

CALIFORNIA PSYCHOTHERAPEUTIC RESOURCES, INC.

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Patricia McTague-Loft has undergone rigorous training in Counseling Psychology with an emphasis in Marital and Family Therapy. In addition, she has completed the [Amen Clinics' Brain SPECT Course](#) on how to implement a brain system approach to diagnosis and treatment of mental illness.

Sincere thanks to **Dr. Daniel Amen** for preparing the information below.

Please visit the [Amen Clinics website](#) for more information about their multi-modal approach to treatment that uncovers the root cause of your issues or challenges that are not discovered by traditional psychiatry.

What is ADD?

Attention Deficit Disorder is a neurobiological disorder (a physical disorder of the function of the brain) that is usually lifelong. It has a high genetic transmission, thus it is common to see many members in the extended family display ADD symptoms.

The hallmark symptoms of ADD include a short attention span (for regular, routine, everyday tasks), distractibility, restlessness, impulse control problems, and organizational problems. The symptoms of the disorder must be present over time (this is not a disorder brought on by stress, although stress certainly makes it worse), and they must interfere with a person's ability to fully function in their lives.

ADD is known to affect between 5–10% of the population. It used to be considered a disorder affecting mostly boys, but current research tells us that girls are affected much more commonly than once thought. There are several subtypes of the ADD which we will go into in great detail later on in the book.

What Causes ADD?

ADD is currently thought to be the result of too little dopamine (a brain chemical that is involved with motivation, concentration and impulse control) in a part of the brain called the basal ganglia. This part of the brain (which is toward the center) has nerve tracts going back and forth from the brain stem through the basal ganglia to the prefrontal cortex. Because of a dopamine deficiency, the prefrontal cortex does not turn on or work as hard as necessary in order to fully function, causing problems with attention span, judgment, impulse control, organization, planning and restlessness.

Think of the prefrontal cortex of the brain (the part of the brain at the very front tip underneath your forehead) as your supervisor. It is the part of the brain which supervises your actions, deciding which ones help you and which ones do not, making choices between alternatives before you act. The prefrontal cortex is the most evolved part of the brain and by ratio it is largest in human beings. The functions of this part of the brain include: concentration, attention, judgment, impulse control, organization, planning, and follow through. When this part of the brain doesn't get enough dopamine it has trouble turning on like it should and thus becomes a much poorer supervisor of behavior.

Beginning in February 1991, my colleagues and I began doing brain SPECT imaging studies on patients with ADD. Brain SPECT is a nuclear medicine study which looks at brain activity and blood flow. The initial work was inspired by two pioneers in the field of ADD.

Alan Zametkin, M.D. from the National Institutes of Mental Health published an article in 1990 in the *New England Journal of Medicine* on the use of PET (positron emission tomography) studies, also a nuclear imaging study, in ADD. He demonstrated that adults with ADD had decreased brain activity

in their prefrontal cortex in response to an intellectual challenge, rather than the expected increase in activity that was seen in normal “control” adults.

This information was consistent with Dr. Lubar’s work with computerized EEG brain wave studies on children and adolescent patients with ADD. His studies found that when these patients performed a concentration task, such as reading or copying figures, there was an increase in prefrontal cortex theta activity (slow brain wave activity) rather than the expected decrease in slow wave activity that is found in normal controls.

Both of these findings were consistent with prefrontal cortex deactivation in response to an intellectual stress in children, adolescents and adults with ADD. The more these people tried to concentrate, it appeared, the worse thinking and concentrating became for them. This is a particularly interesting finding in light of the clinical fact that ADD children are often very “stimulation seeking.” It is not at all unusual to find in the history gathered from the parents that these children are continually making other people angry or upset with them. Could this be an attempt for them to try to stimulate their own brains? For the person to treat himself to feel more normal?

In performing SPECT studies on thousands of children, teenagers and adults with ADD, I have seen the same prefrontal cortex “turn off” that has been reported by Drs. Zametkin and Lubar. When people with ADD try to concentrate, the prefrontal area of the brain (which controls attention span, judgment, impulse control and motivation) decreases in activity. When normal control groups perform concentration tasks, there is increased activity in this part of the brain. So, the harder people with ADD try, the worse it gets for them.

When I explain this phenomena to my patients, I use the following illustration: “When you have ADD, it is like putting your foot on the gas pedal of a car; you expect the car to go faster but it doesn’t. It actually goes slower!” This is a very important point to remember. ADD is a physical, neurobiological disorder.

Having decreased activity in the front part of the brain is likely a very uncomfortable state of mind. Because of this, I have postulated that many ADD children, teens and adults “subconsciously” seek stimulation as a way to turn their brains back on. Hyperactivity, restlessness and humming are common ways people with ADD try to stimulate themselves. Another way I have seen these people “try to turn on their brains” is by causing turmoil. If an ADD child can get his parents to yell at him that might increase activity in his prefrontal cortex and help him to feel more alert. It is very important to emphasize that this is not a conscious phenomenon! These people do not know that they are doing this to get their brain turned on, but it seems many ADD people become addicted to the turmoil. They repeatedly get others upset with them even though there is no conscious benefit to their behavior. This is “Pavlovian” or conditioned behavior.

I once treated a man who would quietly stand behind a corner in his house and jump out and scare his wife when she walked by. He liked the charge he got out of her screams. I have also treated many ADD adults and children who seemed driven to get their animals upset by rough play or teasing them.

The parents of ADD children commonly report that the kids are experts at getting them upset. One mother told me that when she wakes up in the morning, she promises herself that she won’t yell or get upset with her 8-year old son. Yet, invariably, by the time he is off for school, there have been at least three fights and both of them feel terrible. When I explained the child’s subconscious need for stimulation to the mother, she stopped yelling at him. When parents and spouses stop providing the negative stimulation (yelling, fighting, lecturing, etc.) the negative behaviors diminish in frequency. Whenever you feel like screaming at someone who has ADD, talk as softly as you can. At least in that way you’re breaking their addiction to turmoil and lowering your own blood pressure. — *Dr. Daniel Amen*