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MEDICAL MEMO

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Where do Concerta and Adderall-XR fit as options?

A Fresh Look At Medicines For ADHD

There are now about 25 medicines for Attention Deficit Hyperactivity Disorder (ADHD). The goal of this article is to make sense of this potentially confusing group of choices. The names are in bold below. Key concepts are in bold or underlined and are summed up at the end.

Choosing a medication for ADHD is done after becoming reasonably certain of the diagnosis and considering which, if any, treatment options, are preferred and desired. Please see my detailed information packet about ADHD at **www.leeheymd.com**. It is also important to be clear what symptoms you want the ADHD medicine to help, what possible side effects you especially want to avoid, and if there are any convenience factors to consider. You and/or the youth must also remember and accept that no medicine can do assignments, turn them in, or make good choices. These medicines can only assist one's efforts - partly, to sometimes greatly.

ADHD medicines, especially the stimulants (see my online guide, Medications For ADHD, at http://www.leeheymd.com/charts/adhd_1.html#1) are most helpful for distractibility (short attention span, poor ability to concentrate, and lack of focus) and for hyperactivity (can't sit still, restless, fidgety, excessive talking). Persons who have only the Inattentive (distractible) type of ADHD without any hyperactivity also respond well to stimulants. Stimulants are partially helpful for the common impulse control problems of acting or speaking without thinking first, blurting out, and butting into conversations, lines, games, etc. No ADHD medicines directly help organization problems or correct learning disorders like the various forms of reading, writing, math, or processing disorders. However, by helping any associated distractibility or hyperactivity, stimulants can have partial to sometimes substantial indirect benefits for organization and learning disorders.

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ADHD

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Since stimulants (also known as psychostimulants) are usually the best medicines for ADHD let's next simplify the about 15 names of them. Actually there are only 3 stimulant groups to consider and the first 2 are closely related and generally best. These are methylphenidate and amphetamines. So, really, this part is pretty simple. (As you read on, be aware the ER, SR, CD, and XR suffixes all mean extended, slow, or longer duration forms of the basic medicine. Brand names are capitalized below while the generic chemical name is not.)

Methylphenidate (MPH for short) is the generic or chemical name of the medicine known by the brand names Ritalin, Ritalin SR, Methylin, Methylin ER, Metadate ER, Metadate CD, and Concerta ER. Thus, these names all refer to the same basic ingredient. The main difference is how long they last and what mechanism is used to make it last longer. Methylin forms contain no dyes. As usual, generic forms, when available, are cheaper.

The **amphetamines** include Dexedrine (dextroamphetamine), Dexedrine spansules (SR), Adderall, and Adderall XR. Adderall contains 50% dextroamphetamine and 50% of the very closely related plain amphetamine.

Let's next discuss the relative merits and demerits of the MPH and amphetamine groups. MPH (methylphenidate) is the gold standard that everything else is compared to; it's been around the longest and studied by far the most. MPH is the mildest and it is cheap. It is a good place to start. Amphetamines are stronger, generally last a bit longer, can have more of a rough edge, and are more abusable. Some people do better on MPH products and some do better on the amphetamine options - there is no reliable way to tell which is better for you or your child without trying them.

Let's talk duration. Plain MPH (Ritalin, Methylin) lasts under 4 hours and Dexedrine lasts a good 4 hours. Each requires 2 doses to cover school hours and a third dose around 3 or 4 pm to also cover homework or work. Three doses a day and even two doses can be an inconvenient pain leading to missed doses or lack of confidentiality due to having to take it at lunch at school or at day care after school, etc. The big growth of new ADHD medicine options is in ways to extend the duration of existing medicines, not in creating new medicines to treat ADHD. Longer duration stimulant options are not only more convenient, they are also often smoother (less side effects and more consistent benefit through the day) and generally don't cause the sometimes unpleasant "rebound" as the medicine "wears off". <u>There are 3 basic ways companies have developed to increase the number of effective hours.</u> First (and the oldest way), is to make a hard coated pill that dissolves slower - Ritalin SR and the generic MPH SR were made this way. In 2000 two companies came out with minor modifications of this MPH form and a new 10 mg size (as well as the generically priced 20 mg) - **Methylin ER** and Metadate ER. These last 6 to 8

