

ADHD & Gut-Brain Axis Protocol

Evidence-based probiotic, supplement, and dietary strategies to support focus, attention, and the gut-brain connection in ADHD

What This Protocol Addresses

Attention-Deficit/Hyperactivity Disorder (ADHD) affects 5-7% of children and 2-5% of adults worldwide. While genetics and neurotransmitter imbalances are well-established factors, emerging research reveals that the gut microbiome plays a significant role in ADHD pathophysiology through the gut-brain axis. This bidirectional communication network connects the enteric nervous system to the central nervous system and influences attention, impulsivity, and executive function.

The Gut-Brain Axis: Five Pathways to ADHD

Pathway	Mechanism	ADHD Relevance
Vagus nerve	Direct neural communication between gut and brainstem	Altered signaling affects mood, arousal, and attention regulation
Immune/cytokine signaling	LPS and inflammatory cytokines cross into circulation	Elevated sICAM-1 and sVCAM-1 found in ADHD adults (Yang 2023)
Neurotransmitter production	Gut bacteria produce serotonin, dopamine precursors, and GABA	Significant differences in serotonin and dopamine metabolic pathways in ADHD children (Wan 2020)
Short-chain fatty acids	SCFAs modulate brain function via GPR41/GPR43 receptors	Lower SCFAs correlate with higher inflammatory markers; propionic acid reduced in ADHD (Yang 2023)
HPA axis	Stress response regulation via cortisol	Dysregulated HPA axis contributes to impulsivity and emotional reactivity

Gut-Brain Axis Research Snapshot

Shirvani-Rad et al. (2022) systematically reviewed 8 observational studies and found consistent evidence that gut microbiota composition differs in ADHD, with alterations in Bifidobacterium, Dialister, and Faecalibacterium that may impair dopamine-related functions in the CNS. Decreased Faecalibacterium prausnitzii frequency could result in higher gut permeability and crossing of inflammatory cytokines into circulation.

Gut Dysbiosis in ADHD

Three independent meta-analyses have now confirmed that children with ADHD harbor a distinct and disrupted gut microbial profile compared to healthy controls. The findings converge on reduced beneficial bacteria, increased pro-inflammatory taxa, and depleted butyrate producers.

Meta-Analysis	Studies/Patients	Key Findings
Ghosh & Singh 2025 (Eur Child Adolesc Psychiatry)	8 studies	Lower Actinobacteria ($p < 0.001$); reduced Lactobacillus ($p = 0.002$) and Bifidobacterium ($p = 0.002$); higher Firmicutes and Proteobacteria
Wang et al. 2022 (Front Endocrinol)	8 studies, 316 ADHD vs 359 controls	Blautia significantly elevated in ADHD (SMD = 0.34, $p = 0.02$, $I^2 = 0\%$); higher Shannon diversity index
Nikolova et al. 2021 (JAMA Psychiatry)	59 studies across psychiatric disorders	Transdiagnostic pattern: depleted Faecalibacterium and Coprococcus, enriched Eggerthella; reduced butyrate-producing bacteria across all disorders

The ADHD Microbial Fingerprint

Across these meta-analyses, a consistent pattern emerges: ADHD is associated with lower Bifidobacterium, lower Lactobacillus, reduced Faecalibacterium prausnitzii, and elevated Blautia. The depletion of butyrate-producing bacteria is a transdiagnostic finding shared across ADHD, depression, anxiety, and other psychiatric conditions. This provides a clear target for microbiome-directed interventions.

Case-Control Data (Wan et al. 2020)

In a shotgun metagenomics study of 17 ADHD children vs 17 controls (ages 6-12), Faecalibacterium and Lachnoclostridium were significantly reduced ($p < 0.05$), while Odoribacter and Enterococcus were elevated ($LDA > 2$). Metabolic pathway analysis revealed significant differences in serotonin and dopamine pathways ($p < 0.05$), directly linking gut bacteria to neurotransmitter disruption.

Early-Life Probiotics and ADHD Prevention

One of the most striking findings in gut-brain research is that early probiotic supplementation may reduce the risk of neurodevelopmental disorders, including ADHD. A landmark 13-year follow-up study provides compelling evidence for early microbial intervention.

