The ADDITUDE Guide to Alternative ADHD Treatment

Neurofeedback, omega-3 fatty acids, nutrition, exercise, green time, behavior therapy, and working-memory training.
Understanding Non-Drug ADHD Therapies

In this age of herbal supplements, cult diets and As-Seen-on-TV miracle cures, it’s more important than ever for parents of children with ADHD and for ADD adults to separate legitimate alternative therapies from the sometimes-dangerous scams out there. But how?

In this special report, ADDitude editors explore several alternative therapies — behavior therapy, omega-3 fatty acids, nutrition, exercise, working-memory training, natural surroundings, and neurofeedback — to help you make informed decisions about what ADHD treatment is right for you and your child.

Often, we found, the best ADHD treatment may actually involve a combination of therapies, including medication and non-drug alternatives. That is, fish oil and exercise may be adjuncts to medication, not substitutes for it.

“Asking if you should use medication or a complementary therapy to treat attention deficit disorder is like asking whether you should eat fruit or vegetables,” says Barbara Ingersoll, Ph.D., a clinical psychologist and author of Daredevils and Daydreamers: New Perspectives on Attention Deficit/Hyperactivity Disorder (Main Street Books). “You often need both.”

Since the effectiveness of any treatment for attention deficit disorder varies by individual and rarely acts in a vacuum, don’t begin any new course of treatment before discussing it with your doctor.

NOTE: ADDitude’s staff and scientific advisors do not endorse any form of treatment, including those covered editorially here or in advertising or articles in ADDitude magazine.

CONTENTS

3-4 Using Behavior Therapy
Most ADHD kids do best with a combination of behavior therapy and medication

5 Facts About Fish Oil
Can this common dietary supplement sharpen your child’s focus?

6 ADHD Nutrition Basics
Strike the perfect balance between greens, protein, and complex carbs to ease ADHD symptoms

7 A Med Without Side Effects
How exercise can improve concentration in children with ADHD

8 Working-Memory Training
The software that helps reduce hyperactivity in children with ADHD

9 The Benefits of “Green Time”
The great outdoors can help ease ADHD symptoms

10-11 Neurofeedback for ADHD Children
How these high-tech brain exercises can increase attentiveness
Using Behavior Therapy to Promote Discipline and Focus

How to change your child’s behavior for the better with a few adjustments to your parenting approach.

Behavior therapy is a structured discipline strategy based on rewards and consequences — such as increased or decreased TV privileges — that aims to incrementally teach children preferred ways of behaving. The desired behavior — waking up on time, reducing interruptions — varies widely from child to child.

According to the American Psychological Association, behavior therapy, rather than medication, should be the first line of treatment for children with ADHD under the age of five. William Pelham, Jr., Ph.D., director of the Center for Children and Families at the State University of New York at Buffalo, recommends starting with behavior therapy only for all children.

“The benefit of using behavior therapy first is that, if a child also needs medication, he can often get by with a smaller dose,” says Pelham. “Also, parents who see that medication is working are less motivated to follow through with behavior therapy. That would be fine if the data showed that medication alone helped the long-term trajectory of ADHD kids. It doesn’t.”

How do you implement a course of behavioral therapy at home? Have you ever given your child a time-out for talking back — or a “heads-up” before taking him to the supermarket or another setting that is likely to challenge his self-control? Then you already have a sense of how behavior therapy works.

“A lot of behavior modification is just common-sense parenting,” says Pelham. “The problem is that none of us were trained how to be good parents, and none of us expected to have children who needed parents with great parenting skills and patience.”

The basic idea is to set specific rules governing your child’s behavior (nothing vague or too broad), and to enforce your rules consistently, with positive consequences for following them and negative consequences for infractions. Try the following four-step plan:

How Behavior Therapy Works

Follow these guidelines to achieve the best results from a behavior therapy program.

- Focus narrowly on a clear, realistic expectation for your child
- Establish benchmarks and document daily achievements
- Note and reward improvement when it occurs
- Expand your program by working with the school

Start Early!