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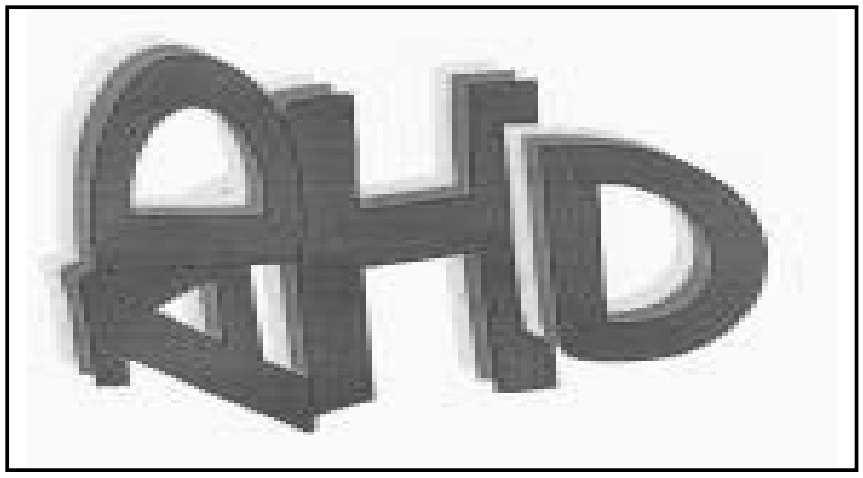

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hours usually. A second method to extend duration was brought out later in 2000 as **Concerta**, which uses a 3 layer osmotic pressure release system to make plain MPH last 8 to 13 hours. Concerta became available in 8/00 and has been a great addition for many, but not all, patients who do well with a MPH based ADHD medicine. In 2001 **Metadate CD** came out with a MPH based capsule containing pellets of different release time targets which is supposed to last around 8 hours. This capsule design containing time release pellets is the third method for making stimulants last longer. **Dexedrine (SR) "spansule"** capsules were the first of this capsule strategy and typically last 6 to 8 hours. In mid October 2001 **Adderall XR** was approved by the FDA (Food and Drug Administration) and promises through its 2 pellet type capsule system to last 8 to 10 hours thereby avoiding need for a midday dose at school or work for this often effective amphetamine option. The effectiveness and actual duration of Metadate CD and Adderall XR still remain to be proven by general use since they are so new. However; both look promising, especially Adderall XR. Thus it appears Concerta (with MPH) and Adderall XR (with amphetamine) are the 2 best current options to cover the whole day with one morning dose and no lunch time dose. Both are relatively new brands costing over $2 a day and will take awhile to be added to some formularies and insurance lists. Some patients will still require a dose of regular MPH or amphetamine around 4 PM to cover the rest of the day.

The **"Other"** or third, group of stimulants are 3 unrelated to each other medicines that are generally only considered when the MPH and amphetamine groups don't work out. **Cylert** (pemoline) is an effective truly once a day non abusable stimulant option that I rarely use anymore since it has about a 1 in 10,000 risk of unpredictable severe liver damage or failure. **Amantadine** is a generic (Symmetrel is the brand name) that increases primarily dopamine and not norepinephrine. Thus some patients respond better to its similar but more limited actions. Amantadine is mainly used to treat parkinsonism of various types and also prevents and treats Influenza type A (not B). Amantadine comes as a capsule without much dose adjusting possible and is given twice a day for ADHD. **Provigil** (modafinil) was approved by the FDA in 2000 for "excessive daytime sleepiness" caused by certain sleep disorders like sleep apnea and narcolepsy. Neither it or amantadine are approved by the FDA for ADHD although doctors may use them for ADHD. There are only a few studies so far showing amantadine or Provigil helps ADHD. Provigil is only available as an expensive brand and is not yet on many insurance lists. It comes as a tablet given once a

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day in the morning. Although it is similar to other stimulants in several ways it also has differences that make it an alternative when other stimulants fail. All stimulants except Cylert and amantadine may be abused which gives another reason to consider these two in certain situations.