Landmark Study: Partty et al. 2015 (Pediatric Research)

75 infants were randomized to receive *Lactobacillus rhamnosus* GG (ATCC 53103) or placebo during the first 6 months of life. At age 13, ADHD or Asperger syndrome was diagnosed in 6 of 35 placebo children (17.1%) compared to 0 of 40 probiotic children (0%). This difference was statistically significant ($P = 0.008$). Mean *Bifidobacterium* counts in the first 6 months were lower in children who later developed neurodevelopmental diagnoses (8.26 vs 9.12 log cells/g, $P = 0.03$), suggesting that early *Bifidobacterium* colonization is predictive of later neurodevelopmental outcomes.

Implications for Families

While this is a single study and replication is needed, the finding that zero probiotic-treated infants developed ADHD or Asperger syndrome over 13 years is remarkable. For expectant parents or families with young children, early probiotic supplementation (particularly *L. rhamnosus* GG) and supporting *Bifidobacterium* colonization through breastfeeding and appropriate infant probiotics may be a low-risk, high-potential preventive strategy.

Probiotics for ADHD: Clinical Trial Evidence

Multiple randomized controlled trials have tested probiotic supplementation as an adjunctive treatment alongside ADHD medication. The results show consistent benefits for attention and behavioral outcomes, particularly with specific strains.

Trial	Design	Key Results
Elhossiny et al. 2023 (BMC Psychiatry)	80 children (6-16y); <i>L. acidophilus</i> LB + atomoxetine vs atomoxetine alone; 12 weeks	Improved CPRS-R-L total ($p = 0.032$); better focus accuracy ($p = 0.02$); fewer perseverative errors ($p = 0.017$)
Wang et al. 2024 (Nutrients)	102 children; <i>B. bifidum</i> (5×10^9 CFU/day) + methylphenidate vs placebo + MPH; 12 weeks	Improved CPT omission errors and hit reaction time; increased Firmicutes-to-Bacteroidetes ratio in probiotic group
Skott et al. 2020 (Brain Behav Immun)	182 children and adults; Synbiotic 2000 vs placebo; 9 weeks	Reduced restricted/repetitive behaviors in children; improved emotion regulation in adults; significant in those with elevated sVCAM-1

Immune Markers and SCFAs

A follow-up analysis of the Synbiotic 2000 trial (Yang et al. 2023) revealed that adults with ADHD had higher sICAM-1 and sVCAM-1 and lower SCFAs compared to controls. The synbiotic reduced IL-12/IL-23p40 and sICAM-1 and increased propionic acid in children on medication. SCFAs correlated negatively with inflammatory markers, suggesting that boosting SCFA production through probiotics and prebiotics may reduce the low-grade inflammation associated with ADHD.

Choosing the Right Probiotic Strains

Based on the clinical trial evidence, the strongest ADHD-specific probiotic strains are: *L. acidophilus* LB (improved attention and reduced perseverative errors), *B. bifidum* (improved reaction time alongside methylphenidate), and *L. rhamnosus* GG (preventive evidence from the Partty 2015 landmark study). A multi-strain formula combining these genera at 10-50 billion CFU daily is recommended for at least 12 weeks.

Omega-3 Fatty Acids and ADHD

Children with ADHD consistently show lower blood levels of omega-3 fatty acids (EPA and DHA) compared to healthy controls. Two major meta-analyses clarify the role of omega-3 supplementation, with a critical finding about treatment duration.

Meta-Analysis	Participants	Key Finding
Chang et al. 2018 (Neuropsychopharmacology)	7 RCTs, n = 534	Omega-3 improved ADHD symptoms ($g = 0.38$, $p < 0.0001$); improved attention ($g = 1.09$, $p = 0.001$)
Chang et al. 2018 (blood levels)	Cross-sectional data	ADHD children had lower DHA ($g = -0.76$), EPA ($g = -0.38$), and total omega-3 ($g = -0.58$), all $p < 0.001$
Liu et al. 2023 (J Clin Psychiatry)	22 RCTs, n = 1789	Overall non-significant (SMD -0.16 , $p = 0.07$); BUT with treatment ≥ 4 months: significant benefit (SMD -0.35 , $p = 0.007$)

Critical Finding: Duration Matters

Liu et al. (2023) analyzed 22 RCTs with 1,789 participants and found that the overall effect of omega-3 on ADHD core symptoms was not significant. However, when restricting to trials lasting 4 months or longer, the benefit became significant (SMD -0.35 , $p = 0.007$). This means short-term trials (under 4 months) systematically underestimate omega-3's true effect. Commit to at least 4 months of consistent supplementation before evaluating results.

