



# Product Summary: NZMP Milk Phospholipids



## Key facts on phospholipids

Phospholipids are building blocks of all cell membranes and are found in especially high concentrations in the brain. These complex lipids play important structural and functional roles in our brain and nervous system.

As we age, brain phospholipid levels decline, a condition potentially combated by phospholipid supplementation as digested dietary phospholipids absorb easily in humans and can cross the blood-brain barrier.

## Ingredient overview

Naturally present in milk as part of the milk fat globule membrane, Milk Phospholipids are complex lipids that are clinically proven to help manage the effects of stress, helping maintain performance by staying focussed and positive as well as promote muscle recovery. They are suitable for use as a standalone product, or as an addition to a range of applications for consumers seeking functional benefits in their food and beverages.

Two variants of NZMP Milk Phospholipids are available:

- **NZMP Milk Phospholipids 70**  
Sourced from high phospholipid whey protein concentrate, NZMP Milk Phospholipids 70 contains 4-7% total phospholipids. It has a neutral flavor, is low in lactose and high in beneficial whey protein, supporting formulation flexibility in food and drink applications.
- **NZMP Milk Phospholipids 100**  
Sourced from high phospholipid buttermilk, NZMP Milk Phospholipids 100 contains 7-9% total phospholipids. This higher concentration makes it suitable as a standalone product (e.g. smaller dose supplement powders). It is also heat stable, making it more suitable for application that require heating such as RTDs.

## Key customer benefits

- **Flexibility in both composition and processability:** we offer 2 variants of NZMP Milk Phospholipids to support formulation flexibility.
- **Complementary portfolio:** NZMP Milk Phospholipids are compatible with many of our other health & wellness ingredients.
- **Technical expertise:** the Fonterra research & development team can support formulation and application queries to ensure development success!

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## Applications

- ✓ **Supplement sachets (dissolvable in water and other beverages)**
- ✓ **Protein dough and granola/cereal based nutrition bars**
- ✓ **Ready-to-mix protein beverage powders**
- ✓ **Ready-to-drink beverages**

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## Key consumer benefits

- **Health benefits:** In adulthood, clinical trials provide evidence for health benefits in the areas below. Others areas where phospholipids may have benefits are being explored such as physical performance, protection and cognitive ageing.



### **Mood:**

Helps to stay positive under stress.<sup>(1,2,3,6)</sup>



### **Cognition:**

Helps to stay focused under stress.<sup>(4,5,6)</sup>



### **Stress-management:**

Helps to manage the response to stress.<sup>(1,2,3,4,5,6)</sup>



### **Physical performance:**

May increase muscle strength and agility in conjunction with regular exercise.<sup>(7,8)</sup> May increase flexibility and balance in conjunction with regular exercise as part of a multinutrient-fortified milk drink.<sup>(9)</sup>

- **Clean neutral taste**
- **Clean label**
  - Non-GMO.
  - Halal and Kosher (on request).
  - Milk from rBST free.
  - European and grass fed, pasture grazed New Zealand origin options available.

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## Clinical evidence

1. Influence of phosphatidylserine on cognitive performance and cortical activity after induced stress. Baumeister et al, 2008.
2. Influence of phosphatidylserine on mood and heart rate when faced with an acute stressor. Benton et al, 2001.
3. Effects of soy lecithin phosphatidic acid and phosphatidylserine complex (PAS) on the endocrine and psychological responses to mental stress. Hellhammer et al, 2004.
4. Effects of milk-based phospholipids on cognitive performance and subjective responses to psychosocial stress. Boyle et al, 2019.
5. Milk-based phospholipids increase morning cortisol availability and improve memory in chronically stressed men. Schubert et al, 2011.
6. Effects of milk phospholipid on memory and psychological stress response. Hellhammer et al, 2010.
7. Dietary milk fat globule membrane supplementation combined with regular exercise improves skeletal muscle strength in healthy adults. Soga et al, 2015.
8. Daily consumption of milk fat globule membrane plus habitual exercise improves physical performance in healthy middle-aged adults. Ota et al, 2015.
9. Effects of a multinutrient-fortified milk drink combined with exercise on functional performance, muscle strength, body composition, inflammation, and oxidative stress in middle-aged women. Daly et al, 2020.

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