

# Finally, a clear picture of ADHD.

Your guide to objective testing and treatment.



Information provided by:

**Quotient**<sup>™</sup>  
ADHD system

Because there's more to know.



Every person with ADHD tells a story.



### Could your child have Attention Deficit Hyperactivity Disorder (ADHD)?

Just by opening this brochure, you've already taken a very important step in identifying ADHD. And by seeing your healthcare professional for a thorough evaluation, including a simple new test—the Quotient™ ADHD System—you'll be armed with more detailed information than ever before.



# Understanding it begins here.

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Since ADHD is a complex disorder and may involve other conditions, only trained medical professionals can give you a clear picture of what's going on and help you find the best possible treatment. This brochure will help answer your questions about ADHD and how it's diagnosed.

### **Attention Deficit Hyperactivity Disorder (ADHD)**

is a neurobehavioral disorder that affects the way an individual functions in different settings, like in school or at home.

The American Psychiatric Association Diagnostic and Statistical Manual-IV Text Revision (DSM-IV-TR) estimates that ADHD affects 3%–7% of children and can last through the teenage years and into adulthood.<sup>1,2</sup>

### **ADHD has three core symptom areas:**

- + Inattention (can't focus)
- + Hyperactivity (can't sit still)
- + Impulsivity (acts without thinking)

**For an individual to be diagnosed with ADHD,** these symptoms must be present at levels that are not in line with his or her stage of development and interfere with normal daily activities.<sup>3</sup> A person with ADHD may face life-long challenges in school, work, and personal relationships, so identifying the disorder and finding the best treatment as early as possible is very important. The good news is, diagnosing ADHD just got easier—and with proper treatment, many individuals with ADHD can and do lead successful lives.

**While the exact causes of ADHD are not fully known,** research points to genetics (passed down through families) as a strong link to the disorder. Low birth weight, mothers smoking while pregnant, and other problems during pregnancy may also be possible risk factors that contribute to ADHD.<sup>3</sup>

ADHD affects 3%–7% of children and can last through the teenage years and into adulthood.<sup>1,2</sup>

**ADHD is divided into three different subtypes.** Examples of symptoms healthcare professionals usually look for, occurring before age 7 and lasting for six months or longer, include:

### Inattentive Type<sup>2</sup>

- + Difficulty paying close attention to details
- + Makes careless mistakes in schoolwork and other activities
- + Hard for the child to organize activities or finish a task
- + Difficulty following instructions or conversations
- + Is forgetful in daily activities

### Hyperactive-Impulsive Type<sup>2</sup>

- + Fidgets and talks a lot
- + Has difficulty sitting still for very long (like during meals or while doing homework)
- + Runs around or climbs at the wrong time and place.
- + Feels restless and has trouble with impulsive behavior (like interrupting others, grabbing things from people or speaking at the wrong time)
- + Has trouble waiting or taking turns

### Combined Type<sup>2</sup>

- + Symptoms of both types are equally strong





**The American Academy of Pediatrics** recommends that any child between the ages of 6 and 12 who shows signs of inattention, hyperactivity, impulsivity or behavior problems be evaluated for ADHD. If not treated, this potentially lifelong disorder can lead to significant problems for the child, including school difficulties, academic underachievement, trouble with relationships and low self-esteem. It's important that ADHD be diagnosed and treated to prevent these future problems.

A comprehensive diagnostic evaluation for ADHD requires a full, objective assessment.

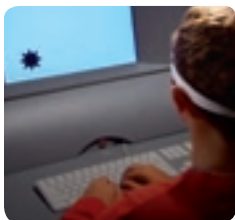
**Five assessment components:**

- + Standard history and physical examination
- + Neurological examination
- + Family assessment
- + School assessment
- + Objective testing with the Quotient™ ADHD System

## A simple, objective test

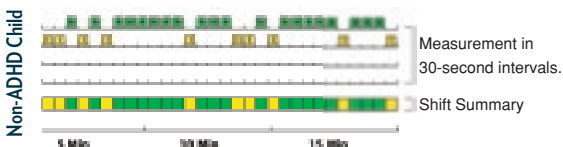
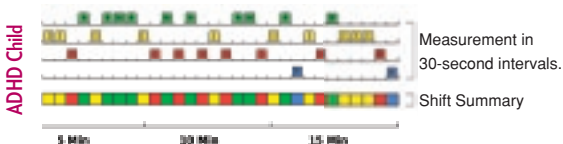
The first test of its kind, the Quotient™ ADHD System helps healthcare professionals in the assessment of ADHD by providing accurate and objective measurements of all three core symptom areas: inattention, hyperactivity and impulsivity.

