



Complementary and Alternative Medicine (CAM) for Autism Spectrum Disorders (ASDs)

What is Complementary and Alternative Medicine?

Complementary and Alternative Medicine (CAM) is variably defined but generally refers to medical therapies and practices that are not commonly taught at medical schools or available at major hospitals and clinics in the United States^{1,2} (in contrast to “traditional” or “conventional” medicine, which refers to therapies that are provided in most hospitals and clinics).

Sometimes complementary medicine is described as non-traditional therapies that are used *in conjunction with* traditional therapies (to complement their action), while alternative medicine is used to describe non-traditional therapies that are used *in place of* (as an alternative to) traditional therapies. Practically speaking, most non-traditional therapies are simply classified under the general term: CAM therapies. A related term used in some settings is integrative medicine, which highlights the belief that CAM therapies are best used when integrated with (rather than replacing) conventional medical care.

What are the major types of CAM?

There are many different ways to categorize CAM therapies. The National Center for Complementary and Alternative Medicine (NCCAM – see: <http://nccam.nih.gov/>) is the scientific branch of the National Institutes of Health that provides research funding for CAM. It outlines four “domains” of CAM:

- 1) Mind-Body Medicine** – techniques used to “enhance the mind’s capacity to affect bodily functions and symptoms,” including meditation, prayer, mental healing, and therapies that use creative outlets such as art, music, and dance.
- 2) Biologically-Based Practices** – products found in nature, such as herbs and vitamins, which may act similarly to drugs by affecting some biological pathway.
- 3) Manipulative and Body-Based Practices** – practices such as chiropractic and massage that involve the manipulation of body parts.
- 4) Energy Medicine** – practices that are designed to affect proposed “energy fields” surrounding the body (examples include qi gong, Reiki, and Therapeutic touch), as well as the use of conventional electromagnetic fields to affect diseases or symptoms.

Are CAM therapies used by families of children with ASDs?

CAM therapies are commonly used by families in treating their children affected by ASDs. In four recent surveys, the prevalence of CAM use was 32%, 52%, 74%, and 95%.³⁻⁶ The variability in the prevalence of use is likely related to differences in survey design and the groups of children studied, but it is clear that CAM use is common.

Which CAM therapies are most commonly used for ASDs?

It is difficult to determine which CAM therapies are most commonly used, as most prior surveys have been limited to small or selected

groups of patients. Some of the more commonly used therapies are shown in the table below.

Why do families use CAM therapies for ASD?

There is very little information available that examines how and why families decide to use CAM therapies for ASD. One study found that parents had a variety of goals in mind, including improving the general symptoms of ASD (social difficulties, communication, repetitive or restricted behaviors) as well as treating associated problems such as gastrointestinal problems, sleep problems, or to maintain general health.⁵

How do I decide whether to try a CAM therapy for my child who has an ASD?

As with any medical therapy, deciding whether to use a specific CAM therapy involves a review of scientific evidence, focusing on the potential **RISKS** and **BENEFITS** of any therapy. Some general guidelines in evaluating the risks and benefits of each therapy are:

- 1) Risk-Benefit Analysis:** Therapies that have a very low risk (low chance of side effects) and a very high chance of benefit have the greatest chance of being helpful for your child.
- 2) Limited current information for most CAM therapies:** Unfortunately, for most CAM therapies, there is currently very limited information regarding potential risks and benefits. In the absence of scientific evidence, it may be fairly obvious that some therapies (such as art therapy) are safe, while it may be more difficult to determine the safety of others (such as high-dose vitamins).
- 3) Discuss CAM therapies with your care providers:** Some families feel uncomfortable discussing their thoughts about using CAM therapies. However, health care providers understand that CAM use is very common and they want to be helpful in the difficult process of deciding whether to use specific therapies. Think of your care provider as your “coach,” who will help you evaluate the evidence and alternatives– but ultimately, you will decide what is best for your child. Also, when using a CAM therapy, it is much safer to have a health care provider help monitor for possible side effects and benefits.
- 4) Delays in the use of proven therapies.** Some families may initially focus their efforts exclusively on treating their child with CAM therapies, which may delay the use of therapies with proven benefits that could have been most helpful for the child.
- 5) Time trade-off:** If the use of CAM therapy involves a significant investment of time and effort, remember that this involves a trade-off. If families spend hours and hours preparing a very restricted diet, it may take away from the time and energy needed to provide other therapies, such as behavioral interventions. Caring for a child with an ASD often involves a great deal of stress, time, and energy, and it is crucial to prioritize efforts towards the most beneficial treatments.

