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## **STRATEGIES FOR ADHD MANAGEMENT**

Attention Deficit Disorder customarily referred to as ADD or ADHD as it is properly called these days, has become a well-known phenomenon in modern times. The disorder may be seen with or without hyperactivity in the most common forms. There are some other sub-types of ADHD which may include other signs and symptoms beyond poor attention, disorganization, poor follow-through and the like. These may include excessive worry, oppositional behavior, inflexibility, emotional outbursts, moodiness, social isolation, low self-esteem, hopelessness, and/or anxiety. There are also times when other disorders, called co-morbidities (which sounds pretty awful but it just means having two problems at the same time like diarrhea and sore throat during a bout of flu), are present along with ADHD. It can be challenging even for experienced professionals to make accurate diagnostic calls in these cases.

ADHD is thought to be largely an inherited problem of neuronal under-arousal. What does this mean? It means that a person with ADHD has areas of the brain containing cells that are somewhat inactive compared with normal brain functioning. S/he unintentionally tries to get the brain awakened either internally, by increased thinking or daydreaming, or externally, such as by paying more attention to other people or interesting events. Sometimes the person with ADHD gets stimulated by creating conflicts with other people as a means of waking up their brain. They are usually unaware that this is what they are doing, as it is truly unintentional.

Therapy is aimed at accomplishing two major objectives: activating those areas of the brain associated with ADHD symptoms and cultivating improved coping strategies. The most effective approach to treating ADHD should consider not only medication but also a number of other elements as well. Since medications are usually a very significant component of treatment let's start there.

### **MEDICATION**

Because ADHD is a biologically-based disorder a biologically-based solution is usually indicated as part of the overall treatment. Most, but not all, types of ADHD respond well to stimulant type medications. They appear to be effective because they chemically activate areas of the brain that were naturally under-aroused. Stimulants have been used to treat ADHD for over 60 years and have been extremely well researched.

Many parents are opposed to medications for their children. We wouldn't dare give our kids anything that might harm them even though we might take a drug ourselves. After decades of clinical use and literally mounds of research we know that the risks

associated with medications for ADHD are very low, especially compared with the risks for untreated ADHD. There have been a number of studies pointing to higher risk of substance abuse, mood disorder, academic failure, and legal troubles that have been replicated. If concern over medication is an issue you are right to approach it cautiously, but it should be tempered by scientific information rather than a generally negative emotional reaction. Remember healthcare providers give medication to kids only if we believe they will benefit. We don't have medication prescribed for the benefit or convenience of school, parents, or anyone else.

The two main stimulant medications are Ritalin based and Dexedrine based; they may be either short acting or long acting. Ritalin, known generically as *methylphenidate*, is commonly prescribed as Concerta, Ritalin (either regular or LA, for long acting), and Metadate. Dexedrine and Adderall form the other group. Each has somewhat different properties and may be selected by the prescribing physician to achieve various results. A patient might not do well on one, but have good results with another. Common side effects are decrease in appetite, stomach upset, and sleep disturbance. Like most side effects of stimulants, they are often related to dosage.

Another commonly prescribed medication is Strattera (the generic name is *atomoxetine*). This medication first appeared on the market in January, 2003. It comprises a unique class called *Selective Norepinephrine Reuptake Inhibitor*. It works by making more norepinephrine, a neurotransmitter, bioavailable in the nervous system much the same way that Prozac and Zoloft work on serotonin, another neurotransmitter. Strattera may be effective for you or your child although the jury is still out on its efficacy. It seems to work better on attentional problems when hyperactivity is absent. Some doctors like to prescribe it while others take a more cautious approach and are reluctant to prescribe it until more research accumulates. Common side effects involve the gastrointestinal system.

There are several other medications that can be used as a single agent or in combination with other drugs. It depends on the type of ADHD symptoms that are presented and the individual's unique response to the medication at particular dose levels. It's usually a good idea to remain patient and understand that finding the right medications at the best dose levels is more an art than a science. In addition, it may also be a good idea to take initiative and learn as much as possible about the medicine's properties and side effects to become an active partner with your doctor so s/he can provide the best possible care.

## **NON-MEDICAL CONSIDERATIONS**

While medications may be an important part of an ADHD treatment regimen it is not the only one. The best chances of success will come from considering the ecology of ADHD. That is, we have to take into account the biological, psychological, social, and academic elements.

**Psychological Methods.** Counseling or psychotherapy for ADHD has not been shown empirically to be an effective treatment by itself. But targeted psychotherapy for the related symptoms can be effective. Here too, the approach should be comprehensive. The treatment goal aimed at improving self-esteem and self-

acceptance is often an essential target area that is enhanced with a combination of good results from medication and talk therapy.

