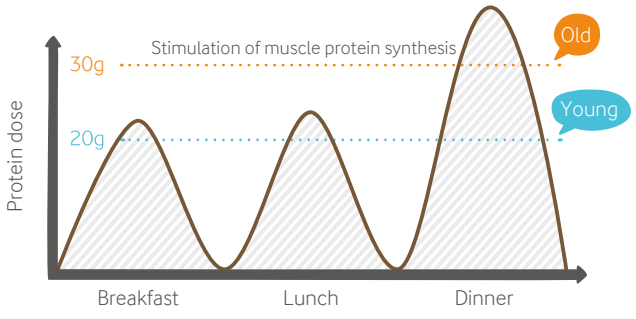
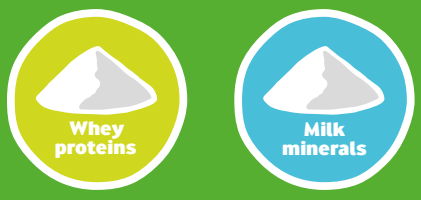


Figure 2



Whey proteins and milk minerals can benefit our body age by building and maintaining muscle mass and function

- Whey proteins are of superior nutritional quality*[23] and provide a high content of all the essential amino acids (EAA) especially leucine, that directly stimulates muscle growth and regeneration
- Whey protein is rapidly digested and fully absorbed by the body – ensuring optimal delivery of EAA to muscle tissue[24-25]
- Whey is a superior protein source for acute stimulation of muscle protein synthesis in the ageing body [16,26-30]
- Milk minerals are highly bioavailable naturally occurring minerals derived from cow's milk, providing calcium, phosphorous, magnesium, zinc and potassium that support normal functioning of muscles and numerous other body functions securing health and daily life activities[14]

* Protein quality is determined by the content of essential amino acids (EAAs), how much of the protein is actually absorbed in the body and the ability of the protein to support tissue growth and maintenance.
**Muscle mass is determined by the balance between formation (synthesis) and breakdown of muscle protein continuously taking place in the body
§ EU authorized health claim [14]

Improve your body age – Reduce body fat mass

As muscle mass is gradually lost with ageing – a corresponding gain of fat mass is seen[31-32]. Fat mass gain differs between individuals, but excessive fat mass gain should be prevented as this is linked to increased health risks and higher mortality in later stages of life[11,33-35]. The fat mass can be modified with nutrition and physical activity (figure 3).

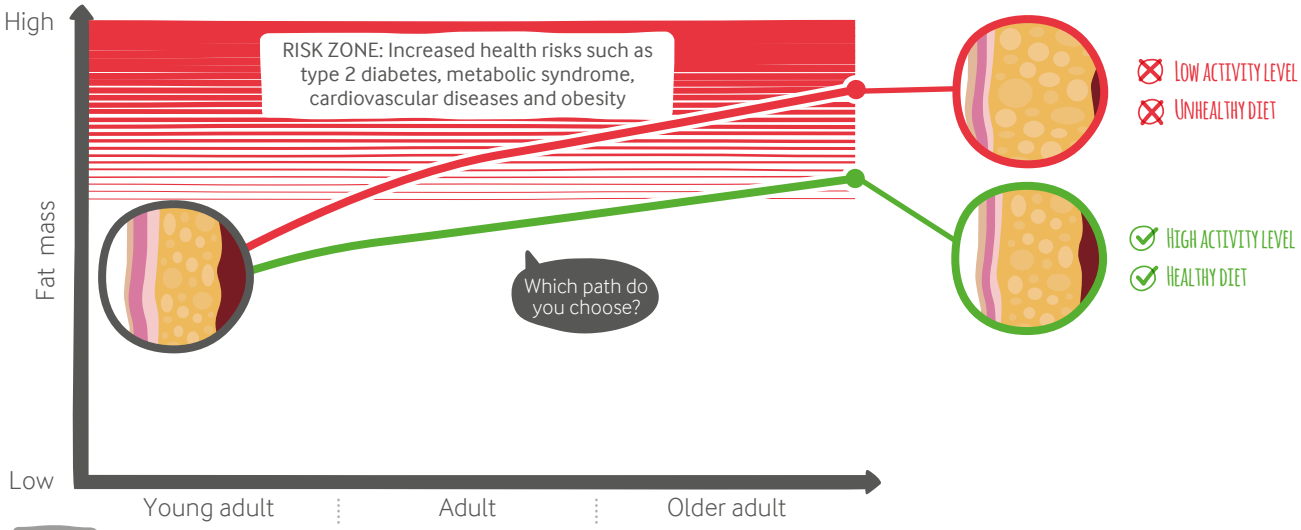


Figure 3

Modifiable factors positively influencing body fat mass as we age

- Low levels of **physical activity** are associated with increased fat mass[36-37]. Increasing the energy demand through physical activity may alleviate some of the adverse metabolic changes associated with ageing[38]
- **Dietary calcium helps reduce body fat percentage**, body mass and waist circumference, by affecting fat metabolism and promoting increased excretion of fat in the intestine, in conjunction with a high-fat meal[39-43]

