

Could a Hidden Infection Be Causing My Child's Psychiatric and Behavioral Problems?

What could make a happy-go-lucky child develop symptoms of obsessive-compulsive disorder (OCD) seemingly overnight or start throwing temper tantrums and banging his head when he gets frustrated? What could make another child instantly develop an aversion to food so strong she vomits at the sight of it? What would explain a straight-A student suddenly developing a learning disability or difficulty with their handwriting?

Tragically, more and more parents are asking these questions as their children, teens, and even some young adults suddenly develop neuropsychiatric illnesses that have no clear connection to a cause. And these parents are rarely getting any clear answers or effective treatment options from their primary care physicians. Frequently, parents are advised to seek psychiatric care for their children, which often leads to medication that fails to treat the underlying medical issues and causes other health issues.

Fortunately for these children and their parents, there is a possible explanation and treatment options that target the root cause of these mysterious illnesses. These children may be suffering from a condition referred to as Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcal Infections (PANDAS) or, more generally, Pediatric Acute-onset Neuropsychiatric Syndrome (PANS).

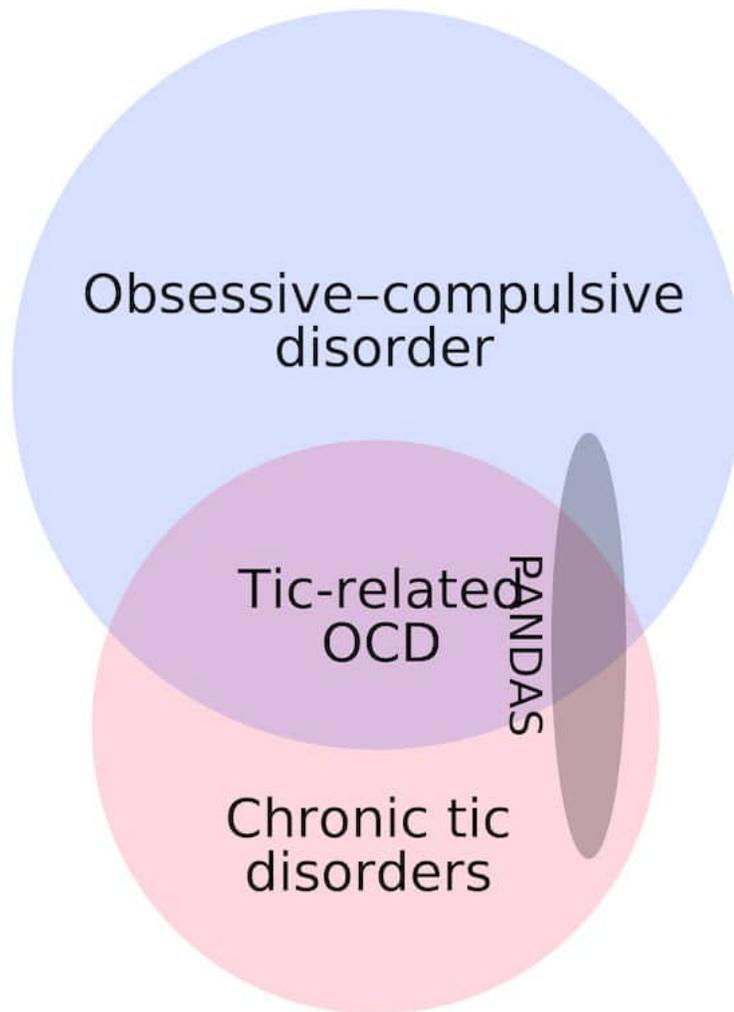


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What Are PANS and PANDAS?

PANS and PANDAS are autoimmune conditions that disrupt neurological function. With any *autoimmune* condition, the immune system attacks healthy cells of the body when it should be attacking only pathogens, such as harmful bacteria and viruses. In the case of Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcal Infections (PANDAS) or Pediatric Acute-onset Neuropsychiatric Syndrome (PANS), the immune system attacks certain cells in the nervous system, including cells of the brain and spine.