Specific techniques to improve mood may also be employed. Anxiety is managed with relaxation, imagery, and sometimes hypnosis. Depression, low expectations of success, and perceptions of inadequacy are treated by modifying self-talk and learning techniques that improve cognitive functioning by correcting faulty beliefs.

Socialization with peers and interactions with family members and teachers or supervisors is also addressed in treatment. Specific behavioral assignments and ways of structuring daily life activities can be learned. Therapists often teach parents how to develop or improve their skills in behavior management which is often a major component of treatment. For teenagers and adults therapists develop personalized plans for self-directed behavior management. The emphasis is on developing a meaningful structure, or rules, that can be counted on along with suitable payoffs.

**Academic Interventions.** For children, adolescents and college students we use a two-pronged approach to achieve academic success. Aside from medication to improve concentration, attention and task orientation we may develop study skill organization based on principles of learning and motivation. Referrals for tutoring can also be made. It's important to distinguish between tutoring to enhance study strategies versus tutoring in a content area. There are many resources available locally. Usually health insurance does not pay for these services.

**Physical Interventions.** There are several areas to consider. First, for a number of health reasons smoking should be eliminated completely by adolescents and adults. Nicotine constricts blood vessels and therefore restricts the flow of oxygenated blood to the brain. Similarly, caffeine also reduces blood flow to the brain. Not only does this make ADHD symptoms worse, but these substances also interfere with the action of medications that have been prescribed for symptom management. Excessive caffeine intake is notorious for increasing anxiety and reducing ability to control impulses. This can lead to behavior that looks a lot like an anger management problem. Beverages containing caffeine should be monitored. In addition to coffee and tea, caffeine can be found in Coke, Pepsi, Mountain Dew, Red Bull, root beer, cream soda and even in chocolate. Get in the habit of reading labels.

Intense aerobic exercise is another essential ingredient for overall ADHD management. Exercise will increase blood flow to the brain and can also stimulate the release of certain brain chemicals that produce calmness and get rise to an improved sense of wellbeing. Vigorous activity three to five times a week for 20-45 minutes should get the job done. Team sports like soccer can be a good way of getting exercise, but some people with ADHD get overwhelmed by all the activity. Many kids with ADHD do extremely well with martial arts because it is individualized and they quickly derive a sense of mastery. If there are any health risks or concerns about exercise the primary care physician should be consulted before starting. The most important thing to consider here in South Florida is exposure to the sun and excessive heat which are worse for people taking certain medications. Here the precautions of using sun screen and good hydration become more important.

**Nutrition.** Most people with ADHD do better with diets that are high in protein and low in simple carbohydrates. Proteins are essential for building neurotransmitters

(i.e., brain chemicals) and will aid in concentration. Reducing or eliminating most simple carbohydrates such as those contained in cookies, cakes, candy, ice cream, white bread, potatoes, sweetened cereals, and fruit juices can make a significant improvement in energy level, emotional stability and focusing ability. Too many simple carbohydrates initially increase blood sugar then blood sugar drops sharply -- to levels that are below those before eating the carbs -- producing fatigue, irritability, and poor attention. Taking daily multivitamin supplements is also a good idea because busy schedules, decreased appetite, unavailability of healthy foods or snacks, and bad habits make it difficult to consistently eat a balanced diet. In addition, since stimulant medications tend to suppress appetite it's a good practice for anyone taking these medications to eat a substantial breakfast, particularly one containing protein.

There have been some recent studies at the University of Pittsburgh on the impact of Omega-3 fatty acids on mood and impulse control. Results suggest that diets rich in this nutrient can be helpful for ADHD sufferers. Omega-3 fatty acids come from fish such as salmon and can be obtained directly through fish oil supplements. An alternative is flax oil supplements which do not leave a fishy aftertaste or fishy burps. The potential benefits for mood are in addition to any cardiovascular benefit that might be obtained from this supplement. There doesn't appear to be any downside.

There was a time when some people believed that ADHD was really just a food allergy. The scientists put this myth to rest a few years ago which confirmed that ADHD is a complex disorder of brain functioning. However, there are some foodstuffs that some people have a bad reaction to and should be avoided. If you know that you or your child reacts badly to food or drinks containing red food color, preservatives, or wheat gluten try to avoid products that contain them. While ADHD is not caused by food sensitivities, if someone is sensitive to certain ingredients ADHD symptoms can be made worse.

**Coaching.** Sometimes coaching to develop better internal controls is a strategy that can help someone with ADHD. Coaching is aimed at setting goals and then determining how to prepare suitable strategies and identify resources to achieve them. Coaching may be more suitable for college students and adults than for younger people. There are psychotherapists, teachers, and professional coaches who can assist in developing and carrying out plans for setting and achieving personal, educational, and vocational goals.