Evidence suggests that behavior therapy works best when it is initiated at a young age.

ADDitude’s Guide to Alternative ADHD Treatment
www.ADDitudeMag.com
Using Behavior Therapy to Promote Discipline and Focus Continued

Step One
Name a single goal for which you can easily measure progress. If your goals are too diverse (going to bed at a certain time, being dressed by 8 AM, doing homework immediately after school), you likely won’t be able to observe and keep track of your child’s accomplishments. You may also overwhelm your child and set him up for disappointment if he slips on one or more goals.

Step Two
Create a chart or other visual reminder that outlines exactly what is expected of your child, and how their behavior will be assessed. Post the chart or checklist where your child will see it — this serves as a reminder and cuts down on dreaded parental nagging.

Step Three
Reward your child quickly and effusively each time she achieves the desired behavior. Place stars on the child’s reminder chart, and extend a special privilege like 15 minutes of additional playtime after dinner. The rewards need not be expensive, but they should be meaningful to your child — and worth working for.

Experts often advise parents to discourage negative behavior by ignoring it because children may act up to get attention. If the negative behavior is too serious to ignore, take away a privilege — for example, 15 minutes of television time lost. At the same time, parents should keep an eye out for the negative triggers that encourage this bad behavior and do their best to alleviate them.

Step Four
Speak to your child’s teacher about the behavior therapy tactics you’re using at home, and work with her to devise a way for her to keep track of and reward desired behavior at school as well. You might employ a daily report card or regular journal entries to keep track.

Steer Clear of These Common Mistakes:

- Murky rules: State your expectations clearly and post them around the house

- Unclear commands: Spell out your desires in detail, not generalities

- Dwelling on the negative: Praise your child for doing something well at least five times as often as you criticize bad behavior

- Little patience: Keep in mind that children with ADHD often struggle to transfer what they’ve learned from setting to setting, so be prepared to maintain a role as your child’s advocate for a long time
Found mainly in cold-water, fatty fish, such as sardines, tuna and salmon, omega-3 fatty acids are believed to be important in brain and nerve cell function. The body cannot make omega-3 fatty acids by itself, and most people don’t consume enough of them in food to derive benefits, which is why fish-oil supplements are so popular today.

While omega-3 fatty acids seem to improve anyone’s mental focus, several small recent studies suggest that the compounds may be especially helpful to those with ADHD.

Edward Hallowell, M.D., founder of the Hallowell Center for ADHD in Massachusetts, recommends that all of his patients take an omega-3 supplement and notes that “it seems to help most with mental focus, not hyperactivity or impulsivity.” It may take up to six weeks for patients to begin seeing benefits, though.

Picking the Right Pill
There are two main types of omega-3 fatty acids in fish oil: eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).

The most popular omega-3 supplements differ in the amounts of EPA and DHA they contain. Based on the most recent research, Dr. John Ratey recommends that you choose a supplement that has at least three times the amount of EPA to DHA. “The data seem to show that those using supplements containing higher ratios of EPA get a better response in ADHD symptoms, including mood swings and aggression,” says Ratey.

Children may take up to 2.5 grams of fish oil each day; adults may take up to 5 grams.

Be aware that high doses of omega-3s may cause nausea, diarrhea, and other gastrointestinal discomfort. Consult your doctor before adding this supplement to your routine.

“I tell my patients that there are two things they need to do for their health: Exercise and consume omega-3s.”
– John Ratey, M.D., associate clinical professor of psychiatry at Harvard Medical School and coauthor of Driven to Distraction (Touchstone)

By Karen Barrow
Choosing the right foods — or cutting back on the wrong ones — may be a proactive way to prevent ADHD symptoms from swinging out of control.

Dr. Edward Hallowell advises all of his patients to think about their plates when preparing a meal. Half of the plate, he recommends, should be filled with fruits and vegetables, one-fourth with carbohydrates and one-fourth with a protein. This combination is a balanced diet, and it may control swings in behavior caused by hunger, surges in blood sugar, or a shortfall of a particular nutrient.