**The Quotient™ ADHD System** is a 15 to 20-minute test that monitors an individual's movement while he or she attempts to focus on changing visual stimuli. As the test goes on, the system measures the level of inattention, hyperactivity and impulsivity, and provides an objective, simple report right in your healthcare provider's office.



Non-invasive headband monitors progress as child responds to visual stimuli.

## Sample attention state analyses



■ On-Task ■ Impulsive ■ Distracted ■ R.M.C.

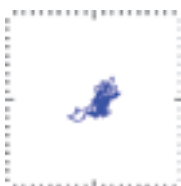
A color-coded chart allows for objective analysis at a glance.

# Every person with ADHD tells a unique story.

## Why is the Quotient™ ADHD System effective?

Individuals with ADHD have a hard time sitting still. They change positions and have a much greater total movement level than non-ADHD patients in the same setting. What sets the Quotient™ ADHD System apart from other ADHD diagnostic tools is that it is the only test that tracks and analyzes movement through a unique Motion Tracking System (MTS). This is important because research shows measurements of motion or hyperactivity may be one of the key indicators of ADHD.<sup>5,6</sup>

### Sample motion results



ADHD Movement



Non-ADHD Movement

Individuals with ADHD have a greater total movement level than non-ADHD patients.

Research shows measurements of motion or hyperactivity may be one of the key indicators of ADHD.<sup>5,6</sup> The Quotient™ ADHD System is the first test to effectively measure hyperactivity through a Motion Tracking System.

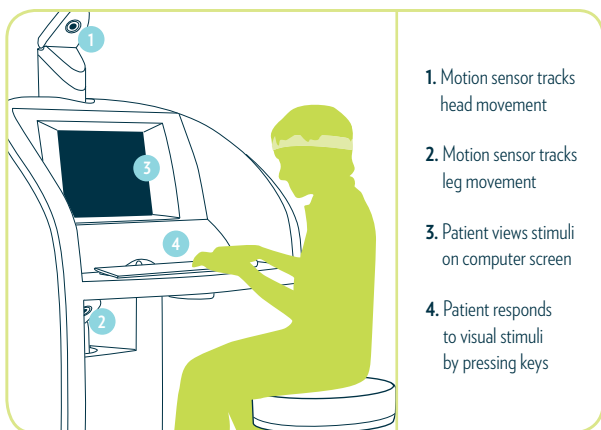


# Now you can read it.

## Here's how it works.

Small round reflectors attached to soft bands are placed on the patient's forehead (and lower legs if the child is over 12 years old). During the Quotient™ ADHD System test, an infrared Motion Tracking System (MTS) records the movement of the reflectors 50 times per second, capturing movements and patterns as small as 0.4 mm. In addition:

- + Patterns of movement and shifts between inattention, hyperactivity, distraction, and impulsivity are measured at the same time, which is also important in distinguishing ADHD from other behavioral disorders
- + Assessment responses are compared to a database of nearly 2,000 tests completed by individuals without ADHD
- + Treatment and progress can be effectively monitored over time in your healthcare provider's office by repeating the test as needed



To learn more about the Quotient™ ADHD System, visit [www.biobdx.com](http://www.biobdx.com).



### **An important note on ADHD treatment**

Treating ADHD can be a challenging process. For the best chance at a positive outcome, a plan should be developed based on the unique needs of your child and family. The best way to do that is to talk with your healthcare provider about all the options and work together to find what's most effective. In this brochure, you'll find a log sheet to help you keep track of your child's progress between office visits once you start your treatment program.

Because of its high reliability, the Quotient™ ADHD System can be used by your healthcare provider to monitor your child's treatment by repeating the test as needed and comparing results.

Those with ADHD often benefit from a multimodal treatment plan that combines several different approaches including:<sup>7</sup>

- + **Parent/Child Education**—training programs that teach consistent parenting skills and help parents learn how to get the services they need to ensure their child's success.
- + **Behavior management**—programs that help children learn problem solving, communication, and self-advocacy skills.
- + **Medication**—treating ADHD with prescribed medicines (like stimulants) under the supervision of a medical professional.
- + **School Programming and Support**—a variety of services legally mandated by the federal government to help children with ADHD and other disabilities get a free and appropriate public education (FAPE).

While there are many schools of thought on what may or may not be helpful in managing ADHD, there is one important fact to keep in mind when looking into alternative or complementary treatments—they have not been tested for safety and effectiveness using standard scientific methods.<sup>8</sup> Some of the more well-known alternative treatments are: changes in diet, nutritional supplements, and sensory training.