**Neurofeedback.** This is also known as brainwave biofeedback. There is a growing body of research supporting this modality. It works by assisting the ADHD sufferer to learn how to modify chemical-electric activity in those parts of the brain associated with attention, concentration, and impulse control. There are a lot of political and economic forces at work trying to keep neurofeedback out of the reach of average consumers. The FDA has classified neurofeedback equipment medical devices, thereby necessitating testing to follow the same protocol in place for approval of drugs. Research is therefore very expensive and the only ones who will profit are the equipment manufacturers. Pharmaceutical companies only stand to lose money and even if they were major investors in the neurofeedback equipment companies would make a tiny amount of money. So the small number of research studies is growing very slowly. There's no conspiracy; it's just business. In addition, most health insurance policies do not cover neurofeedback treatment. The researchers have

found that in order for treatment to be effective it must be two to three times per week for at least six months and more probably nine months to a year. The cost of a neurofeedback session is between \$50 and \$150 because we have a highly trained neurofeedback therapist using expensive equipment. Then we do not even know how long the benefits of this treatment will last because we're still waiting for the research to answer this question. So, while neurofeedback may be worthwhile the potential benefits probably do not justify the cost in terms of time, money, and effort expended. We'll revisit this in the future because it has great potential. It's doubtful that neurofeedback will ever be a substitute for medication, but may be an important component of a therapeutic regimen.

**Working Memory Training.** Torkel Klingberg, MD, PhD, Professor of Neuropediatrics at the highly respected Karolinska Institute in Stockholm has been studying working memory for several years. He and his team of researchers have made some astounding discoveries that have led to some important conclusions.

First, they emphasize that Working Memory is a key executive function for many cognitive tasks, such as planning, remembering, problem solving and reasoning. When people have difficulty keeping information "online" so to speak, even for just a few seconds, they have trouble paying attention to what's going on and what to do next. The researchers discovered that people with ADHD, as well as a number of other conditions, such as learning disability, show documented significant insufficiency in Working Memory.

It was previously thought that Working Memory was a fixed attribute. But when he and his colleagues started to develop and test methods to improve Working Memory they found that this capacity could be modified and improved. Just like the neurofeedback researchers, they found that the brain is trainable and it can be trained in ways that can make a significant difference to the individual.

Working Memory is a cognitive skill and it can improve with practice. But not just any practice will do. It has to be a certain kind of practice that challenges and refines the skill, even as it gets better. After years of painstaking research, Professor Klingberg came to the conclusion that improving Working Memory is associated with reducing many ADHD symptoms and enhancing a number of functions that are problematic to people with ADHD and other learning disorders.

Then they developed a computer-based game that's fun. The software program, called **RoboMemo**, has been used in Sweden and other European countries for the past six years. It has been tested with thousands of clients with excellent results.

The program itself involves five training sessions per week. Each session lasts about 30 minutes. The entire program can be completed in five weeks. At the end of training the studies show an 80% rate of improvement in Working Memory, impulse control, and complex reasoning. In addition, three months after training was completed 90% of the training benefits remained. Follow up after longer periods show similar results. This program is now available in the US and the results are impressive. Since the program can be done from home it is attractive for many families. It does require a commitment to regular training and a parent or other adult must be available to serve as a training aide. More information can be obtained at [www.cogmed.com](http://www.cogmed.com).

**Video and computer games.** Despite what kids say about this pastime too much of a good thing is actually bad for them. Addiction, in a true sense can result from too much time on video and computer games. A certain part of the brain (i.e., basal ganglia) becomes more active during play and releases the neurotransmitter dopamine, resulting in the experience of pleasure. The mechanism of action is similar to what cocaine does in the brain, only on a much lower level of intensity. The more dopamine that is released the more depleted it becomes which means there is less available for other activities like school work, chores, or pleasure reading. The net result is that video and computer games become more attractive while everything else becomes less enjoyable and boring. Also, while rare, there are documented cases of children having seizures due to photophobic effects of the screens. Limiting video and computer games to no more than one hour a day is reasonable.

### **FOLLOW-UP AND MONITORING PROGRESS**

No matter what approach or methods are used to effect symptom reduction or strategies for improved coping it's a good idea to have some kind of system in place to provide a means for assessing if anything is happening. First, we have to start with identifying some goals. Whether and to what extent the goals are being reached can come from self-report, ratings by parents, teachers or spouses, and other indirect measures of performance, such as grades on tests or report cards or indices of work success. We can also look at results of Continuous Performance tests (CPT). These are computer-based methods that assess ability to maintain focus and attention on simple, repetitive tasks. Results of CPTs can be a useful factor for evaluating not only how much progress is being made, but can also provide such refined results that it can be useful for adjusting medications and titrating dosages. Insurance does not usually pay for CPTs, which should be repeated. It's usually better to rely on more than one method to determine if and how much progress is being made.