Protein is particularly important, in part because it prevents surges in blood sugar that may increase hyperactivity. The brain makes a variety of chemical messengers, or neurotransmitters, to regulate wakefulness and sleep. Certain neurotransmitters, including dopamine and norepinephrine, boost alertness. Others, including serotonin, cause drowsiness.

Studies by Massachusetts Institute of Technology neuroscientist Richard Wurtman, Ph.D., and others have shown that dietary protein triggers the synthesis of alertness-inducing neurotransmitters, while dietary carbohydrates trigger the synthesis of neurotransmitters that cause drowsiness.

These findings lend credence to the popular belief that people with ADD fare better on a protein-rich breakfast and lunch. However, Hallowell also advocates eating several servings of whole grains each day to prevent blood sugar levels from spiking and then plummeting, and cutting back on foods that contain dyes and excess sugar.
When you walk, run, or do a set of jumping jacks or pushups, your brain releases several important chemicals, including endorphins — hormone-like compounds that regulate mood, pleasure, and pain. That same burst of activity also elevates the brain’s dopamine, norepinephrine, and serotonin levels. These brain chemicals affect focus and attention, which are in short supply in those with ADHD.

“Exercise turns on the attention system, the so-called executive functions — sequencing, working memory, prioritizing, inhibiting, and sustaining attention,” says John Ratey, M.D., an associate clinical professor of psychiatry at Harvard Medical School. “On a practical level, it causes kids to be less impulsive, which makes them more primed to learn.”

Walking for 30 minutes, four times a week, will do the trick. But studies have shown that any of the martial arts, ballet, ice skating, gymnastics, rock climbing, mountain biking, whitewater paddling, and—sorry to tell you, Mom—skateboarding are especially good for adults and children with ADHD. Why, exactly? The technical movement inherent in these types of sports activate a vast array of brain areas that control balance, timing, sequencing, evaluating consequences, switching, error correction, fine motor adjustments, inhibition, and, of course, intense focus and concentration.

Finally, exercise helps kids push through past failures and attack things they didn’t succeed at before. “The refrain of many ADHD kids is, ‘No matter what I do, I’m going to fail,’” says Ratey, author of Spark: The Revolutionary New Science of Exercise and the Brain (Little, Brown). “Rat studies show that exercise reduces learned helplessness. In fact, if you’re aerobically fit, the less likely you are to learn helplessness.”

"Think of exercise as medication,” he says. “For a very small handful of people with ADHD, it may actually be a replacement for stimulants, but, for most, it’s complementary — something they should absolutely do, along with taking meds, to help increase attention and improve mood.”
Working-Memory Training
It may look like a video game, but this software is serious business — reducing inattention and hyperactivity in children with ADHD.

ADDitude talks with Bradley Gibson, Ph.D., lead author of a recent Notre Dame study underscoring the benefits of working-memory therapy, and Barbara Ingersoll, Ph.D., a trainer for Cogmed, the company that created the training module used in the research.

What is working memory?
It’s the ability to hold onto information long enough to accomplish a specific goal — like holding a phone number in your mind as you dial it.

How does improving working memory help kids focus?
When you improve working memory, you improve fluid IQ — the ability to solve problems or adapt to situations as they occur. Most kids who complete memory training become more alert to their surroundings. They remember to bring books and materials to and from school, and are more aware of social cues.

How does Cogmed working-memory training work?
The working-memory program is downloaded onto a home computer. A child logs on and completes eight exercises, each consisting of 15 trials. The exercises, which look and sound like a video game, become increasingly harder. A trainer calls once a week to talk with the parents. The training is rigorous, so few children under age seven can stick with it. Children who have recently been diagnosed with ADHD should have their medication titrated before beginning training.

