WHAT’S THE EVIDENCE?

OMEGA 3 FATTY ACID SUPPLEMENTS FOR CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD)

What were we asked?
A survey of parents of children with Attention Deficit Hyperactivity Disorder (ADHD) indicated that they were interested in the evidence for whether omega 3 fatty acid supplements reduce symptoms in children and young people with ADHD.

What did we do?
We searched a range of academic databases (Cochrane Library, Psychinfo, Pubmed) to find the most recent systematic reviews and randomised controlled trials (RCTs) investigating this research question. There is more information about research terms and what they mean on our website www.pencru.org.

What did we find?
What are Omega 3 supplements?
- Omega 3 is a type of polyunsaturated fatty acid (PUFA) found in oily fish and some seeds and nuts.
- Omega 3 is required in our diet for several processes in the body and is necessary for good health.
- The Food Standards Agency recommends two portions of fish are consumed per week including one portion of oily fish, high in omega 3 (trout, mackerel, salmon, fresh tuna) on their website.
- Although omega 3 occurs naturally in certain foods it is also prepared and sold as a dietary supplement.
- Omega 6 is another type of PUFA which must also be taken in through diet. Omega 6 also plays a vital role in the body and is found in poultry, eggs, vegetable and sunflower oils and some nuts and cereals.

What types of evidence were found?
The most recent systematic review addressing this research question was published in 2011. In this review, only the academic database Pubmed was searched for relevant RCTs. Studies that examined the efficacy of omega 3 fatty acid supplementation at reducing symptoms in children with ADHD, using validated rating scales as outcome measures, were included in a meta-analysis. Ten eligible trials were identified ranging in publication date from 2001 to 2010. The meta-analysis included all ten trials, involving a total of 699 children.

What were the results?
- The review suggested that omega 3 supplementation may have some effect on ADHD symptoms.
- Duration of supplementation ranged from 4 weeks to 4 months; there was no evidence that using supplements for longer made them more effective.
- This review calculated that, in order to detect a significant benefit of omega 3 supplementation, clinical trials should include at least 330 children.
- The trials included in the meta-analysis involved samples of 26 to 117 children and therefore have too few children to be confident in the individual study results.
- In these trials, children were not always randomly assigned to treatment groups and so there may have been some differences between the children assigned to each group that affected the results.
- Sometimes, parents and children were aware of whether they were receiving the omega 3 treatment/therapies.

Note: the views expressed here are those of the Cerebra Research Unit at the Peninsula 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.

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intervention or a placebo and this may have
effected how the child’s behaviour was scored.

This review was limited in that it only searched one
academic database for previously published trials,
and didn’t include many different search terms;
therefore not all relevant trials may have been
identified.

**What other evidence is there to draw on?**
An earlier systematic review from 2010 searched
the academic databases Psychinfo and Medline
Plus from 1980 to May 2009. Two Nine studies were
found.

- Four randomised studies that investigated the
effects of either omega 3 or omega 6
  supplements found no significant treatment
effect.
- Five studies investigated the effect of omega 3
  and omega 6 combined supplements. Four of
  these studies found that supplements reduced
  ADHD symptoms by a small degree.
- This review concluded that the evidence for the
effectiveness of fatty acid supplements at
decreasing symptoms of ADHD is limited and
insufficient to support public health
recommendations.

There have been two further randomised trials
investigating the efficacy of fatty acids at reducing
symptoms of ADHD in children published in the
last year; these trials were not included in either
systematic review.

A trial published in 2011 randomised 200 children
to receive either an omega 3 supplement or a
placebo for 15 weeks, followed by a period of 15
weeks in which all participants take the
supplement. No significant differences were
found in ADHD symptoms as measured by teacher
rating scales, but parental scales found a
significant reduction in the restless/impulsive
subscale of Conners Parent Rating Scale. A
subgroup of children with more pronounced
hyperactive and impulsive behaviour showed the
greatest improvement in ADHD symptoms in
response to the omega 3 supplement. The most
recent trial, from 2012, randomised 90 children to
receive either an omega 3 rich oil or placebo. No
significant improvements were detected in any
of the outcome measure scales, which included
Conners scales and the TOVA. There were some
difficulties in recruiting children to this trial which
may have affected the findings. Furthermore,
questions have been raised about the placebo in
this trial.

**Summary**
There were two systematic reviews of omega 3 for
ADHD published in the last three years. There
were some differences in the methods of these
reviews and each included a different set of trials.
Since that meta-analysis, two further randomised
trials have been published and one found a
positive effect on ADHD symptoms. The available
evidence is not conclusive of any substantive
benefit of omega 3 supplements to reduce
symptoms of ADHD.

**Our recommendations:**
Currently, both NICE in England and SIGN in
Scotland do not recommend fatty acid
supplements for the treatment of ADHD in children
This therapy can be very expensive, and the
advantages are not clearly apparent. The evidence
we found is not persuasive to challenge this
guidance. Further research could identify all
relevant studies through a more comprehensive
search, and include the most recently published
studies. Given that there is continuing interest and
some uncertainty, there may be a case for a large
and rigorously designed exploratory RCT to answer
the question.

We would like to hear your feedback on this
summary – please email us at pencru@pcmd.ac.uk
if you have any comments.

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References:


