

**For Healthcare Professional Media Only**

## THE ROLE OF NUTRITION IN BRAIN HEALTH

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### NUTRITION AND BRAIN FUNCTION<sup>1-7</sup>

The brain is comprised of billions of pathways, with a multitude of nerve cells continuously turning over.<sup>1</sup> Studies in neurological disease have increasingly highlighted the importance of nutrition in overall brain function.<sup>2</sup>

Nutrients are of great importance for the formation and function of neural synapses, the junctions between two nerve cells.<sup>3</sup> Nerve cells communicate using neurotransmitters - chemical messengers that transmit a message from a nerve cell across the synapse to a target cell and play an essential role in memory and overall brain function. Nutritious, whole foods that provide a wealth of protein, vitamins, minerals and fatty omega-3 fatty acids can positively affect the production of neurotransmitters and the quality of synaptic connections.<sup>4</sup> With over 100 trillion synapses in the brain<sup>5</sup>, the integrity of nerve cells heavily relies on the nutritional spectrum of our daily, life-long, diets.

Along with the production of neurotransmitters, nutrition also effects the structure of nerve cells. The membrane of nerve cells are comprised of a wall of phosphatides, protecting the nerve cell from damage and providing structure for synapses. The synthesis of phosphatides relies on dietary precursors: polyunsaturated fatty acids (particularly omega-3 fatty acid docosahexaenoic acid (DHA)), uridine monophosphate (UMP) and choline.<sup>6,7</sup> In infants, when the formation of synapses is maximal, relatively large amounts of DHA, UMP and choline are provided in bioavailable forms (i.e. easily absorbed by the body); however, in adults, these nutrients are not readily available to elicit a significant impact on synapse health in compromised individuals.<sup>3</sup>

### NUTRITION AND EARLY ALZHEIMER'S DISEASE<sup>3,6,8</sup>

Alzheimer's disease (AD) is an irreversible, neurodegenerative and progressive brain disorder, characterised by a net loss of crucial nerve cells, resulting in memory loss, difficulties with problem solving, thinking, and language.<sup>6</sup>

Research in recent years has highlighted nutrition as a key modifiable risk factor. Modifiable risk factors are facets of our lifestyle that we can change to influence health outcomes, such as diet and physical exercise. Unlike genetics (a non-modifiable risk factor), nutrition as an option for early AD patients is highly sought after as it is non-invasive and has a high uptake.<sup>8</sup>

Loss of synapses is an important characteristic of early AD and deficiencies in UMP, DHA and choline exist in early AD patients.<sup>8</sup>

As it is very difficult to obtain these dietary precursors from a regular diet at the appropriate levels needed for synapse formation<sup>3</sup>, leading researchers in nutrition have developed a daily medical nutrition product that delivers these selected nutrients.<sup>8</sup>

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### Souvenaid®: WHAT IS IT AND HOW DOES IT WORK?<sup>8-10</sup>

Souvenaid® is a once-daily 125 ml drink, which contains a patented blend of nutrients (known scientifically as Fortasyn Connect) aimed at targeting the loss of synapses characterised in early AD.<sup>9</sup>

Fortasyn Connect™, contains the following nutrients that have been shown to be involved in synapse development:<sup>8-10</sup>

- DHA
- Eicosapentaenoic acid (EPA)
- Phospholipids
- UMP
- Vitamin E
- Choline
- Vitamins B<sub>12</sub> and B<sub>6</sub>
- Folic acid
- Selenium

The specific blend of ingredients contained in this drink is able to effectively raise plasma levels and positively impact neuronal membrane synthesis in the brain. Early nutritional intervention with Fortasyn Connect™ is thought to counteract synaptic dysfunction in early AD patients.<sup>9</sup>

Fortasyn Connect™ has been specifically designed to provide essential dietary nutrients for patients with early AD. Souvenaid® is a Food for Special Medical Purposes (FSMP) for the dietary management for early Alzheimer's disease and must be used under medical supervision

### BACKED BY SCIENCE: The LipiDiDiet study<sup>11,12</sup>

LipiDiDiet is a randomised, controlled, double-blind, multicentre study, which investigated the effects of Fortasyn Connect™ in prodromal AD patients. 311 patients were randomly assigned to receive 125ml Souvenaid®, once a day or a placebo drink.

The main outcome was change in cognition (neurophysical test battery [NTB] 5-item composite). Over 36-months, significant reduction in cognitive decline (NTB 5-item composite), hippocampal, ventricular and whole brain atrophy and memory in the Souvenaid® intervention group were observed, when compared to the placebo control group. The study also provided evidence for potentially altered disease trajectories supporting the positive effects of long-term multinutrient intervention. Such sustainable benefits lasting for 3 or more years have not been reported before for an intervention in prodromal AD.

This is of particular interest to patients with the earliest stages of AD and especially the condition known as Mild Cognitive Impairment, as slowing down disease progression is a huge unmet need. Memory deterioration is a hallmark of early AD and early intervention may influence the overall course of AD and thus the quality of life of patients.

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### ABOUT NUTRICIA

Since 1896, Nutricia has pioneered nutritional solutions that help people live longer, more joyful and healthier lives. Building on more than a century of research and innovation, Nutricia has harnessed the power of life-changing and life-saving nutrition to create a leading specialized nutrition portfolio that can change a health trajectory for life. With its nutritional solutions, Nutricia supports healthy growth and development during the first 1000 days and helps to address some of the world's biggest health challenges; pre-term birth, faltering growth, food allergy, rare metabolic diseases, age-related conditions and chronic disease, such as frailty, cancer, stroke and early Alzheimer's disease. As part of Danone, Nutricia embraces the company's "One Planet. One Health" vision reflecting that the health of people and the health of the planet are interconnected and therefore seeks to protect and nourish both.

For more information visit [www.nutricia.com](http://www.nutricia.com)

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