Omega-3 Dosing for ADHD

EPA + DHA combined: 1000-2000 mg/day (prioritize EPA for behavioral benefits). Take with a fat-containing meal for absorption. Choose triglyceride-form fish oil or algae-based for vegetarians. Minimum 4 months of consistent use is essential. Fatty fish (salmon, sardines, mackerel) 2-3 times weekly provides additional dietary omega-3.

Vitamin D and ADHD

Vitamin D deficiency is significantly more common in children with ADHD, and the association extends from early development through childhood. A comprehensive meta-analysis quantifies both the deficiency and the developmental risk.

Finding	Data	Source
25(OH)D levels: ADHD vs controls	6.75 ng/mL lower (95% CI: -9.73 to -3.77)	Khoshbakht 2018: 13 studies, 10,334 children/adolescents
ADHD likelihood with low vitamin D	OR 2.57 (95% CI 1.09-6.04)	Khoshbakht 2018 pooled analysis
Perinatal low vitamin D and ADHD	RR 1.40 (95% CI 1.09-1.81)	Khoshbakht 2018 perinatal subgroup

The Vitamin D-ADHD Connection

Children with ADHD have serum 25(OH)D levels nearly 7 ng/mL lower than healthy peers. Low vitamin D during pregnancy increases the child's ADHD risk by 40%. The odds of having ADHD are 2.57 times higher in children with vitamin D deficiency. Vitamin D plays critical roles in neurodevelopment, dopaminergic signaling, and immune regulation, all of which are disrupted in ADHD.

Magnesium and Zinc

Both magnesium and zinc are frequently deficient in children with ADHD, and supplementation trials show meaningful improvements in behavior and mental health status.

Vitamin D + Magnesium Co-Supplementation

Outcome	Result	p-value
Emotional problems	Significant reduction	p = 0.001
Conduct problems	Significant reduction	p = 0.002
Peer problems	Significant reduction	p = 0.001
Total difficulties	Significant improvement	p = 0.001
Externalizing score	Significant improvement	p = 0.001
Internalizing score	Significant improvement	p = 0.001

Source: Hemamy et al. (2021), BMC Pediatrics. 66 children with ADHD received vitamin D (50,000 IU/week) plus magnesium (6 mg/kg/day) or placebo for 8 weeks. Co-supplementation was superior to either nutrient alone.

Zinc Supplementation

Talebi et al. (2022) conducted a systematic review and dose-response meta-analysis of 6 RCTs involving 489 school-aged children. Zinc supplementation significantly improved ADHD total scores (SMD -0.62; 95% CI -1.24 to -0.002; p = 0.04). While the effect on individual subscales (hyperactivity and inattention alone) did not reach significance, the overall improvement in composite ADHD scores supports zinc as a meaningful adjunctive nutrient.

Mineral Supplementation for ADHD

Magnesium: 200-400 mg/day (or 6 mg/kg/day for children) as glycinate or threonate for better absorption and CNS penetration. Best taken with vitamin D for synergistic benefit. Zinc: 15-30 mg/day as zinc picolinate or bisglycinate. Take with food to reduce nausea. Both minerals support dopamine synthesis, neurotransmitter function, and immune regulation.

Iron Status and ADHD

Iron is a critical cofactor for tyrosine hydroxylase, the rate-limiting enzyme in dopamine synthesis. Iron deficiency directly impairs the dopaminergic system that is central to ADHD pathophysiology.

Finding	Data	Source
Serum ferritin in ADHD vs controls	Significantly lower (Hedges' $g = -0.246$, $p = 0.013$)	Tseng 2018: 17 studies, 1560 ADHD vs 4691 controls
ADHD severity with iron deficiency	Higher severity (Hedges' $g = 0.888$, $p = 0.002$)	Tseng 2018 severity analysis
ADHD and iron deficiency association	OR = 1.636 ($p = 0.031$)	Tseng 2018 pooled odds ratio

Why Iron Matters for ADHD

Iron is the essential cofactor for tyrosine hydroxylase, which converts L-tyrosine to L-DOPA, the direct precursor to dopamine. When iron stores are low, dopamine production is impaired at the enzymatic level. Tseng et al. (2018) found that children with iron deficiency had nearly double the ADHD severity (Hedges' $g = 0.888$). Correcting iron deficiency is therefore a foundational step before layering other interventions.