Why would the immune system attack the body it is supposed to protect? Usually because the pathogen it is trying to eliminate from the body has taken on the appearance of healthy human cells to hide from the immune system – a self-defense technique called *molecular mimicry*. Unfortunately, these harmful microbes are so good at mimicking healthy cells that the immune system ends up attacking both the harmful microbes and the body's own cells, causing inflammation and dysfunction.

PANS is a broad classification of autoimmune conditions that affect brain and nerve cells and is caused by nearly any infection that triggers an immune response. Currently, the following infections are thought to be primarily responsible for triggering PANS:

- Mycoplasma pneumonia (commonly called “walking pneumonia”)
- Streptococcus (the bacteria that causes “strep”)
- Influenza virus (commonly referred to as “the flu”)
- Epstein Barr (a virus that causes “mono”)
- Borrelia Burgdorferi (the bacteria carried by ticks that causes Lyme disease)
- Varicella (the virus that causes chickenpox and shingles)
- Herpes simplex (the virus that causes herpes)

PANDAS is a subset of PANS that's associated specifically with streptococcal infection. PANDAS was actually discovered nearly a decade before PANS, and we know much more about it than we know about other illnesses classified as PANS.

Recognizing the Symptoms

Children, teens, and some young adults afflicted with PANS or PANDAS typically demonstrate a dramatic change in their health or behavior overnight or over the course of only one or two days. Symptoms include the following:

- **ADHD-like symptoms:** Fidgeting, inability to sit still, difficulty concentrating, hyperactivity.
- **Changes in personality or mood:** For example, a child who's usually very social becomes withdrawn, or a generally happy child becomes depressed, irritable, or moody. Mood swings may also occur – happy one minute, throwing a tantrum the next. Or the child may express emotions that are uncharacteristic of the child or seem unsuitable or disproportionate to the situation.
- **Depression-like symptoms:** The child may appear sad, withdrawn, or uninterested in engaging in activities he or she used to enjoy.
- **Food restriction:** Aversion to food or specific foods (sometimes because of their smell, appearance, or texture), lack of interest in eating, weight loss or nutritional deficiencies from not eating enough or not eating a variety of foods.
- **Impaired fine motor skills:** For example, difficulty with handwriting, drawing, imitating subtle facial gestures, pronouncing words, blowing bubbles.
- **Increased urination:** Increase in urination frequency during the day, wetting the bed at night, or both.
- **Obsessive thoughts and compulsive actions:** An inability to let go of certain recurring and distressing thoughts, sensations, or ideas and engagement in certain repetitive behaviors to provide relief from that mental distress.
- **Separation anxiety:** Excessive anxiety over being separated from parents, caregivers, siblings, or friends.
- **Sleep problems:** Difficulty falling asleep or staying asleep.
- **Tics:** Uncontrolled, repetitive physical movements, such as twitches, grunts, or repetition of words (like symptoms of Tourette's syndrome).
- **Trouble in school:** A child who generally behaves and

performs well in school suddenly begins having behavioral problems or difficulty with schoolwork.

What separates PANS and PANDAS from other conditions such as obsessive-compulsive disorder (OCD), attention deficit hyperactivity disorder (ADHD), eating disorders, and so on, is the sudden, unexplained onset of symptoms. Also, symptoms of PANS and PANDAS are triggered by infection, as explained earlier in this post (PANDAS is linked specifically to streptococcal infections). However, the connection between infection and PANS or PANDAS symptoms is not always obvious. In fact, a child doesn't even have to exhibit symptoms of infection – some children get infected but never have the classic symptoms of streptococcal or other infections. In other cases, a child may have had an infection a long time before experiencing PANS or PANDAS symptoms, or the infection may have caused minor symptoms that seemingly went away on their own when the virus or bacteria really was just lying dormant or in hiding. PANS and PANDAS patients often test positive for viral or bacterial infection or for antibodies created to fight past infections.

