Table H-12. Findings on herbal interventions or dietary approaches for ADHD

| **Study****N****Qualitya****Design****Age Categoryb** | **Intervention** | **Comparison** | **Follow-up Times** | **Findings–Intervention** | **Findings–Comparison** | **Between group P value** |
| --- | --- | --- | --- | --- | --- | --- |
| **Behavior changes** |
| Shakibaei, 20157166GoodRCTb | Methylphenidate and Ginkgo Biloba | Methylphenidate and placebo | 6 weeks | Parent ADHD Rating Scale IV InattentionMean = 13.58 (SD = 3.68)Parent ADHD Rating Scale IV Hyperactivity-ImpulsivityMean = 11.54 (SD = 4.42)Teacher ADHD Rating Scale IV InattentionMean = 13.74 (SD = 4.04)Teacher ADHD Rating Scale IV Hyperactivity-ImpulsivityMean = 10.93 (SD = 4.06)Children’s Global Assessment Scale (CGAS)Mean w/in group change = 8.92 (SD = 7.37) | Parent ADHD Rating Scale IV InattentionMean = 14.34 (SD = 4.03)Parent ADHD Rating Scale IV Hyperactivity-ImpulsivityMean = 11.37 (SD = 4.11)Teacher ADHD Rating Scale IV InattentionMean = 13.75 (SD = 3.85)Teacher ADHD Rating Scale IV Hyperactivity-ImpulsivityMean = 11.2 (SD = 4.43)CGSAMean w/in group change = 8.51 (SD = 5.33) | P<.001P=0.417P=0.004P=0.203P=0.901 |
| Arnold, 20117252FairRCTb | Zinc 15 mg once daily (> 8 weeks with amphetamine in all groups) | Zinc 15mg twice dailyPlacebo | 8 weeks>8 weeks 8 weeks>8 weeks8 weeks>8 weeks8 weeks>8 weeks8 weeks>8 weeks 8 weeks>8 weeks8 weeks>8 weeks8 weeks>8 weeks | Affective blunting# patients with outcome = 1Affective blunting# patients with outcome = 4Anxiety# patients with outcome = 6Anxiety# patients with outcome = 9Depression# patients with outcome = 7Depression# patients with outcome = 11Irritability# patients with outcome = 9Irritability# patients with outcome = 9 | Affective blunting# patients with outcome = 0Affective blunting# patients with outcome = 0Anxiety# patients with outcome = 2Anxiety# patients with outcome = 3Depression# patients with outcome = 2Depression# patients with outcome = 4Irritability# patients with outcome = 5Irritability# patients with outcome = 6Affective blunting# patients with outcome = 1Affective blunting# patients with outcome = 6Anxiety# patients with outcome = 6Anxiety# patients with outcome = 5Depression# patients with outcome = 5Depression# patients with outcome = 9Irritability# patients with outcome = 10Irritability# patients with outcome = 14 | NRNRNRNRNRNRNRNRNRNRNRNRNRNRNRNR |
| Mohammadpour, 20167354FairRCTc | 2000 IU Vitamin D plus MPH | Placebo Vitamin D plus MPH | 2 days | WPREMB morning symptomsMean = 2.76 (SD 2.2)WPREMB evening symptomsMean = 8.32 (SD 3.9)WPREMB total scoreMean = 11.08 (SD 5.5) | WPREMB morning symptomsMean = 3.65 (SD 3.1)WPREMB evening symptomsMean = 11.68 (SD 5.4)WPREMB total scoreMean = 15.34 (SD 7.7) | NSSignificantSignificant |
| **Changes in appetite** |
| Arnold, 20117252FairRCTb | Zinc 15 mg once daily (> 8 weeks with amphetamine in all groups) | Zinc 15mg twice dailyPlacebo | 8 weeks>8 weeks8 weeks>8 weeks | Changes in appetite# patients with outcome = 3Changes in appetite# patients with outcome = 15 | Changes in appetite# patients with outcome = 4Changes in appetite# patients with outcome = 8Changes in appetite# patients with outcome = 4Changes in appetite# patients with outcome = 17 | NRNRNRNR |
| Katz, 201074120FairRCTb | Patented herbal preparation | Placebo | 0.5 months | Decreased appetite# patients with outcome = 1 | Decreased appetite# patients with outcome = 2 | NR |
| **Changes in standardized symptom scores** |
