

PRESCRIBING  
CONSIDERATIONS  
FOR  
METHYLPHENIDATE  
AGENTS

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Methylphenidate products are commonly utilized prescription medications for children, adolescents, and adults with attention-deficit hyperactivity disorder (ADHD). These agents are one of the first-line medication treatment options for patients with ADHD and can be used alongside non-stimulant ADHD medications and non-pharmacological treatment options.

Since there are many methylphenidate products currently available, it is important to note a few differences between these options, specifically their pharmacokinetics. Methylphenidate agents are formulated differently to allow for immediate-release, extended-release, or biphasic-release (mimicking twice daily dosing). Choosing the right agent for the patient's individual needs may eliminate the use of "booster" agents to help get the patient through the day. Eliminating booster agents simplifies dosing regimens and may decrease side effects from concomitant use of stimulant agents.

The chart below lists methylphenidate agents, their time to peak, and their duration of action.

Drug Name	Formulation	Time to Peak	Duration of Action
<b>Adhansia XR</b>	Capsules with multilayered beads (IR:ER of 20:80)	First: 1.5 hours Second: 12 hours	13+ hours
<b>Aptensio XR</b>	Capsule with multilayered beads (IR:CR of 40:60)	First: 2 hours Second: 8 hours	≤16 hrs
<b>Azstarys</b>	Capsule containing dexamethylphenidate and serdexmethylphenidate, a prodrug of dexamethylphenidate	2 hours	8 hours
<b>Concerta</b>	OROS tri-layer core with an IR overcoat, inner membrane controls rate of drug delivery	~1 hour, followed by gradually ascending concentrations over 5-9 hours	8-12 hours
<b>Contempla XR-ODT</b>	ER orally disintegrating tablet (IR:ER of 25:75)	~5 hours	--
<b>Daytrana</b>	Adhesive-based matrix transdermal patch	7.5 – 10.5 hours	11-12 hours
<b>Focalin XR</b>	Isomer product dexamethylphenidate	First: 1.5 hours Second: 6.5 hours	8 hours
<b>Jornay PM</b>	Delayed- and extended-release oral capsule (sustained-release layer enclosing a methylphenidate core, then a delayed-release layer enclosing the sustained-release layer)	8-10 hours	11-12 hours
<b>Metadate CD</b>	Diffucaps encapsulated beads (IR:ER of 30:70)	First: 1.5 hours Second: 4.5 hours	6-8 hours
<b>Methylin</b>	IR solution, chewable tablet, and tablet	1-2 hours	3-5 hours
<b>QuilliChew ER</b>	ER chewable tablet (IR:ER of 30:70)	5 hours	~12 hours
<b>Quillivant XR</b>	ER suspension (IR: ER of 20:80)	2-4 hours	~6 hours
<b>Ritalin</b>	IR tablet	1-2 hours	3-5 hours
<b>Ritalin LA</b>	SODAS encapsulated biphasic release beads (IR:DR of 50:50)	First: 1.5-3 hours Second: 4.5 – 6.5 hours	~8 hours

## References

1. Wolraich ML, Hagan JF Jr, Allan C, et al. Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents [published correction appears in Pediatrics. 2020 Mar;145(3):]. Pediatrics. 2019;144(4):e20192528. doi:10.1542/peds.2019-2528 Methylphenidate or Dexmethylphenidate (Concerta, Ritalin and others).
2. College of Pediatric and Neurologic Pharmacists (CPNP) and the National Alliance on Mental Illness (NAMI). August 2019. [https://www.nami.org/About-Mental-Illness/Treatments/Mental-Health-Medications/Types-of-Medication/Methylphenidate-or-Dexmethylphenidate-\(Concerta-R](https://www.nami.org/About-Mental-Illness/Treatments/Mental-Health-Medications/Types-of-Medication/Methylphenidate-or-Dexmethylphenidate-(Concerta-R) [accessed 09/21/2021]. Markowitz, John & Straughn, Arthur & Patrick, Kennerly. (2003).
3. Advances in the Pharmacotherapy of Attention-Deficit–Hyperactivity Disorder: Focus on Methylphenidate Formulations. Pharmacotherapy. 23. 1281-99. 10.1592/phco.23.12.1281.32697.
4. Metadate ER (methylphenidate) [prescribing information]. Smyrna, GA: UCB Inc; February 2016.
5. Methylin oral solution [prescribing information]. Florham Park, NJ: Shionogi Inc; July 2021.
6. Metadate CD (methylphenidate) [prescribing information]. Philadelphia, PA: Lannett Company Inc; June 2021.
7. Concerta (methylphenidate) [prescribing information]. Titusville, NJ: Janssen Pharmaceuticals; June 2021.
8. Ritalin LA (methylphenidate) [prescribing information]. East Hanover, NJ: Novartis Pharmaceuticals; June 2021.
9. Ritalin/Ritalin SR (methylphenidate) [prescribing information]. East Hanover, NJ: Novartis Pharmaceuticals Corp; June 2021.
10. Quillivant XR (methylphenidate) [prescribing information]. Monmouth Junction, NJ: Tris Pharma Inc; June 2021.
11. Jornay PM (methylphenidate) [prescribing information]. Cherry Hill, NJ: Ironshore Pharmaceuticals Inc; June 2021.
12. Daytrana (methylphenidate) [prescribing information]. Miami, FL: Noven Therapeutics LLC; June 2021.
13. Aptensio XR (methylphenidate) extended-release capsules [prescribing information]. Greenville, NC: Patheon; June 2021.
14. Adhansia XR (methylphenidate hydrochloride) [prescribing information]. Wilson, NC: Purdue Pharmaceuticals LP; June 2021.
15. QuilliChew ER (methylphenidate) extended-release chewable tablets [prescribing information]. Monmouth Junction, NJ: Tris Pharma Inc; June 2021.
16. Cotempla XR-ODT (methylphenidate) [prescribing information]. Grand Prairie, TX: Neos Therapeutics Brands LLC; June 2021.
17. Azstarys (serdexmethylphenidate and dexmethylphenidate) [prescribing information]. Grand Rapids, MI: Corium, Inc; June 2021.