Page 2 of my ADHD Medication chart (you can find it online at http://www.leeheymd.com/charts/adhd_1.html#2) shows a few non stimulant antidepressant and anti anxiety medicines that may help ADHD. These are Wellbutrin (buproprion), Effexor, and imipramine (as well as its cousins). Buspar (buspirone) may have some benefit occasionally. Generally, if I am trying to mainly treat ADHD, especially distractibility and inattention, I will use a stimulant first for that and add an antidepressant or anti anxiety medicine if depression or anxiety are also present. Tenex (guanfacine) or clonidine are not as helpful for distractibility and inattention as the stimulants are but are just as good or better for hyperactivity and impulsivity. They also don't cut appetite and tend to suppress tics. They are given 2 or 3 times a day. With Tenex lunch dosing can often be avoided.

To summarize, despite the growing number of medicines for ADHD, stimulants remain generally best. Almost all the "new" medicines are just extended duration brand name (costlier) versions of the big two: methylphenidate (Ritalin) and amphetamine (Adderall). These new options do often, but not always, bring benefits that out-weigh their extra monetary cost. There remain a few non stimulant older options and a few new atypical stimulant choices to consider mainly as back-up plans.

Can I have withdrawal from my antidepressant?

What is the SRI Discontinuation Syndrome?

Sometimes when patients forget, skip, or suddenly stop taking Serotonin Reuptake Inhibitors (SRI) some complain of feeling ill - mild to moderately "flu-ish, dizzy, or nauseous" and emotionally "out of sorts" in some way. This is a possible side effect of not taking certain medicines regularly. Although this is not thought dangerous it can be unpleasant (and rarely, quite so), as very few of us like to feel sick. SRI's include Prozac, Zoloft, Paxil, Luvox, Celexa, and Effexor (plain or XR). A similar pattern can also happen with the older tricyclic antidepressants and Anafranil. All of these medicines are used as antidepressants, for various kinds of anxiety disorders, Obsessive Compulsive Disorder (OCD), Premenstrual Syndrome (PMS), and at times for other conditions.

Technically, it is not "withdrawal" as in addiction to a "habit forming" drug of abuse; but rather the body is reacting to the precipitous drop in medicine blood level due to missing or stopping the medicine suddenly without gradually tapering it off. These "Discontinuation Syndrome" effects are most noticeable if one misses 2 to 3 days of a shorter acting medicine (especially Paxil or Effexor XR) prescribed at a higher end dose. These side effects (if they occur at all) almost always disappear within 4 to 6 days with day 2 or 3 typically the worst. It is very

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Syndrome

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important to remember that resuming the medicine as scheduled stops the symptoms almost immediately. Some patients think these effects mean they really need the medicine (which may be true) but actually it means that it should be taken regularly, not missed, and (when ending it) it should be tapered off, not stopped all at once. Of course, deciding when and how to stop your medicine should be a discussion with your psychiatrist or other physician.

The simplest way to avoid any chance of nuisance discontinuation side effects is to always take these medicines every day as directed. If a dose is missed in the morning, take it as soon as you can that day. If it's too late to make it up that day, simply skip it and take the next scheduled dose as usual. Only rarely do we ever double up antidepressants. If you missed 2 doses or went away without your medicine and you have experienced troubling discontinuation side effects previously, then make arrangements to get more medicine. If you tend to forget your doses repeatedly, set up a reminder system or person, use a weekly pill box, get an alarm or change to a medicine like Prozac (whose duration is so long it tapers itself off and doesn't need to be taken daily - a weekly version is even now available), Wellbutrin (buproprion), Remeron, Celexa, Zoloft, or Serzone, etc. Remember, all medicines for depression, OCD, mood stabilizers, and most for anxiety disorders or psychosis are intended to be taken regularly (daily). They work much better and with a lot lower chance of side effects if taken as directed.