| Dutta, 20127586GoodRCTb | Memomet syrup (Bacopa monniera 125 mg, Convulvulus pleuricaulis 100 mg, Centella asiatica 100 mg) | Placebo | 4 months | Conners 10-point rating scale (hyperactivity) Mean Percent Change48% | Conners 10-point rating scale (hyperactivity) Mean Percent Change29% | Reported as significant in text |
| Pelsser, 201176100GoodRCTc | Restricted elimination diet | No elimination diet | 5 weeks after intervention started | ADHD rating scale--Parental total scoreMean 24.2 95% CI=19.5, 29.0ADHD rating scale, teacher total scoreMean 14.3 95% CI=11.6, 17.1ADHD rating scale, Parent inattention scoreMean 11.3 95% CI=8.9, 13.8ADHD rating scale, parent hyperactivity and impulsivity scoreMean 12.9 95% CI 10.5, 15.3ADHD rating scale, Teacher hyperactivity and impulsivity scoreMean 7.8 95% CI= 6.2, 9.5Abbreviated Conners' scale-ParentMean 12.0 95% CI=9.4, 14.6Abbreviated Conners' scale-TeacherMean 6.6 95% CI= 4.9, 8.4ADHD Rating Scale "Behaviour scores"Total scoreMean = 9.6 (SD = 6.9)ADHD Rating Scale "Behaviour scores"InattentionMean = 4.1 (SD = 3.9)ADHD Rating Scale Hyperactivity and ImpulsivityMean = 5.3 (SD = 3.9)Abbreviated Conners ScaleMean = 5.9 (SD = 3.7) | ADHD rating scale--Parental total scoreMean 1.3 95% CI = 0.2, 2.5Mean between group change = 23.795% CI = 18.6, 28.8ADHD rating scale, teacher total scoreMean -0.4 95% CI=-1.7, 1.0Mean between group change = 15.395% CI = 12.0, 18.6ADHD rating scale, Parent inattention scoreMean 0.2 95% CI=-0.4, 0.8Mean between group change = 11.895% CI = 9.1, 14.4ADHD rating scale, parent hyperactivity and impulsivity scoreMean 0.3 95% CI=-0.6, 1.1Mean between group change = 11.995% CI = 9.3, 14.5ADHD rating scale, Teacher hyperactivity and impulsivity scoreMean -0.6 95% CI=-1.4, 0.2Mean between group change = 8.595% CI = 6.8, 10.3Abbreviated Conners' scale-ParentMean 0.1 95% CI=-0.7, 0.8Mean between group change = 11.895% CI = 9.2, 14.5Abbreviated Conners' scale-TeacherMean -0.8 95% CI=-1.4, -0.3Mean between group change = 7.595% CI = 5.9, 6.2ADHD Rating Scale "Behaviour scores" Total scoreMean = 46.9 (SD = 5.5)ADHD Rating Scale "Behaviour scores" InattentionMean= 23.4 (SD = 26.3)ADHD Rating Scale Hyperactivity and ImpulsivityMean = 24.1 (SD = 4.2)Abbreviated Conners ScaleMean = 24 (SD = 3.7) | p<.0001p<.0001p<.0001p<.0001p<.0001p<.0001p<.0001p<.0001 |
| Arnold, 20117252FairRCTb | Zinc 15 mg once daily (> 8 weeks with amphetamine in all groups) | Zinc 15mg twice dailyPlaceboZinc 15mg twice dailyPlaceboZinc 15mg twice dailyPlaceboZinc 15mg twice dailyPlacebo | 8 weeks10 weeks13 weeks21 weeks | SNAP parent DSM-IV ADHD symptomsMean = 1.92 (SD = 0.54)CRS-parentMean = 1.93 (SD = 0.49)CRS-Teacher \* zinc vs. placeboMean = 1.90 (0.67)SNAP parent DSM-IV ADHD symptomsMean = 1.61 (SD = 0.52)CRS-parentMean = 1.52 (SD = 0.52)CRS-Teacher \* zinc vs. placeboMean = 1.23 (SD = 0.58)SNAP parent DSM-IV ADHD symptomsMean = 1.19 (0.56)CRS-parentMean = 1.08 (SD = 0.45)CRS-Teacher \* zinc vs. placeboMean = 0.9 (SD = 0.65)SNAP parent DSM-IV ADHD symptomsMean = .99 (SD = 0.52)CRS-parentMean = .83 (SD = 0.47)CRS-Teacher \* zinc vs. placeboMean = 1.17 (SD = 0.53) | SNAP parent DSM-IV ADHD symptomsMean = 1.47 (SD = 0.65)CRS-parentMean = 1.62 (SD = 0.73)CRS-Teacher \* zinc vs. placeboMean = 1.71 (SD = 0.79)SNAP parent DSM-IV ADHD symptomsMean = 1.9 (SD = 0.63)CRS-parentMean = 1.84 (0.56)SNAP parent DSM-IV ADHD symptomsMean = 1.26 (0.62)CRS-parentMean = 1.21 (SD = 0.75)CRS-Teacher \* zinc vs. placeboMean = 1.40 (0.81)SNAP parent DSM-IV ADHD symptomsMean = 1.47 (0.51)CRS-parentMean = 1.24 (0.5)SNAP parent DSM-IV ADHD symptomsMean = 0.67 (0.38)CRS-parentMean = 0.81 (SD = 0.58)CRS-Teacher \* zinc vs. placeboMean = 0.63 (0.58)SNAP parent DSM-IV ADHD symptomsMean = 1.01 (SD = 0.38)CRS-parentMean = 0.91 (0.43)SNAP parent DSM-IV ADHD symptomsMean = 0.67 (SD = 0.56)CRS-parentMean = 0.8 (SD = 0.59)CRS-Teacher \* zinc vs. placeboMean = 0.94 (0.69)SNAP parent DSM-IV ADHD symptomsMean = 0.82 (0.44)CRS-parentMean = 0.72 (0.52) | NRNRNRNRNRNRNRNRNRNRNRNRNRNRNRNR |