Important: Test Before Supplementing Iron

Always test serum ferritin before starting iron supplementation. Target: ferritin above 30–40 ng/mL (some clinicians aim for 50+ in ADHD). Iron overload can be harmful, so supplementation should only occur when deficiency is confirmed. If ferritin is low, typical dosing is 1–3 mg/kg/day of elemental iron for children, taken with vitamin C to enhance absorption. Retest ferritin every 3 months.

Dietary Strategies for ADHD

Diet modifications can meaningfully complement supplementation by providing prebiotic substrates for beneficial gut bacteria, reducing inflammatory triggers, and supplying nutrients that support neurotransmitter production.

Strategy	Evidence	Practical Guidance
High-fiber prebiotic foods	Support SCFA production and Bifidobacterium growth (Ghosh 2025)	Oats, flaxseed, garlic, onions, leeks, asparagus, Jerusalem artichokes, resistant starch
Omega-3 rich foods	ADHD children have lower EPA/DHA blood levels (Chang 2018)	Fatty fish 2-3x weekly (salmon, sardines, mackerel); walnuts, chia seeds, flaxseeds
Artificial color exclusion	Some children show behavioral sensitivity to synthetic food dyes	Eliminate Red 40, Yellow 5, Yellow 6; read labels on snacks, cereals, beverages
Reduce processed foods	Processed foods are low in fiber and high in inflammatory ingredients	Minimize added sugars, refined carbohydrates, trans fats, and ultra-processed snacks
Protein with every meal	Amino acids support dopamine and norepinephrine synthesis	Eggs, lean meats, legumes, nuts, and seeds at each meal for sustained neurotransmitter support
Iron-rich foods	Iron deficiency worsens ADHD severity (Tseng 2018)	Red meat, dark leafy greens, lentils, fortified cereals; pair with vitamin C for absorption
Zinc-rich foods	Zinc supports neurotransmitter function (Talebi 2022)	Oysters, beef, pumpkin seeds, chickpeas, cashews

Feed the Gut-Brain Connection

Aim for 25-35 g of diverse dietary fiber daily from varied prebiotic sources. A prebiotic supplement (inulin, FOS, or GOS at 5-10 g/day) can bridge gaps. The goal is to increase SCFA production, support Bifidobacterium and Lactobacillus populations, and reduce inflammatory signaling through the gut-brain axis.

Supporting Supplement Stack

The following tiered approach allows systematic introduction of evidence-based supplements, starting with the interventions that have the strongest research support for ADHD.

Supplement	Mechanism in ADHD	Dose Range	Key Evidence
Multi-strain probiotic	Restores depleted Bifidobacterium and Lactobacillus; reduces inflammatory markers	10-50 billion CFU/day	Elhossiny 2023; Wang 2024; Partty 2015
Omega-3 EPA/DHA	Anti-inflammatory; supports neuronal membrane integrity	1000-2000 mg/day	Chang 2018 (g = 0.38); Liu 2023 (>= 4 months)
Vitamin D3	Neurodevelopment; dopaminergic signaling; immune regulation	1000-2000 IU/day (children); test levels	Khoshbakht 2018 (6.75 ng/mL deficit)
Magnesium	GABA receptor function; HPA axis regulation; synergy with vitamin D	200-400 mg/day (g lycinate/threonate)	Hemamy 2021 (p = 0.001 across outcomes)
Zinc	Dopamine transporter regulation; antioxidant defense	15-30 mg/day	Talebi 2022 (SMD -0.62)
Iron (if deficient)	Tyrosine hydroxylase cofactor for dopamine synthesis	Per clinician guidance	Tseng 2018 (test ferritin first)
Prebiotic fiber	Feeds SCFA-producing bacteria; supports gut-brain signaling	5-10 g/day (inulin/FOS/GOS)	Ghosh 2025; Yang 2023

Tiered Supplement Stack

Tier 1 (Core, weeks 1-4): Multi-strain probiotic + Omega-3 EPA/DHA + Vitamin D3
 Tier 2 (Add weeks 3-4): Magnesium + Zinc + Prebiotic fiber
 Tier 3 (If indicated): Iron (only with confirmed deficiency via ferritin test)
 Start with Tier 1 for 2-4 weeks. Add Tier 2 once tolerability is confirmed. Tier 3 is individualized based on bloodwork.

Phase 1: Build and Balance (Weeks 1–12)

The first phase establishes the foundational supplement stack, introduces dietary modifications, and begins the process of restoring microbial balance in the gut-brain axis.

