NHS Highland

Information sheet on Fish oil supplements for Attention Deficit Hyperactivity Disorders (ADHD) and Autistic Spectrum Disorders (ASD)

The food that any of us eat can affect our physical and mental health. There is a great deal of interest in nutrition related therapies for children on the Autistic Spectrum. Some people believe that there are specific dietary measures that are especially likely to benefit children with ASD. However, there is only a small amount of well designed scientific research to support such measures. Much of the evidence presented in books and on the internet does not stand up to rigorous scientific scrutiny. It is possible that future, good quality research will provide us with more definitive guidance on various aspects of diet. NHS Highland is continuously reviewing the scientific research literature in this area, and will review its guidance accordingly. In the meantime, this information sheet reviews the potential benefits and disadvantages to just one of the best known dietary measures: Omega 3 fish oil supplements.

We have chosen to provide this information because:

- We know that many families ask for information on fish oil supplements
- The evidence is weakly in favour of a potential benefit for some children with neuro-developmental disorders
- Omega 3 fats are essential for general health
- These fats are lacking from the diets of most children

NHS Highland is unable to actively recommend or discourage the use of fish oil supplements as a routine therapy for children with ASD. The amount of scientific evidence in favour or against its use is insufficient for this. However, we do recognise that some families do want neutral unbiased information based on the best available evidence, in order that they can make an informed choice. The decision to give omega 3 supplements to a child with ASD lies with the parent or other legal guardian. This information sheet summarizes the scientific evidence and practical considerations related to omega 3 fish oil supplements.

Why might fish oil be helpful?

We know that long chain omega 3 fats found in fish oil, play an important role in the brain. Some scientists believe that fish oil supplements may help to make the cell membranes in the brain work better, and encourage healthier "nerve signalling" in some vulnerable people.

Is there any real evidence?

There is some well designed research suggesting that fish oil can help reduce ADHD symptoms and improve reading and spelling in Children with Developmental Co-ordination Disorder (DCD) (Montgomery, 2005). However, the children in this study did not actually have an ADHD diagnosis. Also, not all research on fish oil has produced such positive results. There is currently a lack of good quality research on fish oil and **Autism**. There is evidence that children with ASD are more likely to have low levels of the essential omega 3 fats found in fish oil (Bell, 2004) but some researchers have failed to replicate these findings. Only 1 controlled trial has used fish oil on children with Autism (Amminger, 2007). There was a positive effect reported but the number of children in the study was very small. Anecdotally however, some parents say that they have given fish oil and seen improvements in concentration, behaviour, social interaction or sleep. Other parents have given fish oil and not noticed any changes.

Are all fish oils the same?

No. Current thinking suggests that supplements with a relatively high concentration of "EPA" are the most effective. The fish oil supplement packaging will tell you how much EPA is in each teaspoon or capsule.

If I decide to use fish oil supplements, how much should I give?

Scientific trials on children with ADHD and other conditions have tended to use about 500 to 1000mg of EPA per day. Some supplements provide far less than this. If your child is 7 or over, we suggest that you do not exceed 1000mg of EPA per day. For children under 7, do not exceed 500mg of EPA per day. You will need to calculate how much of the supplement is needed to provide the amounts used in scientific trials. The dose will be anything from one third of one teaspoon to 5 teaspoons a day depending on the age of the child and the supplement used.

Can you give too much?

Yes. We think that very high doses are less effective. For children under 7, do not exceed 500mg of EPA. For children over 7, do not exceed 1000mg of EPA. Also, **do not use cod liver oil or halibut liver oil.** Getting enough EPA from these liver oils will also provide too much vitamin A and D which can be toxic in excess. Instead, look for "fish oil" or "omega 3 oil". To make sure it is not a fish ***liver*** oil, check the ingredients list.

What if my child is overweight? Will fish oil make them gain more weight?

5 teaspoons a day of fish oil is over 200 calories. It may be necessary to cut back a little on other high calorie foods like crisps, chocolate and sugary drinks. Alternatively, overweight children should use a highly concentrated supplement as this reduces the dosage needed.

How much do the supplements cost and can I get them on prescription?

Typical costs are about 20p to £1 per day depending on the supplement and dosage. At the moment, they are not prescribable. This situation may change in the future if more research shows them to be effective treatments.

How long will it take before they start to have an effect?

If any improvements occur, it will probably take about 12 weeks. There may be no improvements at all.

Can I give fish oil if my child suffers from epilepsy?

There have been some reports that large doses of Evening Primrose Oil can make seizures more likely in people who suffer from Epilepsy. Some supplements do contain a small amount of evening primrose oil, so these are best avoided for children with epilepsy. If Evening Primrose oil is used in a fish oil supplement, it will be shown on the ingredients list on the packaging. For children with ADHD or Autism ***and*** epilepsy, a fish oil supplement that is free from Evening Primrose Oil would be more suitable .

Are there any side effects or risks?

Negative side effects: these are uncommon, they include nausea, easy bruising and faster bleeding of cuts. Positive side effects: there is some evidence that fish oil is beneficial for the heart, and also for some people with skin and joint problems. Some children refuse to take the capsules or the liquid, or they dislike the taste or texture of the liquid. Fish oil supplementation is generally thought to be a low risk dietary intervention because it is does not interfere significantly with the rest of the diet.

Where can I get more information?

If you have questions about anything on this information sheet, ask your paediatrician. More information on fish oils and neurodevelopmental disorders can also be found on the FAB research web site. The address is www.fabresearch.org.*

(*Note: NHS Highland is not responsible for the information on this web site, or on those of supplement suppliers or manufacturers).

REFERENCES

Amminger G Omega 3 fatty acid supplementation in children with autism: a double blind randomized, placebo controlled pilot study. [Journal] // Biological Psychiatry. - 2007. - 4 : Vol. 61. - pp. 551-3.

Bell G Essential Fatty Acids and Phospholipase A2 in Autistic Spectrum Disorders [Journal] // Prostoglandins, Leukotrienes and Essential Fatty Acids. - 2004. - Vol. 71. - pp. 201-204.

Montgomery P The Oxford-Durham study: a randomized controlled tria of dietar supplementation with fatty acids in children developmental co-ordination disorder [Journal] // Paediatrics - 2005. - 5 : Vol. 115. - pp. 1360-1366.