Table H-11. Findings on omega-3 fatty acid supplementation for ADHD

| **Study****(Companion)****N****Qualitya****Design****Age Categoryb** | **Intervention** | **Comparison** | **Follow-up Times** | **Findings–Intervention** | **Findings–Comparison** | **Between group P value** |
| --- | --- | --- | --- | --- | --- | --- |
| **Behavior changes** |
| Manor, 201260(Manor, 201361)200GoodRCTb | Phospha-tidylserine enriched with omega-3 fatty acids | Placebo | 15 weeks | Euphoric% patients with outcome = 38.9Anxiety% patients with outcome = 45Irritable% patients with outcome = 79.1Prone Cry% patients with outcome = 62.7Talk Less% patients with outcome = 31.8Sad/Unhappy% patients with outcome = 40Irritability% patients with outcome = 15.31 | Euphoric% patients with outcome = 34.6Anxiety% patients with outcome = 63.5Irritable% patients with outcome = 84.6Prone Cry% patients with outcome = 57.7Talk Less% patients with outcome = 32.7Sad/Unhappy% patients with outcome = 34Irritability% patients with outcome = 11.63 | NRNRNRNRNRNRNR |
| **Changes in standardized symptom scores** |
| Anand, 20166250GoodRCTc | Polyunsaturated fatty acids (300 mg/d) plus atomoxetine (0.5 mg/kg/d) | Atomoxetine (0.5 mg/kg/d) | 4 months | Conners Parent Rating Scale-Revised: Short FormMean = 36.6 (SD = 2.21) | Conners Parent Rating Scale-Revised: Short FormMean = 37.4 (SD = 2.18) | NS |
| Gustafsson, 201063109GoodRCTb | Omega-3 fatty acid supplemen-tation (eico-sapentaenoic acid 500mg daily) | Placebo | 15 weeks | Total Conners Parent Rating Scale scoreMean = 43.8 (SD = 18.6)Total Conners Rating Scale scoreMean = 43.1 (SD = 18.8) | Total Conners Parent Rating Scale scoreMean = 39.4 (SD = 18.4)Total Conners Rating Scale scoreMean = 40.7 (SD = 17.9) | NSNS |
| Johnson, 200964(Johnson, 201265)75GoodRCTb | Omega-3/6 fatty acid supplemen-tation (792mg daily) | Placebo  | 3 months (double-blind phase)6 months (open-label extension: continuous and naïve groups) | ADHD Rating ScaleMean change = -3.78 (7.14)ADHD Rating ScaleMean change = -7.82 (8.07) | ADHD Rating ScaleMean change = -1.65 (4.54)ADHD Rating ScaleMean change = -5.81 (7.16) | NS NS  |
| Manor, 201260(Manor, 201361)200GoodRCTb | Phospha-tidylserine enriched with omega-3 fatty acids | Placebo | 15 weeks(treatment and placebo groups, N=162)30 weeks (open-label extension: continuous and naïve groups, N=147) | CRS-P PS-Omega-3 continuous (30 weeks)ADHD Index Mean = 64.05 (10.21)CRS-T PS-Omega-3 continuous (30 weeks)ADHD Index Mean= 62.35 (10.64)CRS-P PS-Omega-3 continuous (30 weeks)ADHD Index Mean Change = -0.95 (7.91)CRS-T PS-Omega-3 continuous (30 weeks)ADHD Index Mean Change = 0 (8.62) | CRS-P Placebo (weeks 1-15)ADHD Index Mean = 65.67 (12.79)CRS-T Placebo (weeks 1-15)ADHD Index Mean = 64.44 (10.07)CRS-P PS-Omega-3 (weeks 15-30)ADHD Index Mean Change = -2.86 (8.51)CRS-T PS-Omega-3 (weeks 15-30)ADHD Index Mean Change = -1.72 (6.19) | NSNSNSNS |
| Milte, 201266(Milte, 201567)90Good RCTb | Fish oil rich in the omega-3 fatty acid, eico-sapentaenoic acid (EPA)  | Fish oil rich in the omega-3 fatty acid, docosahexaenoiacid (DHA)Placebo: Linoleic acid (LA) | 4 months | Conners Parent Rating Scale ADHD totalMean between-group change (vs. placebo) = 1.56 (1.77) | Conners Parent Rating Scale ADHD totalMean between-group change (vs. placebo) = 1.64 (1.9) | NREPA vs. placebo p=0.38DHA vs. placebo p=0.39 |
| Raz, 20096878FairRCTb | Omega-3 fatty acid supplemen-tation | Placebo | 1.75 months | Conners-ADHD (Teacher)Mean = 3.64 (1.48)Conners Mood (Teacher)Mean = 2.76 (1.28)Conners Mood (Parent)Mean = 3.44 (1.42) | Conners-ADHD (Teacher)Mean = 3.66 (1.12)Conners Mood (Teacher)Mean = 2.74 (1.30)Conners Mood (Parent)Mean = 4.03 (1.25) | NSNSNS |