Intervention	Specification	Timing
Multi-strain probiotic	<i>L. acidophilus</i> + <i>B. bifidum</i> + <i>L. rhamnosus</i> GG; 20-50 billion CFU	Morning, with or before breakfast
Omega-3 (EPA/DHA)	1000-2000 mg combined (EPA-dominant)	With meals, split AM/PM if tolerated
Vitamin D3	1000-2000 IU/day children; 2000-4000 IU adults (test 25(OH)D; target 40-60 ng/mL)	With largest fat-containing meal
Magnesium glycinate	200-400 mg/day (or 6 mg/kg/day children)	Evening, to support sleep
Zinc	15-30 mg/day	With food (separate from probiotics by 2 hours)
Prebiotic fiber	Start 3 g/day, increase to 5-10 g over 2 weeks	Mixed into food or drink
Diet modifications	Increase fiber, omega-3 foods, protein; reduce processed foods and artificial colors	All meals
Iron (if ferritin < 30)	Per clinician dosing with vitamin C	Morning on empty stomach or with vitamin C-rich food

Important: ADHD Medication Interactions

This protocol is designed as adjunctive support alongside, not a replacement for, prescribed ADHD medications (stimulants or non-stimulants). The clinical trials cited above tested probiotics as add-ons to atomoxetine and methylphenidate with positive results. Do not adjust medication dosing without consulting your prescribing physician. Some supplements (especially iron and zinc) can interact with stimulant medications; space doses at least 2 hours apart.

Phase 2: Optimize and Sustain (Weeks 13–24+)

After the initial 12-week build phase, the focus shifts to optimizing the protocol based on individual response and sustaining the gains achieved. Remember that omega-3 benefits become significant only after 4+ months (Liu 2023), so consistency is essential.

Component	Phase 2 Adjustment	Rationale
Probiotic	Continue daily; consider rotating strains every 3 months	Sustained microbiota modulation; long-term gut-brain support
Omega-3	Maintain or increase to 2000 mg/day if tolerated	Benefits become significant at 4+ months (Liu 2023)
Vitamin D	Adjust per blood levels; maintain 1000–2000 IU daily	Seasonal adjustments; sustained immune and neuro support
Magnesium	Continue at established dose	Ongoing GABA support and HPA axis regulation
Zinc	Retest zinc levels; continue if still indicated	Periodic reassessment prevents excess
Iron	Retest ferritin at 3 months; discontinue once replete	Iron overload risk with unnecessary supplementation
Prebiotic fiber	Maintain 5–10 g/day; diversify sources	Sustained SCFA production and microbial diversity
Diet	Continue high-fiber, omega-3-rich pattern; track trigger foods	Long-term lifestyle foundation for gut-brain health

The Long-Term View

ADHD is a chronic condition, and microbiome-targeted support should be viewed as a long-term lifestyle strategy rather than a short-term intervention. The Partty 2015 study demonstrated that the effects of early probiotic intervention persisted for 13 years. Similarly, the omega-3 meta-analysis shows that sustained supplementation (4+ months) is required for meaningful symptom improvement. Stay consistent, track your progress, and adjust based on response.

Tracking Your Progress

Monitoring key markers and behavioral outcomes helps you understand whether the protocol is working and when to make adjustments. Track these at baseline and every 4-6 weeks.

Marker	What It Tells You	Target
ADHD rating scale (Conners, SNAP-IV, or similar)	Core symptom severity	Meaningful reduction in total and subscale scores
Serum ferritin	Iron stores for dopamine synthesis	Above 30-40 ng/mL (ideally 50+)
Serum 25(OH)D	Vitamin D status	40-60 ng/mL
Omega-3 index (if available)	EPA+DHA in red blood cell membranes	Above 8%
Digestive symptoms diary	Gut health self-assessment	Reduced bloating, regular bowel movements, less GI distress
Sleep quality log	Sleep onset and duration	Improved sleep onset; 9-12 hours for children, 7-9 for adults
Teacher/parent behavior log	Daily attention and behavior tracking	Fewer incidents; improved task completion
hs-CRP (optional)	Systemic inflammation	Below 1.0 mg/L

Timeline Expectations

Weeks 1-4: Digestive improvements; initial tolerance assessment of supplements. Weeks 4-8: Potential improvements in sleep, mood, and emotional regulation. Weeks 8-12: Improvements in attention and behavioral measures should begin to emerge. Weeks 12-24: Omega-3 benefits become significant; full protocol effects consolidate. Be patient. Microbiome restoration and nutrient repletion are gradual processes. The clinical trials showed strongest results at 12 weeks with probiotics and 4+ months with omega-3.