How long is the training, and how much does it cost?
The training runs five weeks, five days a week, an hour a day. It ranges from $1,500 to $2,000, and it is not covered by most insurance plans.

What percentage of kids show improvement after?
About 75 to 80 percent of kids show improvement — that is, inattention and hyperactivity are reduced. MRIs of children who completed training showed physical changes in the brain’s pre-frontal and parietal regions. At six-month and one-year follow-ups, about 80 percent of subjects maintained or improved on their working-memory gains.

Is working-memory training a substitute for medication?
The program does not claim to replace medication.

Low-tech Ways to Help Your Child Improve His Working Memory
Let your child know when he’s about to hear information he needs to retain. You can say, "I want you to remember this," or "Put on your thinking cap."

Teach your child to engage several senses. If she’s learning to read, for example, have her trace letters with her finger while saying the sounds and looking at the symbols.

Provide a count of the details to be remembered. You might say, "There are 10 new vocabulary words. Five are verbs related to transportation, and five are adjectives that describe speed."

Help your child create chants, rhymes, and raps to remember spelling rules, multiplication tables, and history facts. Rhythm makes information memorable.

Encourage your child to highlight or underline important facts as he reads, and to re-read the underlined material.
The Benefits of “Green Time” for ADHD Children

Recent studies suggest that more time spent in backyards and parks translates into better focus and behavior for ADHD kids.

A 2007 study in the Journal of Public Health confirmed that as little as 20 minutes of daily “green time” can reduce the symptoms of ADHD in children. The survey of 500 boys and girls ages five to 18 noted sizeable benefits after time spent outdoors recovering from “attention fatigue.” (Attention fatigue occurs after long periods spent concentrating, inhibiting impulses, or being patient.)

“When you concentrate on a task like writing, neurotransmitters in the brain’s prefrontal cortex get depleted,” says Frances Kuo, Ph.D., author of a similar study by the University of Illinois. “Being in a natural environment seems to let the system replenish itself.”

In his book Last Child in the Woods, Richard Louv traces a host of emerging trends, from higher levels of childhood obesity and depression to a dearth of creativity and lower academic performance, back to what he calls a “nature deficit” in today’s plugged-in kids. He argues that the human brain is hard-wired to thrive on the sensory input provided by swaying trees and gurgling brooks, and their absence may change us in fundamental ways.

Research also shows that aerobic activity can help relieve ADHD symptoms, so here are some ideas for getting your children outside and moving toward greater health:

**Commuting smarter.** Walk or bike to school via the greenest route available — waking up a few minutes early will pay off with sustained attention all day.

**Walk the dog.** A dog is an enthusiastic fitness partner who will help you walk or run outside and on a daily schedule.

**Ride a bike.** Whether it’s a leisurely ride around the neighborhood or a hard and fast workout that satisfies your need for speed, biking is a great way to get out in nature.

**Row a boat.** Paddling a canoe, kayak or rowboat works the upper body and displays nature from a new vantage point.

“The greater the exposure to nature, the greater the attentiveness.”

– Frances Kuo, Ph.D.

**A “Green” Tip**

Gardening offers a bounty of visual, tactile, and olfactory delights. Plus, watering plants each day teaches responsibility, and awaiting late-season blooms helps kids understand delayed gratification.
**Neurofeedback: A Promising Therapy for ADHD Children**

How these high-tech brain exercises can help reduce impulsivity and increase attentiveness in children with ADHD.

**BY PAMELA V. MICHAELS**

Why neurofeedback? Each year, countless parents of children with ADHD begin researching this brain-exercise treatment because traditional medication has stopped working (or never worked), produces unwelcome side effects, or, most commonly, doesn’t manage all the symptoms of ADHD.

Today, approximately 10,000 U.S. children are receiving neurofeedback treatments to reduce impulsivity and increase attentiveness, according to Cynthia Kerson, executive director of the International Society for Neurofeedback and Research. Seventy-five to 80 percent of them have some type of attention deficit condition.