Understanding the Infection-Autoimmunity Connection

PANS and PANDAS are triggered by an infection that causes the immune system to mistakenly identify healthy cells of the body as alien invaders and attack them. With PANS/PANDAS, the immune system targets the cells of the *basal ganglia* – the part of the brain responsible for learning, behavior, emotions, and fine-motor skills (such as handwriting, drawing, and speaking).

The path from infection to PANS/PANDAS symptoms is a three-step process:

- 1. Child is infected with a harmful bacteria or virus.** For example, strep throat, the flu, chicken pox, Lyme disease (from a tick bite), or some other disease-causing microbe

(bacteria or virus).

2. **Invading microbes take on the appearance of the body's cells.** To hide from the immune system, the microbes surround themselves with molecules that are nearly identical to the molecules found in healthy cells of the body (molecular mimickry). This cloaking mechanism keeps the microbes hidden, enabling them to multiply undetected.
3. **The immune system attacks.** Eventually, the immune system detects the invading microbes and launches an attack to eliminate them from the body. Unfortunately, because the microbes now look like healthy cells, the immune system attacks those cells, as well. In the case of PANS/PANDAS, it attacks the cells of the basal ganglia and other cells in the nervous system causing inflammation, which results in the rapid and severe onset of neurological symptoms.

PANS/PANDAS Diagnosis and Treatment: Discover, Repair, Optimize

Here at BioDesign Wellness Center, we follow a three-step protocol to diagnose and treat Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcal Infections (PANDAS) and Pediatric Acute-onset Neuropsychiatric Syndrome (PANS) – Diagnose, Repair, and Optimize:

1. **Diagnose:** Unfortunately, no lab test is available for the *direct* detection of PANS/PANDAS, but we can diagnose or rule out PANS/PANDAS through a clinical evaluation of the patient and his or her medical history along with lab tests to detect any active, dormant, or hidden (occult) infections. That said, lab tests do help to identify the presence of harmful bacteria or viruses or the presence of antibodies to those bacteria or viruses, and there's a company in Oklahoma City, Oklahoma – [Moleculera Labs](#) – that offers a test that looks for the neurological biomarkers associated with brain inflammation, helping us

to establish PANS/PANDAS as the diagnosis. The Molecularera that panel we run, named the Cunningham Panel™, and is now offered as a test option here at Biodesign Wellness in Tampa.

2. **Repair:** Repair involves fighting the infection, restoring immune system health and function, and reducing inflammation:

- **Fighting the infection:** Antibiotics or antiviral medications and/or supplements. Here at BioDesign, we favor the use of natural antibiotics, since many of our patients have already been prescribed multiple antibiotics by other physicians – antibiotics that have not resolved their concerns. If antibiotics are needed, we are happy to work with your child’s pediatrician or neurologist to assist in guiding treatment.
- **Restoring immune system health and function:** The gut plays a huge role in immune function, so a key component of treatment focuses on restoring gut health – repairing the lining of the gut and restoring balance to beneficial microorganisms that populate the gut. A gentle, medically supervised detox protocol is also essential to destress the immune system. And we work on improving restorative sleep; the body repairs itself as we sleep.
- **Reducing inflammation:** An overactive immune system causes inflammation. Many of the treatments that restore healthy immune function reduce inflammation, too, but we also have treatments that specifically target the inflammation. Proper diet is essential, so we work toward identifying and eliminating or reducing certain inflammatory foods from the diet, including sugar and other sweeteners, refined carbohydrates, trans fats, dairy, and gluten.

Specific supplements, such as healthy oils, also help to reduce inflammation.

