

## **Navigating Medication as part of ADHD Treatment - Stimulants versus Non-stimulants**

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Intro:

Navigating ADHD medications can feel overwhelming, especially with so many options to consider. How do you determine the right choice? In this article, we hope to explore stimulant and non-stimulant medications for ADHD, shedding light on how they work and what factors to consider when making an informed decision.

### **ADHD and Medication: How the Brain Works**

Before we can begin to understand how ADHD medications work, we need to first understand how an ADHD brain can be different from a typical brain. All brains are made up of nerve cells called neurons that can send and receive signals to each other to control everything we do, whether it is focusing in class or laughing at Youtube videos. To communicate, the neurons use chemicals called neurotransmitters. There are different types, but two important ones to keep in mind are Dopamine and Norepinephrine. These neurotransmitters play a big role in helping us focus, feel motivated, control our emotions, and have energy. Scientific research says that the ADHD brain tends to have lower levels of dopamine and norepinephrine in certain parts of the brain, especially those that control focus, impulse control, and organization. Because of this, the ADHD brain

- Can find it harder to stay focused on tasks, especially boring ones.
- Can seek out stimulation (like fidgeting, daydreaming, or taking risks) to feel activated.
- Can struggle with impulse control (like blurting things out or acting before thinking).

The good news is, medication for ADHD can actually target dopamine and norepinephrine levels in the brain, making it easier for nerve cells to communicate and improve focus, self-control, and attention.

### **Stimulant Medication for ADHD**

Stimulants are the most commonly prescribed medications for ADHD and are often the

first choice. There are two types of stimulant medications: methylphenidate-based and amphetamine-based. Both types have either short-acting or long-acting options. Some research shows that long-acting stimulants are more effective in terms of weighing benefits and risks: longer duration, less need for multiple doses, more compliance, targeting more symptoms, and overall treatment response. Both types can be effective, but some people respond better to one than the other. The good news is that if one doesn't work or causes unwanted side effects, stopping a stimulant to change medication usually doesn't have too many side effects because they leave the system quickly.

Some stimulants start to work within 30 minutes and some can take up to 60 to 90 minutes to take effect. How effective a stimulant is does not depend on the individual's age, weight, or symptom severity. Even within the same family, individuals can have different reactions to the same medication. However, if one family member responds well to a certain type of medication, doctors may start another family member on a similar one to see if it has a similar effect.

Some stimulant medication examples include:

Amphetamine-based: Adderall XR®, Dexedrine®, Dexedrine Spansules®, Vyvanse®;

Methylphenidate-based: Biphentin®, Concerta®, Focquest®, Ritalin®, Ritalin SR®

## **Non-Stimulant Medication and ADHD**

Non-stimulant medications function differently from stimulants. Unlike stimulants, they do not contain methylphenidate or amphetamine but use different active ingredients and may target other brain chemicals. Non-stimulant medications can work by targeting serotonin or norepinephrine, other neurotransmitters that help improve mood and manage anxiety. Some non-stimulants also focus on regulating energy levels or sleep patterns to support overall brain function.

Some of them, like atomoxetine (Strattera), increase norepinephrine levels to improve focus and impulse control. Others, like guanfacine (Intuniv), affect different brain receptors to improve attention and emotional regulation.

## **Stimulant vs. Non Stimulant Medication: Benefits and Drawbacks**

## **Stimulants**

### **Benefits:**

- Improve Focus and Attention
- Reduce Hyperactivity and Impulsivity
- Work Quickly: can start working within 30 to 60 minutes
- They have relatively short half-lives (our system can quickly absorb the medication and eliminate it within hours), this is helpful for taking medication breaks (aka “drug holidays”).
- Well-Researched and Effective
- Help with Executive Functioning
- Can Improve Emotional Regulation
- Multiple Options Available

### **Drawbacks can include:**

- Loss of appetite
- Trouble sleeping
- "Rebound" effects: ADHD symptoms appear quickly when the medication begins to wear off. This can look like feeling extra restless, moody, or unfocused.
- Tics (small repetitive movements)
- Mood swings or irritability

## **Non Stimulants**

### **Benefits:**

While stimulant medications are the most common treatment for ADHD, non-stimulant medications can also help, especially for people who:

- Don't respond well to stimulants or experience side effects.
- Experience unpleasant side effects from stimulants (like trouble sleeping or loss of appetite)
- Need to combine it with a stimulant for better results
- Tics are a concern
- Have concerns about other medications interacting

Drawbacks can include:

- Some, such as Intuniv, can make you feel tired, and blood pressure and heart rate need to be monitored while taking it.
- They can take 4–6 weeks to work and need to be taken every day.