How do I evaluate the scientific evidence on CAM therapies?

The highest-quality scientific study for evaluating the efficacy of any intervention (CAM or traditional) is the double-blind, placebo-controlled, randomized trial. These studies create groups of patients that are very similar (similar age, similar socioeconomic status, similar severity of disease, etc.) by randomly assigning patients to a treatment or control group. The use of double-blinding indicates that neither the patient nor the persons conducting the study know whether any given patient is receiving the “real” treatment or an identical, inactive (placebo) treatment. Therefore, patients and study personnel should not be influenced when judging whether they have improved (because they do not know whether they are taking the active or the placebo treatment). Once the study is completed, the investigators “unblind” the data, and determine if patients in the active group improved more or less than patients in the placebo group.

Unfortunately, there have been few high quality randomized controlled trials conducted on CAM interventions for ASDs. Therefore, most of the evidence regarding the efficacy of CAM interventions for ASDs comes from anecdotal reports (also known as case reports when they are published in the medical literature). These reports generally describe a child with an ASD who was given a CAM treatment (such as hyperbaric oxygen) and who improved, sometimes dramatically. These reports provide preliminary evidence that a therapy might be effective, but they are extremely limited for several reasons:

- 1) Case reports have no comparison group, so it is not clear whether similar patients (or the same patient) would have improved without the intervention (this problem is sometimes referred to as a lack of information about the “natural history of the disease”). Because symptoms of ASD often vary from day-to-day or week-to-week in an individual child, it may be difficult to tell if the CAM treatment (or something else) led to the improvement.
- 2) Case reports are not blinded, so both the patient and the person assessing the outcome are aware of the treatment. This may lead to a biased interpretation of the effect (for example, an acupuncturist might firmly believe in the efficacy of the acupuncture for ASD, and might tend to overestimate the effect). Also, the lack of blinding can lead to a placebo effect, where the observed benefit is not due to the intervention, but to an expectation of benefit.
- 3) Case reports often involve one or just a few patients, and it is not clear if they are representative of the larger group of children with ASD.

There are many examples in traditional medicine where widely held medical beliefs (based on case reports or other similar “observational studies”) were later proven incorrect by the higher-quality randomized controlled trials. For example, for decades it was well established medical practice that when post-menopausal women were given estrogen, they seemed to have less heart disease. It was not until several large randomized controlled trials were conducted that it was discovered that estrogen had no beneficial effects on heart disease.⁷

However, it should also be mentioned that many of the most important scientific discoveries originally came from case reports, and the value of case reports to suggest important possibilities should not be underestimated. For example, the phenomenon of a group of 11 men (who were either homosexual or intravenous drug users) becoming immune deficient was originally described in a case series.⁸ This “anecdotal” observation or case series led to the discovery of the AIDS virus.

For the vast majority of CAM therapies for ASD, there is little or no evidence to document efficacy. **However, the lack of evidence should NOT be equated with a conclusion that a therapy is ineffective.** In the absence of scientific evidence, there is an equal chance that any therapy will be beneficial or harmful.

We strongly recommend that you discuss the evidence regarding risks and benefits of each CAM therapy with your child’s health care provider to help you decide whether to use and how to monitor the effects of a specific treatment. We have additional handouts that summarize the scientific evidence for the most commonly used CAM therapies used for ASD.

Table 1: Commonly used CAM therapies by families of children with ASD:

Probably low risk, and benefits unknown
Omega-3 fatty acids
Vitamin B6, B12
Probiotics
Gluten-free/Casein-free diet and other “elimination” diets*
Music Therapy, Art Therapy, and other creative outlets
Auditory Integration Therapy
Occupational Therapy (Sensory Integration Therapy)
Potentially high risk, and benefits unknown
Chelation (Dimercaptosuccinic acid – DMSA)
Hyperbaric oxygen
Digestive enzymes
Anti-fungal medications (nystatin, fluconazole, garlic oil, colloidal silver)
Minerals (iron, zinc)
Proteins/amino acids (carnosine, tetrahydrobiopterin, dimethylglycine)

*Although diets are generally low-risk in the short-term, long-term use of a restricted diet may lead to malnutrition and often involves substantial time, which may detract from other therapies.

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