



ARTICLE

## Brain Development and DHA: The Importance in Children

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Brain development in toddlers is a vital stage. Approximately 90% of their brains continue to grow until the age of six, which highlights the significance of the initial years of a child's development. This period is essential for cognitive, emotional, and physical development as it builds the foundation for lifelong health and learning abilities. Among many other nutrients, DHA (docosahexaenoic acid) is the most vital during this stage.

### **DHA and its vital importance in children**

DHA is an omega-3 polyunsaturated acid, which is a fundamental factor of the human brain. During pregnancy, it tends to develop and accumulate in the child's brain. The development of essential abilities, including memory, attention, and problem-solving, is facilitated by DHA itself. More importantly, it helps boost the growth of neurons, enhancing the effective and essential communication between brain cells.

### **Beneficial effects of DHA intake in early childhood**

- **Cognitive skills:** Kids aged 2-6 years usually have less DHA intake in their diets. With proper supplementation of DHA, kids tend to perform better on cognitive tasks such as language assessment, reasoning abilities, and memory skills.
- **Psychological abilities:** DHA also promotes psychological wellness by influencing neurotransmitters like serotonin and dopamine, which regulate the mood and behavior of children and prevent them from having depression or anxiety.
- **Visual and motor skills:** Not only this, but DHA intake is also particularly essential during the early childhood stage for optimal eye and brain development. Additionally, DHA plays a crucial role in the development of both motor and visual abilities. As it is a significant component of the retina, a sufficient amount is crucial for excellent visual acuity. It is also associated with improved stereo acuity. In terms of motor skills, ensuring adequate DHA supplementation in children helps maintain the coordination between the brain and body. Moreover, it has been observed through many studies that proper DHA intake, even in kids suffering from phenylketonuria has beneficial effects on motor abilities and helps manage psychiatric disorders.
- **Other benefits:** The impact of DHA on decreasing the incidence of respiratory infections in children up to 3 years of age. Children who are supplemented with DHA have lower odds of developing upper respiratory infections, wheezing/asthma, or an allergy.

### **Repercussions of insufficient DHA intake**

Children between the age of 2-6 years having a lower amount of DHA intake may experience behavioral and learning difficulties. These concerns include inattention and hyperactivity/impulsivity, dyslexia, lower IQ, and attention deficit hyperactivity disorder (ADHD). Besides, reduced levels of DHA in the blood are associated with poorer cognitive functions as well as issues with concentration, which in turn, might impact the motor skills of the child.

### **Top sources of DHA**

Even though DHA is an essential component, the body produces very minimal amounts of it. Therefore, it is critical to obtain it from outside dietary sources. The following list presents the different dietary sources for adequate DHA supplementation in children:

1. **Breast milk and infant formula:** Breast milk has an abundant amount of DHA and is a great source for infants. Among breast milk off-weaning children, DHA-enriched formula milk can be a good option to meet their supplementation needs.

2. DHA-enriched foods and supplements can help address the needs of children who have dietary constraints.
3. Foods such as sardines, mackerels, and salmons are great sources of DHA and can be easily introduced to children in their early stages of life.

### **Recommended DHA intake in daily diets of children**

Children are recommended to intake 70-100 mg of DHA per day in their diets until the age of six.

However, this may vary depending on the age, health, and overall diet of the children. In 2000, the International Society for the Study of Fatty Acids and Lipids held a meeting and recommended DHA intake based on age groups (shown below).

- 2-3 years: 145 mg minimum
- 4-6 years: 200 mg minimum
- 7 years and over: 220 mg minimum

Moreover, the Food and Agriculture Organization of the United Nations (FAO) recommended 0.1-0.18%E DHA intake for infants aged 0-6 months. In addition, children aged 6-24 months are recommended to have 1–12 mg/kg bw of DHA daily in their dietary intake.

### **Final thoughts and tips for parents**

DHA is an essential nutrient for kids under six for brain development. Include DHA-rich food in children's diet at the earliest, when they initiate eating solid foods. If the children prefer vegetarian food or do not prefer fish in their diets, DHA-fortified food or formula might come in handy. Parents can help gain progressive development of cognitive, emotional, and physical development in their children by preferring a well-balanced diet or supplements containing DHA.

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