**Myth:** ADHD is not a real disorder.

**Fact:** Over the last 100 years studies have shown that ADHD is a very real, ongoing disorder that negatively affects almost every aspect of daily social, emotional, academic and work functioning.<sup>9</sup> Studies also show that children with ADHD have higher rates of other psychiatric disorders, more hospitalizations, emergency room visits, and total medical costs compared to individuals without ADHD.<sup>10</sup>

**Myth:** ADHD is over-diagnosed.

**Fact:** With the increasing number of children being diagnosed with ADHD and the rising number of stimulant prescriptions, critics claim many of these children don't really have the disorder. However, it's hard to find proof that ADHD is over-diagnosed or that stimulant medications are over-prescribed.<sup>11</sup>

One reason for these claims might stem from changes in special education legislation in the early 1990s. These legal mandates brought national attention to ADHD as a handicapping condition and increased the number of school-based services available to children with ADHD, which may have led some to think that ADHD is a new disorder that is now over-diagnosed.<sup>12</sup>

**Myth:** Bad parenting causes ADHD.

**Fact:** ADHD is a brain-based disorder and, in the majority of cases, stressful situations in the environment can make ADHD more problematic.<sup>13</sup> This is why behavior management training is key to a successful treatment program. Since ADHD tends to run in families, many adults with ADHD are diagnosed only after the disorder is recognized in their children.

**Myth:** Children eventually outgrow ADHD.

**Fact:** ADHD is a common condition affecting 3-7 percent of school age children with symptoms lasting into adulthood in as many as 60% of cases (nearly 4% of adults).<sup>2,3</sup>

**Myth:** Children with ADHD cannot do well in school.

**Fact:** ADHD has nothing to do with intelligence. A child can be very bright and still have ADHD. While school will certainly pose challenges, there are things you can do to help your child succeed:<sup>13</sup>

- + Learn all you can about educational rights when it comes to ADHD and become your child's best advocate in getting the best placement and services available.
- + Keep records of your child's important information including papers from all evaluations and meetings as well as contact information for the professionals who have worked with your child.
- + Take an active role and surround your child with people who understand ADHD and want to help.

Getting an accurate ADHD diagnosis and starting a treatment plan as early as possible is the first step toward helping your child succeed in school, work and life. The Quotient™ ADHD System makes that first step easier by taking scientific knowledge about ADHD symptoms and turning it into objective measurements that are easy to interpret.

**For more information about ADHD:****Centers for Disease Control  
and Prevention (CDC)**

[www.cdc.gov](http://www.cdc.gov)

**National Resource Center  
on ADHD**

800-233-4050

[www.help4adhd.org](http://www.help4adhd.org)

**National Institute  
of Mental Health**

866-615-6464

[www.nimh.nih.gov](http://www.nimh.nih.gov)

**WebMD**

[www.webmd.com](http://www.webmd.com)

*Books:****ADHD: A Complete  
and Authoritative Guide***

M.I. Reiff, MD, Editor-in-

Chief, with S. Tippins

American Academy

of Pediatrics

October 2003

***Making the System Work  
for Your Child With ADHD***

P.S. Jensen

Guilford Press

2004

**To find a support group:****Children and Adults with  
Attention Deficit/Hyperactivity  
Disorder (CHADD)**

8181 Professional Place, Suite 150

Landover, MD 20785

301-306-7070

[www.chadd.org](http://www.chadd.org)

**Attention Deficit  
Disorder Association  
(ADDA)**

P.O. Box 543

Pottstown, PA 19464

484-945-2101

[www.add.org](http://www.add.org)

**For more details about the Quotient™ ADHD System:****Biobehavioral Diagnostics Company**

877-246-2397 (Toll-free in the US)

[quotient-adhd@biobdx.com](mailto:quotient-adhd@biobdx.com)

[www.biobdx.com](http://www.biobdx.com)

## Terms you should know:

**Attention Deficit Hyperactivity Disorder (ADHD)**—a common neurobehavioral disorder that affects the way the a child functions in different settings. The three major symptoms of ADHD include inattention, impulsivity and hyperactivity. It is usually diagnosed in early childhood and often lasts into adulthood.<sup>2</sup>

**Attention Deficit Disorder (ADD)**—an older term once used to describe ADHD. For those who may have been diagnosed with ADD, the current terms would most likely be ADHD of the Inattentive Type.<sup>14</sup>

**Behavior Management**—you, your child, and his or her teachers learn specific skills from a therapist to help improve your child's behavior and interaction with others.<sup>15</sup>

**Free Appropriate Public Education (FAPE)**—public schools are required by federal law to provide regular or special education aids and services to meet the needs of individuals with disabilities, including children with ADHD.

