

## What's the Evidence?

# Omega-3 and Omega-6 Supplements to Improve Speech in Children with Dyspraxia

### Key findings

- Dyspraxia is also known as Developmental Coordination Disorder (DCD), it is a condition which affects physical coordination. Children with Dyspraxia or DCD may or may not have speech difficulties.
- Developmental Verbal Dyspraxia (DVD) is a developmental condition which affects a child's ability to produce clear speech. It is also known as Childhood Apraxia of Speech (CAS).
- A child may have either Developmental Coordination Disorder or Developmental Verbal Dyspraxia, or both conditions.
- There is no evidence that Omega-3 or Omega-6 supplements are effective to improve speech for children with either DCD or DVD.

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#### **What were we asked?**

We were asked by a parent of a child with verbal dyspraxia whether Omega-3 and Omega-6 supplements improve speech for children with dyspraxia.

#### *What is Dyspraxia?*

Dyspraxia is a condition which affects physical coordination. Children with dyspraxia have difficulty making coordinated movements, which can make their movements seem clumsy. Healthcare professionals in the UK now often use the term Developmental Coordination Disorder (DCD) instead of dyspraxia. Children with DCD may or may not have speech difficulties.

Developmental Verbal Dyspraxia (DVD) is a developmental condition which affects a child's ability to produce clear speech.

Children with DVD have difficulties planning and coordinating the precise movements needed to produce speech sounds and movements across a sentence. Developmental Verbal Dyspraxia is sometimes known as Childhood Apraxia of Speech (CAS). DVD has a neurological cause but is not due to damage to nerves or muscles; instead it is the messages in the brain that get confused, causing the mouth not to move in the way the child intends.

A child may have either Developmental Coordination Disorder or Developmental Verbal Dyspraxia, or both conditions.

#### *What are Omega-3 and Omega-6?*

Omega-3 and Omega-6 are essential fatty acids. These nutrients are involved in various biological processes in the human body. The fatty acids are essential because

they cannot be produced by the body and so need to be consumed in our diet.

There are two groups of essential fatty acids; Omega-3 and Omega-6. Both Omega-3 and Omega-6 fatty acids are classified as Poly Unsaturated Fatty Acids (PUFAs).

Omega-3 and Omega-6 PUFAs are involved in regulating inflammatory processes within the body. Omega-6 PUFAs are generally pro-inflammatory, this means they contribute to inflammation. Omega-3 PUFAs have been shown to have anti-inflammatory properties.

Omega-6 PUFAs are found in foods such as eggs, poultry and grains, whilst Omega-3 PUFAs are found in oily fish. The traditional human diet had an even balance of Omega-6 to Omega-3, whereas the typical western diet has around 15 times more Omega-6 than Omega-3. These lower levels of Omega-3 compared to Omega-6 are thought to have negative effects on health.<sup>1</sup>

Omega-3 fish oil supplements are widely available and are very popular- they are the best-selling product in the UK dietary supplements market, with sales worth just over £139 million in 2009.<sup>2</sup>

### **What did we do?**

First we carried out a general Internet search for Developmental Coordination Disorder or Developmental Verbal Dyspraxia, and Omega-3 and Omega-6 supplements. General Internet searches can be a useful way of becoming familiar with the research question, and particularly for identifying any different terminology which might be used. This is important to know so that when we search scientific databases we can look for all possible terms. We then searched NHS Evidence, Cochrane, TRIP,

NICE, and PubMed databases. We looked for studies that evaluated the effectiveness of Omega-3 and Omega-6 supplements for improving speech for children or young people with Developmental Verbal Dyspraxia or Developmental Coordination Disorder.

### **What did we find?**

We did not find any rigorous research evaluating Omega-3 or Omega-6 supplements for improving speech in children with Developmental Verbal Dyspraxia or Developmental Coordination Disorder.

We found one publication from 2009 which explored the effect of Omega-3 and Vitamin E supplements on speech in children with Developmental Verbal Dyspraxia.<sup>3</sup> This was a survey of members of a website group called Cherab Foundation for apraxia, autism, speech disorders, late talkers. Most of the families who responded reported that their child improved in a number of ways including speech, coordination and imitation after taking Omega-3 and Vitamin E supplements. However, the results are at risk of bias because of who was invited and who responded to the survey. The lead author states an involvement in a company producing dietary supplements which is a declared potential conflict of interest.<sup>3</sup>

### **What do we think?**

There is no evidence from research to support the use of Omega-3 or Omega-6 supplementation to improve speech for children with Developmental Verbal Dyspraxia or Developmental Coordination Disorder.

Additionally, Omega-3 and Omega-6 supplements may be unsuitable for people with certain conditions and may interact

with some medicines. If you are thinking of giving your child either of these supplements, we recommend you speak to your community pharmacist first.

### Signposts to other information

- [www.dyspraxiafoundation.org.uk](http://www.dyspraxiafoundation.org.uk)  
A UK charity whose work includes Developmental Verbal Dyspraxia.
- [www.afasic.org.uk](http://www.afasic.org.uk)  
A UK based charity which supports parents and helps children and young people with speech and language impairments.
- [www.apraxia-kids.org](http://www.apraxia-kids.org)  
A U.S based organisation focussed on Developmental Verbal Dyspraxia (or Childhood Apraxia of Speech)
- [www.thecommunicationtrust.org.uk](http://www.thecommunicationtrust.org.uk)  
The Communication Trust has a range of helpful resources to support children's speech, language and communication. We recommend looking
- [www.ndp3.org](http://www.ndp3.org)  
The Nuffield Dyspraxia Programme is a treatment programme which has a rating of moderate evidence on the Communication Trust website. The NDP3 site includes helpful resources for both parents and professionals.
- NHS Solent Trust have produced a helpful leaflet for parents and carers about DVD.  
[https://www.childrensservices.solent.nhs.uk/store/documents/developmentalverbal\\_dyspraxia\(july17\).pdf](https://www.childrensservices.solent.nhs.uk/store/documents/developmentalverbal_dyspraxia(july17).pdf)
- NHS UCLH have also produced a useful leaflet about DVD.  
<https://www.uclh.nhs.uk/PandV/PIL/Patient%20information%20leaflets/Developmental%20verbal%20dyspraxia.pdf>

We would like to hear your feedback on this summary – please email us at [pencru@exeter.ac.uk](mailto:pencru@exeter.ac.uk) if you have any comments or questions.

### References

- 1 Berger, M, E. et al. (2017) Omega-6 to omega-3 polyunsaturated fatty acid ratio and subsequent mood disorders in young people with at-risk mental states: a 7-year longitudinal study. *Translational Psychiatry*. 7:1220
- 2 Supplements Who needs them? A Behind the headlines report. (June 2011) Bazien and NHS Choices. [Online] Available at: [https://www.nhs.uk/news/2011/05May/Documents/BtH\\_supplements.pdf](https://www.nhs.uk/news/2011/05May/Documents/BtH_supplements.pdf)
- 3 Morris, C, R., & Agin, M,C. (2009) Syndrome of allergy, apraxia, and malabsorption: Characterization of a neurodevelopmental phenotype that responds to omega 3 and vitamin E supplementation. *Alternative Therapies in Health and Medicine*. 15(4): 34-43

Note: the views expressed here are those of the Peninsula Cerebra Research Unit (PenCRU) at the University of Exeter Medical School and do not represent the views of the Cerebra charity, or any other parties mentioned. We strongly recommend seeking medical advice before undertaking any treatments/therapies not prescribed within the NHS