**What Does Neurofeedback Entail?**

Sessions are brief (approximately 30 minutes) and painless, but they are expensive. The average course of treatment can range from $2,000 to $5,000. Neurofeedback is most effective in combination with ADHD medication.

Children younger than six and those who don’t understand what’s being asked of them should avoid neurofeedback. Side effects include sleepiness, headaches, and/or crankiness right after a session. These are usually relieved by a short nap or protein-rich snack. Some children experience a temporary increase in mood swings around the eighth week of treatment. Reducing medication dosage may alleviate the side effects. Talk with your doctor.

How does a parent know if the therapy is working? According to experts, the practitioner should see increased activation of the brain’s frontal lobe after five sessions. If not, treatment should be postponed.

To find a qualified practitioner in your area, contact the Biofeedback Certification Institute of America (bcia.org).

**Neurofeedback (NFB) is also called…**

- Neurotherapy
- Neurobiofeedback
- EEG Biofeedback (EEGBF)

**Learn more about neurofeedback…**

- *The Healing Power of Neurofeedback*, by Stephen Larsen and Thom Hartmann
- *The Open-Focus Brain*, by Les Fehmi and Jim Robbins
- *Getting Rid of Ritalin*, by Robert W. Hill and Eduardo Castro

---

**ADDitude's Guide to Alternative ADHD Treatment**

[www.ADDitudeMag.com](http://www.ADDitudeMag.com)
Treatment Specifics
Neurofeedback is based on a simple principle. “The brain emits different types of waves, depending on whether we are in a focused state or day-dreaming,” explains Siegfried Othmer, Ph.D., chief scientist at the EEG Institute in Woodland Hills, California. Neurofeedback aims to teach the patient to produce the brain-wave patterns associated with focus. The result: Some symptoms of ADHD — impulsivity, distractibility, and acting out — diminish.

Here’s how the treatment is structured. First, the patient dons a cap lined with electrodes and is asked to perform a complex cognitive task. The results are shown as a color-coded map that indicates areas of the brain demonstrating too much or too little brain-wave activity — the sources, theoretically, of the patient’s ADHD symptoms. This digital map is compared with other brain-wave patterns stored in databases — and can help fine-tune a treatment plan by delineating sites for the electrodes.

During treatment, the child wears the same headgear while sitting in front of a video screen. His goal: to move the characters in a computer or video game by producing short bursts of sustained brain-wave activity in those areas of the brain thought to be under-aroused. The software generating the game monitors and records brain activity. Loss of focus will cause the game to stop. It plays only when the child exercises that portion of the brain that is deficient in focus.

Neurofeedback Detractors
Neurofeedback has its share of critics, many of whom have valid objections. Unlike medication, the therapy hasn’t been rigorously tested in large, double-blind studies. Some experts also claim that studies don’t clearly prove whether improvements in children are due to the therapy or to one-on-one time with a therapist. Another criticism is that, while neurofeedback may sharpen attention in some children, it doesn’t always improve the other problems associated with ADHD.

While some experts admit that neurofeedback has promise, they believe that it should be used only in combination with medication.

“If I had a child with ADHD, I might use neurofeedback as one part of the treatment regimen, but I wouldn’t use it instead of other treatments that are better supported [by research].”
– David Rabiner, Ph.D., senior research scientist at Duke University’s Center for Child and Family Policy
**ADDitude’s Scientific Advisory Board**

*ADDitude* magazine’s Scientific Advisory Board includes some of America’s most respected clinicians, researchers, educators and ADHD advocates. All scientific or medical information contained in the magazine, including this Special Report, is reviewed by one of our advisors prior to publication.

