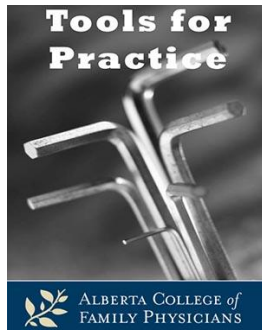


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## **Needed for Eye and Brain Development? Omega-3s in infant formula**

**Clinical Question: Does adding omega-3 long-chain polyunsaturated fatty acids to infant formula improve brain and eye development in healthy, full-term infants?**

**Bottom Line: Adding omega-3 to infant formula has no consistently meaningful effects on neurocognitive development. One group using one measure of visual acuity consistently found benefits (about 1-line difference on Snellen chart) at 12 months that others do not and long-term data is lacking.**

### **Evidence:**

- Neuro-cognition:
  - Five of seven highest quality Systematic Reviews (SR) found no consistent benefit.<sup>1-5</sup>
  - Remaining two SR that found benefit:<sup>6,7</sup>
    - SR of four Randomized Controlled Trials [RCTs (376 patients)].<sup>6</sup> Compared to no omega-3, omega-3 statistically improved:
      - Mental and Psychomotor Development Indices, by standard mean differences of 0.27-0.33, which is difficult to interpret clinically (but suggest small).
      - Limitations: Inconsistent data reporting, results mainly driven by one industry-funded trial.<sup>8</sup>
    - SR of studies between 2008-2013.<sup>7</sup>
      - Two meta-analyses found no effect on cognition.
      - Seven RCTs not included in the meta-analyses provide inconsistent results.
      - Limitations: Conclusions not based on the totality of the evidence.
- Vision:
  - Within omega-3 Cochrane SR, eight RCTs examined visual acuity.<sup>2</sup>
    - Four RCTs (495 participants) found no effect.
    - Three RCTs (244 participants) pooled found omega-3 better on sweep visual evoked potentials (VEP), equivalent to approximately 1-line on Snellen chart.
    - Another RCT (32 participants) found benefit at different time-points with different tests.

- Limitations: High drop-outs (follow-up 70-86% complete), most benefit seen by one research group.
- SR of nine RCTs (1,131 participants):<sup>9</sup>
  - Omega-3 improved acuity using VEP at 2, 4, and 12 months (approximately 1-line better on Snellen chart, inconsistent results), but no difference using other methods.
  - Other reviews found similar, inconsistent effects.<sup>1,10</sup>
- Limitations:
  - Clinical relevance unknown.
  - Multiple outcomes reported likely leading to 'chance findings'.
    - Example: One study found better vision in right eye with omega-3 at four years, but not left eye.<sup>10,11</sup>

### Context:

- There is no optimal neurocognitive assessment measure for infants.
- The minimum clinically important differences in the most commonly used neurocognitive scales are unknown.<sup>4,8,12</sup>
- Formula containing omega-3 costs more than formula without omega-3.

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### Disclosure:

Authors do not have any conflicts of interest to declare.

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