## **Making the Right Medication Choice**

Choosing between stimulant and non-stimulant medications is a personal decision. Stimulants are usually more effective for treating ADHD symptoms like hyperactivity and impulsivity, but the best treatment depends on individual needs. It's important to work with a doctor to find the right medication.

A great resource to learn more about ADHD and medication is CADDRA, a Canadian ADHD online platform, commonly used by professionals treating ADHD. They have created a chart with information on the ADHD medications available in Canada, including names and pictures of the medications: [CADDRA Canadian ADHD medication chart](#). The chart also shows which medications are recommended as first or second line treatments by CADDRA, their starting dose, duration, delivery, release mode, as well as indicate the dose titration per medication.

## **ADHD, Anxiety, and Depression**

As we know, people with ADHD deal with more than just trouble paying attention. They can also struggle with emotions, impulsivity, and staying organized, which can make everyday life more challenging. These difficulties can lead to frustration, stress, and even mental health concerns like anxiety or depression.

ADHD, anxiety, and depression often show up together, which means they can affect each other in ways that make things more challenging. Having both ADHD and Anxiety can be common in both kids and adults, and untreated ADHD symptoms can also be a source of anxiety. When thinking about medications, more and more studies are showing that both stimulant and nonstimulant treatments for ADHD can also help with anxiety in individuals who have both ADHD and anxiety. The same can be said with depression and ADHD. Both can

coexist or depression can be a result of ADHD. For example, low self-esteem and a poor self-image can result from ongoing feelings of being overwhelmed due to ADHD symptoms.

When treating ADHD in combination with anxiety and/or depression, it's important to address each concern individually with the more severe condition being treated first with medication. It's important to regularly consult and talk openly with your doctor about all of your concerns including any symptoms, side effects, or other diagnoses involved. If something isn't working or feels off, speaking up helps you advocate for yourself and find what works best for you (or your child).

### **The takeaways:**

- Managing medications for ADHD requires careful balancing.
- Every person is different, so finding the right treatment plan takes time and patience.
- Understanding how medications work can guide better decision-making and help manage symptoms more effectively.
- ADHD medications are the first-line treatment because they can effectively reduce symptoms, but they are only one part of a full treatment plan. Counselling, school and family supports, and building strategies are also important for long-term success in managing ADHD.

### **Additional Resources/Websites**

<https://childmind.org/guide/parents-guide-to-adhd-medications/>  
<https://www.choosingtherapy.com/stimulant-vs-non-stimulant-adhd-meds/>  
<https://my.clevelandclinic.org/health/treatments/11766-adhd-medication>  
<https://childmind.org/article/medication-for-kids-with-depression/>  
<https://www.understood.org/en/articles/types-of-adhd-medications>

#### Articles:

A meta-analytic review of the impact of ADHD medications on anxiety and depression in children and adolescents Annie Bryant<sup>1</sup> · Hope Schlesinger<sup>1</sup> · Athina Sideri<sup>2</sup> · Joni Holmes<sup>3</sup> · Jan Buitelaar<sup>4</sup> · Richard Meiser-Stedman

Treating ADHD and Comorbid Anxiety in Children: A Guide for Clinical Practice  
Roberto León-Barriera, MD<sup>1</sup> , Richard S. Ortegón, MD<sup>1</sup>,  
Margaret M. Chaplin, MD<sup>1,2</sup> , and Vania Modesto-Lowe, MD, MPH<sup>1,3</sup>

ADHD and Anxiety Disorder Comorbidity in Children and Adults:  
Diagnostic and Therapeutic Challenges

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