In The News

Are Graduated Driver's Licenses for Teenagers a Good Idea?

Yes, as part of an overall driving safety package stepwise "graduated" licenses have already been proven to decrease the crash rate by 25% for the most accident and injury or death prone group of drivers; 16 year olds, and also for the #2 group - 17 year olds. Studies show the 2 most effective restrictions for teens (beyond of course the rules that apply to all of us like not being intoxicated or impaired, not speeding, tailgating, etc.) are limitations on driving at night and on transporting other teenage passengers. **Forty percent of motor vehicle deaths among teenagers occur between 9 p.m. and 6 a.m.!**

It is important to know that Arizona's class "G" graduated license law does not actually impose these key restrictions on passengers and night driving the way states like Michigan, North Carolina, and others do.

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License

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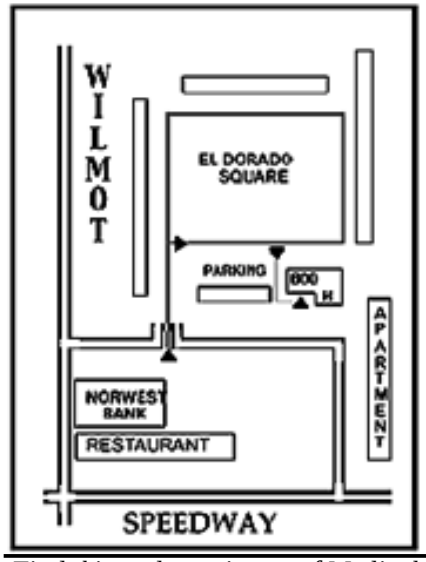
Arizona's law only requires that parents are notified if their 16 or 17 year old receives a citation (ticket) and requires tougher consequences (defensive driving class, traffic survival school, and suspension) sooner than for adults (18 an older). Arizona's emphasis on tougher consequences but not passenger or night restrictions have not been shown to result in the impressive safety improvements of the 3 step model used in other states and described in detail next.
The American Medical Association advises a model 3 step driver's license phase-in process based on research studies comparing which state plans reduce accidents, injuries, and deaths. **Step One**: instructional permit begins at 15 and 1/2, lasts 6 months, includes completion of a driver's ed program, the teen drives with a licensed driver 21 or over, wears seat belt, uses no tobacco, alcohol or other drugs while driving (no impairment), and must remain ticket and crash free for 6 months. **Step Two**: Teen must be 16, have completed step one, maintain no substances, and wears a seat belt. Teen may only drive unsupervised in the day and drives with an adult at night. Passengers are restricted to no more than one non family member. Driver must be ticket and crash free for 12 months before the step three full license at at least 18. **Step Three**: Teen must be at least 18 or have driven for 2 years at step two. No driving restrictions if ticket and crash free for 6 months. The teen driver is substance free (not impaired) and seat belts are required for all in the car.

Parents in Arizona can, of course, impose the two key limits on night driving hours and passengers as they see fit for their teens regardless of whether state law requires it. Parents can also restrict with whom and when (as well as where) their teen or child rides. Parenting is not a popularity contes; it is frequently balancing the drive for steps toward independence (privileges) with readiness (responsibility). Youth often appreciate guidance and limits even though they may not admit it. Remember, your own driving behavior serves as a role model for your children. Choose the car they'll drive carefully and ensure it is properly maintained. Don't rely only on driver's education classes, take an active role in teaching your teen to be safe and progressively introduce practice sessions that build up to night, bad weather, highway, freeway, and other special driving situations. Good luck.

More information about the graduated license is available at the state site www.dot.state.az.us or at the AAA site www.aaaarizona.com.



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