§ **High protein foods** (>25E%) are effective for weight loss and weight maintenance[14]

Whey proteins and milk minerals can benefit our body age by helping reduce fat mass

- Whey proteins effectively help reduce waist size and fat mass while preserving lean body mass[44-46]
- Whey proteins increase calorie burn by inducing a higher metabolic rate after a meal when compared to other proteins[46-47]
- Intake of milk calcium interferes with fat absorption in the intestine, increases the faecal excretion of fat and reduces the digestible energy of the diet[42,48]

§ EC authorised health claim14

Improve your body age – Build and maintain bone density and strength

A strong skeleton is important for maintaining a healthy, active lifestyle and for keeping functional independence through life. Around our mid-twenties, we reach our peak bone mass (PBM) and after this point, the rate of bone loss will exceed the rate of formation[49]. Developing and maintaining strong bones is a lifelong process heavily influenced by nutrition and lifestyle, which critically influence our bone status and health as we age (see figure 4) [50].

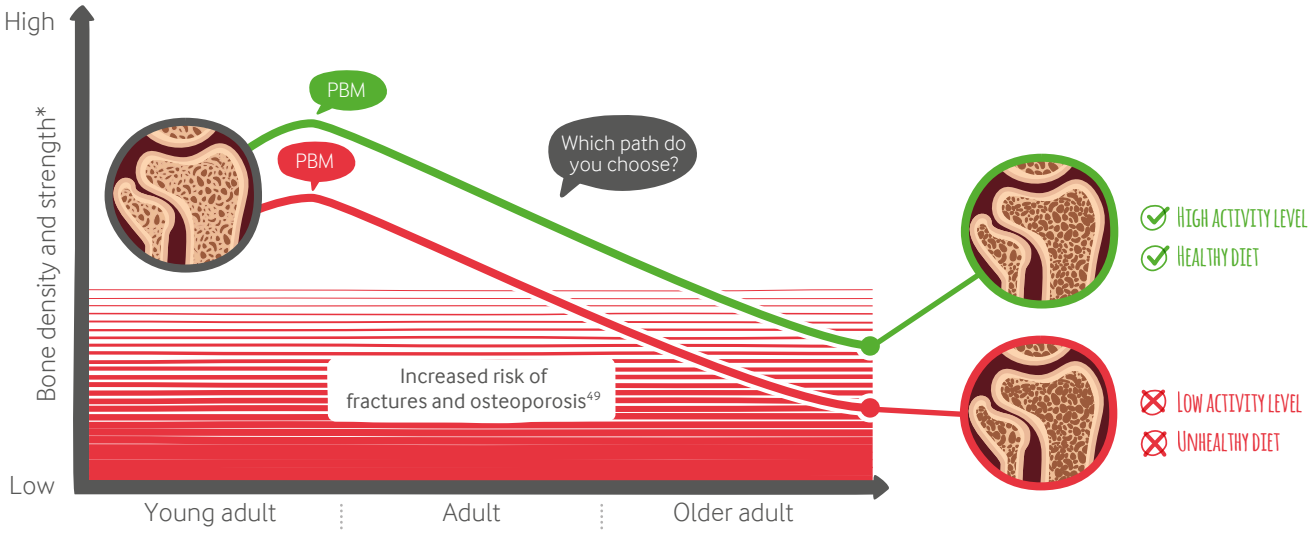
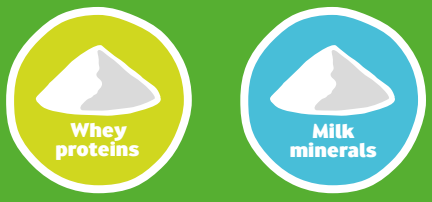


Figure 4

Modifiable factors that can positively influence bone mass as we age

- Controllable lifestyle factors such as diet and **physical activity** can mean the difference between a frail and strong skeleton. Muscle strength and physical fitness affect bone density; thus regular moderate exercise may help maintain bone mass but probably does not reverse loss[49-50]
- A sufficient **daily intake of calcium** is important for achievement and maintenance of peak bone mass as a transient excess intake cannot be stored, and a transient insufficient intake accelerates bone loss[51-52]