| Widenhorn-Muller, 201469110FairRCTb | Omega-3 fatty acid supplementation (720 mg daily) plus 15 mg vitamin E | Placebo | 4 | CBCL total problemsMean = 62.36 (SE = 1.47)Teacher Report Form--total problemsMean = 55.8 (SE = 1.09) | CBCL total problemsMean = 60.15 (SE = 1.38)Teacher Report Form--total problemsMean = 56.82 (SE = 1.16) | P=0.98P=0.62 |
| Hariri, 201270120PoorRCTb | Omega-3 fatty acid supplemen-tation (900 mg daily) | Placebo | 8 weeks | Conners AbbreviatedMean = 21.03 (3.98) | Conners AbbreviatedMean = 24.02 (4.22) | P=0.251 |
| **Elevated blood pressure** |
| Manor, 201260(Manor, 201361)200GoodRCTb | Phospha-tidylserine enriched with omega-3 fatty acids | Placebo | 15 weeks | SystolicMean = 103.6 (SD = 14.82)DiastolicMean = 64.66 (SD = 11.39) | SystolicMean = 100.25 (SD = 12.95)DiastolicMean = 63.89 (SD = 10.28) | P=0.955P=0.342 |
| **Functional impairment** |
| Johnson, 200964(Johnson, 201265)75Good RCTb  | Omega-3/6 fatty acid supplementation (792 mg daily) | Placebo  | 3 months (double-blind phase)6 months (open-label extension: continuous and naïve groups) | Clinical Global Impression scoreMean change = -0.58 (0.87)Clinical Global Impression scoreMean change = -1.24 (1.07) | Clinical Global Impression scoreMean change = -0.13 (0.50)Clinical Global Impression scoreMean change = -0.93 (0.92) | NSNS |
| **Sleep disturbance** |
| Manor, 201260(Manor, 201361)200GoodRCTb | Phospha-tidylserine enriched with omega-3 fatty acids | Placebo | 15 weeks | Insomnia% patients with outcome = 38.2Severe insomnia% patients with outcome = 2.04Nightmares% patients with outcome = 29.1 | Insomnia% patients with outcome = 53.9Severe insomnia% patients with outcome = 6.98Nightmares% patients with outcome = 34.6 | NRNRNR |
| **Tics or other movement disorders** |
| Manor, 201260(Manor, 201361)200GoodRCTb | Phospha-tidylserine enriched with omega-3 fatty acids | Placebo | 15 weeks | Tics% patients with outcome = 22.7 | Tics% patients with outcome = 32.7 | NR |
| **Gastrointestinal symptoms** |
| Manor, 201260(Manor, 201361)200GoodRCTb | Phospha-tidylserine enriched with omega-3 fatty acids | Placebo | 15 weeks | Stomachaches% patients with outcome = 39.5Decreased appetite% patients with outcome = 32.7Severely decreased appetite% patients with outcome = 4.08 | Stomachaches% patients with outcome = 46.2 Decreased appetite% patients with outcome = 32.7Severely decreased appetite% patients with outcome = 4.65 | NRNRNR |
| **Growth suppression** |
| Manor, 201260(Manor, 201361)200GoodRCTb | Phospha-tidylserine enriched with omega-3 fatty acids | Placebo | 15 weeks | Height in cmMean = 135.25 (SD = 13.35) | Height in cmMean = 136.77 (SD = 12.26) | P=0.196 |
| **Increased heart rate** |
| Manor, 201260(Manor, 201361)200GoodRCTb | Phospha-tidylserine enriched with omega-3 fatty acids | Placebo | 15 weeks | Increased Heart RateMean = 79.72 (SD = 12.03) | Increased Heart RateMean = 81.18 (SD = 13.24) | p=0.825 |
| **Personality change** |
| Manor, 201260(Manor, 201361)200GoodRCTb | Phospha-tidylserine enriched with omega-3 fatty acids | Placebo | 15 weeks | Uninterested% patients with outcome = 32.7 | Uninterested% patients with outcome = 38 | NR |
| **Weight decrease** |
| Manor, 201260(Manor, 201361)200GoodRCTb | Phospha-tidylserine enriched with omega-3 fatty acids | Placebo | 15 weeks | Weight (kg)Mean = 33.39 (SD = 10.61) | Weight (kg)Mean = 33.06 (SD = 8.42) | P=0.980 |

a See Methods section “Quality Assessment of Individual Studies” for definitions of quality assessment ratings.

b Age categories: a = children aged ≤6 years, b = children aged 7-17, c = children of all ages ≤17.

Abbreviations: ADHD=attention deficit hyperactivity disorder; CRS-P=Conners Rating Scale-Parent; CRS-T=Conners Rating Scale-Teacher; NR=not reported; SE=standard error; SD=standard deviation; RCT=randomized controlled trial