| Mohammadpour, 201673 54FairRCTc | 2000 IU Vitamin D plus MPH | Placebo Vitamin D plus MPH | 2 days | CPRS OppositionalMean = 55.28 (SD 11.6)CPRS CognitiveMean = 56 (SD 11.8)CPRS HyperactiveMean = 56.92 (SD 11.8)CPRS ADHD indexMean = 55.84 (SD 10.2)ADHD-RS, InattentiveMean = 49.80 (SD 31.7)ADHD-RS, Hyperactive/ImpulsiveMean = 69.40 (SD 22.4)ADHD-RS, Total scoreMean = 60.44 (SD 22.1) | CPRS OppositionalMean = 59.76 (SD 12.1)CPRS CognitiveMean = 57.21 (SD 10.5)CPRS HyperactiveMean = 59.79 (SD 12.4)CPRS ADHD indexMean = 56.79 (SD 9.6)ADHD-RS, InattentiveMean = 61.37 (SD 29.5)ADHD-RS, Hyperactive/ImpulsiveMean = 77.44 (SD 19.5)ADHD-RS, Total scoreMean = 71.75 (SD 23.6) | NRNRNRNRNRNRNR |
| **Gastrointestinal symptoms** |
| Arnold, 20117252FairRCTb | Zinc 15 mg once daily  | Zinc 15mg twice dailyPlacebo | 8 weeks>8 weeks8 weeks>8 weeks | Stomachaches + other GI# patients with outcome = 11Stomachaches + other GI# patients with outcome = 11 | Stomachaches + other GI# patients with outcome = 4Stomachaches + other GI# patients with outcome = 3Stomachaches + other GI# patients with outcome = 18Stomachaches + other GI# patients with outcome = 14 | NRNRNRNR |
| Katz, 201074120FairRCTb | Patented herbal preparation | Placebo | 0.5 months | GI discomfort# patients with outcome = 2 | GI discomfort# patients with outcome = 3 | NR |
| **Mood disorders** |
| Katz, 201074120FairRCTb | Patented herbal preparation | Placebo | 0.5 months | Emotional lability# patients with outcome = 2 | Emotional lability# patients with outcome = 4 | NR |
| **Motor vehicle collisions** |
| Katz, 201074120FairRCTb | Patented herbal preparation | Placebo | 0.5 months | Accidental injury# patients with outcome = 1 | Accidental injury# patients with outcome = 2 | NR |
| **Sleep disturbance** |
| Arnold, 20117252FairRCTb | Zinc 15 mg once daily  | Zinc 15mg twice dailyPlacebo | 8 weeks>8 weeks8 weeks>8 weeks | Sleep# patients with outcome = 0Sleep# patients with outcome = 8  | Sleep# patients with outcome = 1Sleep# patients with outcome = 6Sleep# patients with outcome = 4Sleep# patients with outcome = 16 | NRNRNRNR |
| Katz, 201074120FairRCTb | Patented herbal preparation | Placebo | 0.5 months | Sleep disturbance# patients with outcome = 1 | Sleep disturbance# patients with outcome = 4 | NR |
| **Suicide ideation** |
| Arnold, 20117252FairRCTb | Zinc 15 mg once daily  | Zinc 15mg twice dailyPlacebo | 8 weeks>8 weeks8 weeks>8 weeks | Harm to self or others# patients with outcome = 1Harm to self or others# patients with outcome = 1 | Harm to self or others# patients with outcome = 0Harm to self or others# patients with outcome = 0Harm to self or others# patients with outcome = 0Harm to self or others# patients with outcome = 0 | NRNRNRNR |
| **Tics or other movement disorders** |
| Arnold, 20117252FairRCTb | Zinc 15 mg once daily  | Zinc 15mg twice dailyPlacebo | 8 weeks>8 weeks8 weeks>8 weeks | Stereotypical behaviors# patients with outcome = 3Stereotypical behaviors# patients with outcome = 7 | Stereotypical behaviors# patients with outcome = 1Stereotypical behaviors# patients with outcome = 2Stereotypical behaviors# patients with outcome = 5Stereotypical behaviors# patients with outcome = 9 | NRNRNRNR |

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=Conners Rating Scale; SNAP=Swanson, Nolan and Pelham Revision; WPREMB=Weekly Parent Ratings of Evening and Morning Behavior