§ The intakes of other nutrients like **protein**, **phosphorus**, **magnesium**, **vitamin D** are also important determinants for bone health and status[53]



Whey proteins and milk minerals can benefit our body age by positively affecting the development and maintenance of bone mass and strength

§ Whey proteins contribute to the maintenance of normal bones in adults and normal growth and development of bone in children[53]

§ Milk minerals provide highly bioavailable, calcium, phosphorous and magnesium; all needed for growth and maintenance of normal bones and for reduction of bone loss[53]

- Daily intake of foods with added milk minerals, (Capolac®), has specifically been documented to cause a long lasting gain in bone mass density[54-55]

*The end result of peak bone mass achieved and subsequent age related loss
§ EU authorized health claim [14]

"Rejuvenating" product ideas

Benefits of our ingredients and possible claims for food & beverage products:

- On-pack claims for "high protein" and "high in calcium"
- Natural high nutritional quality ingredients derived from milk
- Contains no growth hormones – rBST free
- Non GMO
- Taste advantage of whey proteins, compared to plant based protein sources e.g. soy, pea protein.
- Milk minerals provide a taste advantage over other calcium sources like calcium carbonate

Coffee Cappuccino Drink

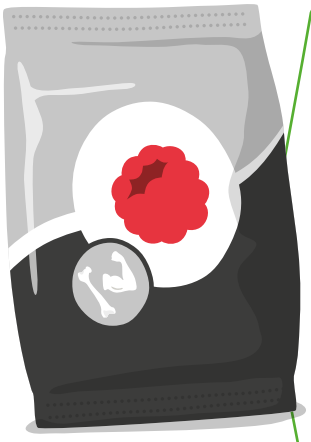
with Lacprodan® DI-7017 and Capolac®

- ✓ 100% Whey protein
- ✓ Natural milk minerals
- ✓ Great coffee cappuccino taste
- ✓ Long shelf life
- § High protein
- § High calcium

InstantIced Protein Coffee

with Lacprodan® SP-8011 and Capolac®

- ✓ 100% Whey protein
- ✓ Natural milk minerals
- ✓ Real coffee
- ✓ Convenient
- § High protein
- § High calcium
- § Low fat
- § Low sugars



Powder Sachets

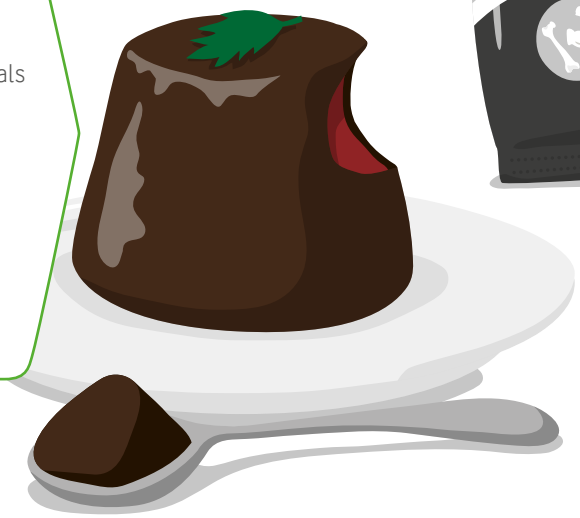
with Lacprodan® SP-8011 and Capolac®

- ✓ 100% Whey protein
- ✓ Natural milk minerals
- ✓ Convenient
- ✓ Great berry taste (or Vanilla)
- § High protein
- § High calcium
- § Low fat
- § Low sugars

Healthy Dessert

with Nutrilac® and Capolac®

- ✓ 100% dairy protein
- ✓ Natural milk minerals
- ✓ Long shelf life
- ✓ Chocolate & strawberry taste
- § High protein
- § High calcium
- § Low fat



Note: not all claims are approved health claims to consumers
§Regulation (EC) No 1924/2006, Regulation (EU) No 1047/2012.

Why choose
Arla Foods Ingredients?

R&D in our DNA
- More than 15% of our employees in Denmark work in R&D
- Collaboration with top universities worldwide
- Clinical and scientific documentation
- Application centres in two continents

Superior quality
- Premium quality ingredients
- Kosher and Halal certification
- Ingredient factories with the highest quality standards

Your trusted business partner
- Application support
- Business development support
- In-depth nutrition research and formulation support

Security of supply
- Producing whey proteins since 1980
- Leading supplier of whey proteins, whey protein hydrolysates, whey fractions and lactose
- Continuous investment in production capacity to meet the growing volume needs of global customers
- Reliable supplies from three production sites

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