

The Role of Emulsifiers and Stabilisers in Producing Ice Cream with High Overrun



Nutrition plays a fundamental role in supporting structural and functional development of the human brain since conception, throughout early infancy and extending into later life. Incorporating chia seeds, B vitamins and DHA in beverages may add more value than before for better brain health.

Chia Seed – Good for Brains?

Benexia® is the world's leading producer of high-quality chia seeds that are naturally gluten-free, non-GMO and coming from sustainably-farmed sources. The chia seed absorbs water in liquid quickly which contributes to the mouthfeel and texture in beverages. It has a unique gelling composition with uniformly distributed seed suspension.

The chia seed has always been linked to good brain health with its powerful punch of nutrients. This poppy seed offers a good source of alpha-linolenic acid (ALA), which is an unsaturated fatty acid that can be converted into other Omega-3 fatty acids such as eicosapentaenoic acid (EPA) or docosahexaenoic acid (DHA).

Omega-3 fatty acids play a crucial role in the activity of the nervous system, cognitive development, memory-related learning and the development of brain synapses. It can be of a great benefit in preventing neuronal diseases and supporting mental health (Onneken, 2018), as well as reducing the risk of age-related cognitive decline including Alzheimer's disease. Chia seeds 'nourish' the brain by helping the communication between brain cells.

Give Your Brain a Surge of B Vitamins

A diet rich in B-group vitamins is essential for optimal body and brain function. They are water-soluble which can easily be used in beverage fortification.

Optimal B vitamins supplement is associated with better cognitive health in ageing. Evidence suggests that maternal folate status throughout pregnancy may influence the neurodevelopment and behaviour of the offspring (McGarel et al., 2015). B vitamins intake is associated with cognitive function in cognitively impaired Alzheimer's disease and mild cognitive impairment in the elderly (Kim et al., 2014).

Vitamin B1, B6 and B12 are essential vitamins for proper functioning and development of the brain and nerve cells. They help to maintain and protect the central nerves (Carlos & Mauricio, 2020). Supplementation of vitamin B6 revealed overall positive effects on the cognitive function in patients suffering from mild cognitive impairment or Alzheimer's disease (Jannusch et al., 2017). Deficiency of B vitamins is also associated with poor memory performance (Kobe et al., 2016).

DHA for Optimal Brain Health

DHA (Docosahexaenoic acid), an extensively researched Omega-3 fatty acid can be incorporated into beverages to support optimal brain and cognition. The original source of our DHA comes from the algae that is eaten by the fish that we consume. Algae is a plant-based ingredient that is most suitable for vegetarians and is a sustainable source for memory improvement (Stonehouse et al., 2013).

World Health Organization (WHO, 2014) recommends 200–250 mg EPA and DHA combined for children ages 6–10 years old. DHA is essential for brain development during pregnancy and early childhood as well as for the maintenance of normal brain functions throughout adulthood.

Low DHA concentrations have been reported in children with attention deficit hyperactivity disorder (ADHD) and related behaviour or learning difficulties. These were associated with poorer reading ability, poor working memory performance and higher levels of parent-rated oppositional behaviour and emotional lability (Montgomery et al., 2013).

Brain Health is an Emerging Trend

Failing brain health is a public health epidemic and the total cost of Alzheimer's, dementia and stroke is expected to exceed \$1 trillion by 2030. Most of the risk for developing dementia and Alzheimer's is related to nutrition and lifestyle factors. We are never too young or too old to make healthy lifestyle choices.

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