3. **Optimize:** Our objective is not merely to make our patients “not sick,” but to restore optimal health. We look beyond the symptoms to identify the root causes of illness and dysfunction and provide the body everything it needs to be healthy. Our examination includes an evaluation of any nutrient deficiencies or other underlying issues that may be preventing optimal health and fitness.

Preventing PANS/PANDAS

Naturally, children are going to be exposed to germs, and this exposure is not necessarily bad. In fact, it is essential for building a strong immune system. The trouble is when the immune system is weakened or becomes overwhelmed. Several factors can stress the immune system, including the following:

- Increased exposure to toxins in our diet and environment or the body’s inability to sufficiently detox
- Gut dysbiosis (an imbalance of microorganisms in the intestines) and/or leaky gut (caused by damage to the lining of the intestines)
- Nutritional deficiencies
- A sedentary lifestyle
- Excessive emotional and psychological stress
- Poor sleep (quantity or quality)

These factors that contribute to the onset of autoimmune disorders, including PANS and PANDAS, provide important clues for what parents and children can do to support immune system health and function. Here are a few suggestions:

- **Reduce exposure to toxins:** Eat organic and lower on the food chain; use natural cleaning products around the home; avoid nonstick pans and plastic tableware; avoid chemical

pesticides; avoid drinking out of plastic bottles; don't reheat foods in plastic containers; air out your home regularly; and spend more time in nature. These are just a few suggestions. Unfortunately, we live in a very toxic world.

- **Drink plenty of pure water:** One of the best ways to detox is to drink water, which helps flush toxins from the body.
- **Support gut health:** Eat a healthy diet, mostly plants (fresh veggies and fruits) along with high-quality proteins and healthy fats. Reduce sugary foods and beverages, simple carbs, and artificial sweeteners, all of which contribute to inflammation and can cause an imbalance in the beneficial microorganisms that inhabit the gut. Include fermented foods in the diet, such as unsweetened yogurt, kefir, sauerkraut, or even a probiotic supplement developed for children (we can recommend one). Avoid foods that trigger an immune response; we can help identify problem foods.
- **Destress:** We all know the negative impact stress has on our health as adults, but it also impacts the health of children. We encourage children to excel in school, sports, and other activities, but try to maintain a balance that includes some time for relaxation.
- **Improve sleep:** The body heals itself as we sleep, so prioritize both sleep quantity and quality. Maintain a regular sleep schedule as much as possible, keep electronics out of the bedrooms, and no screen-time an hour before bedtime.

Getting Help for Your Child

Nothing is as frustrating and heartbreaking as a parent as having to watch helplessly as your child suffers. If you suspect that your child has PANS or PANDAS or any other neuropsychiatric condition that has no clear explanation, we urge you to consult

with an [Tampa Functional Medicine](#) practice that is educated and trained to identify the root causes of illnesses and not merely treat symptoms.

If an Functional Medicine-focused practice with BioDesign Wellness is not an option for some reason, print this post and other articles and research about PANS and PANDAS and bring them with you to your child's next doctor's appointment. PANS and PANDAS are widely recognized in the medical community, but that is no guarantee that your child's doctor is aware of these conditions. Ask your child's doctor if he or she has considered the possibility of PANS or PANDAS as a way to tactfully start the conversation.

Also, here are a few more resources that may be helpful:

- [The PANDAS Physicians Network](#)
- [National Institute of Mental Health: PANDAS–Questions and Answers](#)
- [PANDAS Network](#)

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Disclaimer: *The information in this blog post about Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcal Infections (PANDAS) and Pediatric Acute-onset Neuropsychiatric Syndrome (PANS) is provided for general informational purposes only and may not reflect current medical thinking or practices. No information contained in this post should be construed as medical advice from the medical staff at BioDesign Wellness Center, Inc., nor is this post intended to be a substitute for medical counsel on any subject matter. No reader of this post should act or refrain from acting on the basis of any information included in, or accessible through, this post without seeking the appropriate medical advice on the particular facts and circumstances at issue from a licensed*

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