Sources

1. Shirvani-Rad S et al. (2022). The Role of Gut Microbiota-Brain Axis in Pathophysiology of ADHD: A Systematic Review. *J Atten Disord*, 26(13):1698-1710. DOI: 10.1177/10870547211073474
2. Wan L et al. (2020). Case-Control Study of the Effects of Gut Microbiota Composition on Neurotransmitter Metabolic Pathways in Children With ADHD. *Front Neurosci*, 14:127. DOI: 10.3389/fnins.2020.00127
3. Ghosh S and Singh S (2025). Microbiome dynamics in ADHD: A systematic review and meta-analysis. *Eur Child Adolesc Psychiatry*, 35(1):31-46. DOI: 10.1007/s00787-025-02822-6
4. Wang N et al. (2022). Composition of the Gut Microbiota in ADHD: A Systematic Review and Meta-Analysis. *Front Endocrinol*, 13:838941. DOI: 10.3389/fendo.2022.838941
5. Nikolova VL et al. (2021). Perturbations in Gut Microbiota Composition in Psychiatric Disorders: A Review and Meta-analysis. *JAMA Psychiatry*, 78(12):1343-1354. DOI: 10.1001/jamapsychiatry.2021.2573
6. Partty A et al. (2015). A possible link between early probiotic intervention and the risk of neuropsychiatric disorders later in childhood: a randomized trial. *Pediatr Res*, 77(6):823-8. DOI: 10.1038/pr.2015.51
7. Elhossiny RM et al. (2023). Assessment of probiotic strain *Lactobacillus acidophilus* LB supplementation as adjunctive management of ADHD in children and adolescents: a randomized controlled clinical trial. *BMC Psychiatry*, 23(1):823. DOI: 10.1186/s12888-023-05324-4
8. Wang LJ et al. (2024). Add-On *Bifidobacterium bifidum* Supplement in Children with ADHD: A 12-Week Randomized Double-Blind Placebo-Controlled Clinical Trial. *Nutrients*, 16(14):2260. DOI: 10.3390/nu16142260
9. Skott E et al. (2020). Effects of a synbiotic on symptoms, and daily functioning in ADHD -- A double-blind randomized controlled trial. *Brain Behav Immun*, 89:9-19. DOI: 10.1016/j.bbi.2020.05.056
10. Yang LL et al. (2023). Effects of a Synbiotic on Plasma Immune Activity Markers and SCFAs in Children and Adults with ADHD. *Nutrients*, 15(5):1293. DOI: 10.3390/nu15051293
11. Chang JPC et al. (2018). Omega-3 PUFAs in Youths with ADHD: A Systematic Review and Meta-Analysis. *Neuropsychopharmacology*, 43(3):534-545. DOI: 10.1038/npp.2017.160
12. Liu TH et al. (2023). Omega-3 PUFAs for Core Symptoms of ADHD: A Meta-Analysis of RCTs. *J Clin Psychiatry*, 84(5). DOI: 10.4088/JCP.22r14772
13. Khoshbakht Y et al. (2018). Vitamin D Status and ADHD: A Systematic Review and Meta-Analysis. *Adv Nutr*, 9(1):9-20. DOI: 10.1093/advances/nmx002
14. Hemamy M et al. (2021). Effect of vitamin D and magnesium supplementation on mental health status of ADHD children: a randomized controlled trial. *BMC Pediatr*, 21(1):178. DOI: 10.1186/s12887-021-02631-1
15. Talebi S et al. (2022). Effect of zinc supplementation in children with ADHD: A systematic review and dose-response meta-analysis of RCTs. *Crit Rev Food Sci Nutr*, 62(32):9093-9102. DOI: 10.1080/10408398.2021.1940833
16. Tseng PT et al. (2018). Peripheral iron levels in children with ADHD: a systematic review and meta-analysis. *Sci Rep*, 8(1):788. DOI: 10.1038/s41598-017-19096-x

Disclaimer

This protocol is provided for educational and informational purposes only. It is not intended as medical advice and should not replace consultation with a qualified healthcare provider. ADHD is a complex neurodevelopmental condition that may require prescription medications including stimulants and non-stimulants. Always consult your physician or psychiatrist before starting any supplement regimen, especially if you or your child are currently on prescribed ADHD medication. Individual results may vary. The information presented is based on peer-reviewed research available at the time of writing and may be updated as new evidence emerges.

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