**Chairman**  
Larry Silver, M.D.  
Georgetown University Medical School  
Washington, DC

**Members**  
Russell Barkley, Ph.D.  
Medical University of South Carolina  
Charleston, SC

Carol Brady, Ph.D.  
Baylor College of Medicine  
Houston, TX

Thomas E. Brown, Ph.D.  
Yale University School of Medicine  
New Haven, CT

Edward M. Hallowell, M.D.  
The Hallowell Center  
Sudbury, MA

Peter Jaksa, Ph.D.  
ADD Centers of America  
Chicago, IL

Peter Jensen, M.D.  
Center for the Advancement of Children’s Mental Health  
Columbia University College of Physicians and Surgeons  
New York, NY

Rachel Klein, Ph.D.  
Child Study Center  
New York University Medical School  
New York, NY

Harold Koplewicz, M.D.  
Child Study Center  
New York University Medical School  
New York, NY

Michele Novotni, Ph.D.  
Wayne Counseling Center  
Wayne, PA

Patricia Quinn, M.D.  
National Center for Gender Issues and AD/HD  
Washington, DC

Karen Wagner, M.D., Ph.D.  
University of Texas Medical Branch  
Galveston, TX

Timothy Wilens, M.D.  
Harvard Medical School  
Boston, MA
Success at School: Learning Essentials for Children with ADD
A parent-teacher handbook from ADDitude.
This user-friendly handbook is full of essential information about ADHD designed to help parents and educators work from the same source and stay on the same page. This booklet contains eight tip sheets, each describing a behavior associated with ADHD, and each offering practical, time-tested strategies to manage it in the classroom. Share them with your child’s teacher and help your child succeed at school.

Living With ADD
Great articles from the ADDitude archives.
32 pages of articles filled with real-life advice for managing ADHD in adults and children. With topics ranging from ADHD school accommodations to thriving in the workplace with ADD, and tips for good nutrition, better sleep habits, and raising happy, healthy children with ADHD, there’s a useful article for everyone who’s living with ADD.

ADDventures in Babysitting...with Ellen Kingsley
Tips and tricks for ADD childcare.
While parents of children with ADHD may have developed a sixth-sense for heading off trouble before it starts, babysitters and temporary caregivers may not be so savvy. Packed with information, this concise guide summarizes the condition and gives advice on settling squabbles, lessening separation anxiety, getting kids to bed, and more. Fill out the Babysitting Checklist in the inside back cover, offer this booklet to anyone looking after your children, and spend your time away with confidence and peace of mind.
FREE ADHD Newsletters from ADDitude
Sign up to receive critical news and information about ADHD diagnosis and treatment, success at school, adult ADD, and parenting strategies

Go to www.ADDitudeMag.com/adhd-community/newsletters.html to sign up for these free newsletters now:

Best of the Week
Quick tips for healthy bodies, minds, and relationships; plus ADHD/LD research, news, and reviews you can use

Best of the Month

Parenting ADHD/LD Kids
Strategies for behavior, nutrition, friends, and more

Adult ADHD/LD
Expert advice for organizing your time, money, career, and relationships

Success at School (special weekly Fall series)
Keep kids learning! Tips for parents and teachers

More ADDitude Resources for Treating ADHD
Find these and other helpful treatment tools on ADDitudeMag.com

All About Treating ADHD
Visit the ADDitudeMag.com Treatment Channel for in-depth information about ADHD medications, alternative treatments, related conditions like anxiety and depression, treating children with ADHD, and fine-tuning treatment over time. www.ADDitudeMag.com/channel/adhd-treatment/index.html

ADHD Treatment Forums
Talk with other ADDitude readers about finding the right ADHD medication, alternative treatments that work, fine-tuning prescriptions to decrease side effects, and treating kids. www.ADDitudeMag.com/adhdforums/group/50.html

ADHD Blogs
Follow the ups and downs in the lives of adults with ADHD and parents raising children with the condition. www.ADDitudeMag.com/adhdblogs

Tools & Checklists
Essential guides about managing side effects, recognizing comorbid conditions like depression, getting children to sleep better, and finding effective alternative treatments. www.ADDitudeMag.com/resources/tools.html

ADDitude’s Guide to Alternative ADHD Treatment
www.ADDitudeMag.com