**Individuals with Disabilities Education Act (IDEA)**—a key federal law that protects the rights of students with disabilities in public schools.

**Multimodal Treatment**—a treatment plan that combines multiple approaches working together to meet a child's unique needs.

**Neurobehavioral Disorder**—a disorder that affects the way the brain controls emotion, behavior and learning.

**Quotient™ ADHD System**—a simple test performed at a computer kiosk in your doctor's office to provide accurate, objective measurements of the 3 major symptoms of ADHD (inattention, hyperactivity and impulsivity) for a better-informed diagnosis.

**Section 504**—a section of the Rehabilitation Act of 1973 that guarantees certain rights to individuals with disabilities to protect their ability to participate in federally-funded programs.

### Treatment plan

Use the tear-off card to record daily progress—or setbacks—between visits to your healthcare provider. This will help him/her have a more accurate view of how your treatment plan is working and where changes might be needed.

For a printable version of this chart, please visit [www.biobdx.com](http://www.biobdx.com).







Day/Date/Time

Describe behavior

Action taken

Medication/Dose  
*(if applicable)*

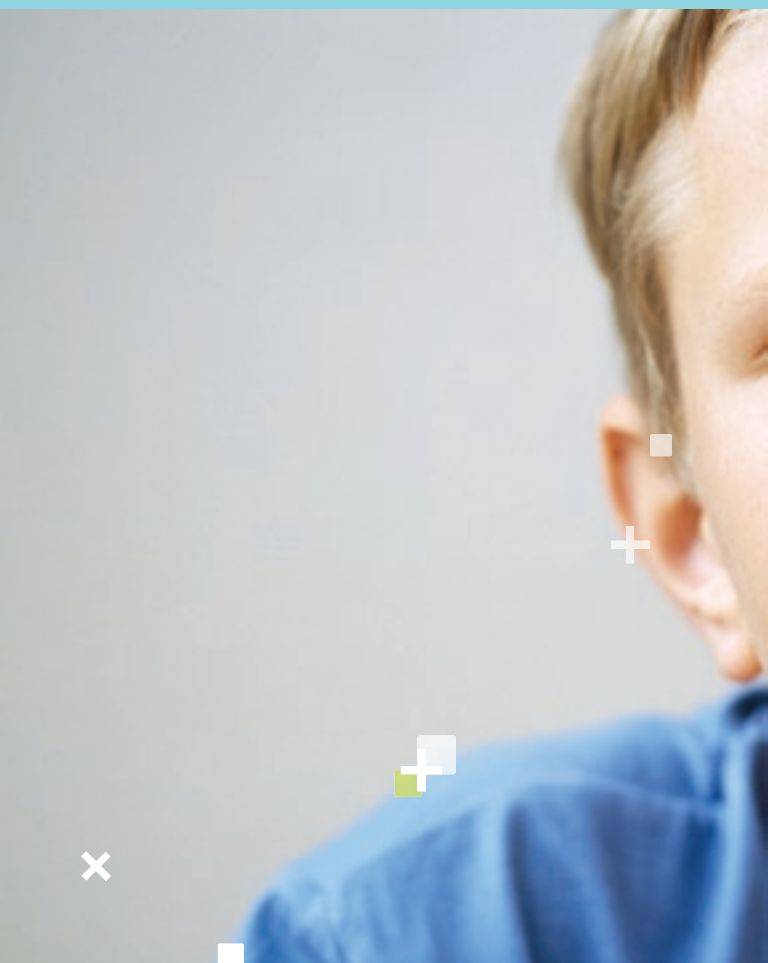
Inattention  
*(Can't focus)*  
Better/worse/same

Hyperactivity  
*(Can't sit still)*  
Better/worse/same

Impulsivity  
*(Acts without thinking)*  
Better/worse/same

Day/Date/Time	Describe behavior	Action taken	Medication/Dose <i>(if applicable)</i>	Inattention <i>(Can't focus)</i> Better/worse/same	Hyperactivity <i>(Can't sit still)</i> Better/worse/same	Impulsivity <i>(Acts without thinking)</i> Better/worse/same

Questions for healthcare provider:



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Contact:

# Quotient™

ADHD system

Because there's more to know.

**Biobehavioral Diagnostics Company**

1-877-246-2397 (Toll-free in the US)  
quotient-adhd@biobdx.com

The U.S. Food and Drug Administration has cleared the Quotient™ ADHD System for marketing through a 510(k), which clearance permits the product's sale in the United States.

Indications For Use:

The Quotient™ ADHD System provides clinicians with objective measurements of hyperactivity, impulsivity and inattention to aid in the clinical assessment of ADHD. Quotient™ ADHD System results should be interpreted only by qualified professionals.