

Treatment of Restless Legs Syndrome in Adults

This information sheet is provided to help you understand the evidence for treating restless legs syndrome (RLS). It is a service of the American Academy of Neurology (AAN).

The AAN is the world's largest association of neurologists and neuroscience professionals. Neurologists are doctors who identify and treat diseases of the brain and nervous system. The AAN is dedicated to promoting the highest quality patient-centered neurologic care.

Experts from the AAN carefully reviewed the available scientific studies on treating RLS. The following information* is based on evidence from those studies. The information summarizes the main findings of the 2016 AAN guideline on treating RLS. To read the full guideline, visit AAN.com/guidelines.

What is RLS?

Restless legs syndrome (RLS) is a movement disorder that is described as an urge to move the legs or arms, commonly in response to an uncomfortable feeling.

The urge to move has the following three features:

- It is present at rest (sitting or lying down)
- It is relieved (often only for a short time) by movement, especially walking
- It is present mostly in the evening or at night

Diagnosis of RLS is made through a discussion with a clinician about the symptoms you are experiencing. RLS severity exists along a continuum from occasionally annoying to severely disruptive.



How is RLS treated?

RLS is a common neurologic disorder. There are multiple effective prescription drug and alternative treatments available. These treatments improve the main RLS symptoms as well as related sleep trouble.

What does the evidence show for the effectiveness of prescription drugs in treating moderate to severe RLS symptoms?

The results of a clinical drug study should show if a prescription drug is likely or not to treat a disorder. Evidence strength* refers to how well a clinical drug study is designed. Well-designed studies allow clinicians to be more certain whether drugs work or not. When the evidence strength is weak for a particular drug, it does not mean the drug does not work but rather that better designed studies are needed to obtain more information.

The following prescription drugs were considered "highly likely" for improving moderate to severe RLS symptoms:

- Pramipexole
- Rotigotine
- Gabapentin enacarbil

A list of prescription drugs examined in treating moderate to severe RLS symptoms can be found in the table at the end of this document. A complete list of the prescription drugs examined can be found in the full guideline.

What are the potential side effects for prescription drugs used to treat RLS symptoms?

The guideline authors addressed the following concerns for long-term use of certain prescription drugs (dopaminergic medications):

- Augmentation
 - RLS symptoms can get worse over time from the prescription drug levodopa and from other dopaminergic medications in the following ways:
 - RLS symptoms can begin at least two to four hours earlier in the day than before RLS medication was started
 - RLS symptoms may also increase in intensity and spread to other areas of the body
- Loss of effectiveness
 - When used for a long time, dopaminergic medications may stop working as well as they did originally
- Impulse control disorder (ICD)
 - ICDs are characterized by intense urges to engage in excessive gambling, hypersexuality, excessive shopping, and binge eating

Other specific side effects (adverse events) for prescription drugs used to treat moderate to severe RLS symptoms are listed in the table below.

Table: Evidence for Prescription Drug Treatments for Moderate to Severe RLS Symptoms

Prescription Drug	Strength of Evidence*	Conclusion/Recommendation	Adverse Events (AEs)
Pramipexole	Strong	It is highly likely that pramipexole improves RLS symptoms.	The most common AEs were nausea and sleepiness/fatigue.
Rotigotine		It is highly likely that the rotigotine patch improves RLS symptoms.	The most common AEs were mild skin reactions at the application site and nausea.
Gabapentin enacarbil		It is highly likely that gabapentin enacarbil improves RLS symptoms.	The most commonly reported AEs were mild to moderate sleepiness and dizziness.
Ropinirole	Moderate	It is likely that ropinirole improves RLS symptoms.	The most common AEs were nausea, headache, sleepiness, and dizziness.
Pregabalin		It is likely that pregabalin improves RLS symptoms.	The most common AEs were unsteadiness and daytime sleepiness.
IV ferric carboxymaltose (FCM)		It is likely that IV FCM improves RLS symptoms.	No significant AEs were noted with FCM.**
Oral iron		It is likely that oral iron improves RLS symptoms in those with low iron.†	The most common AEs were constipation and nausea.
Levodopa	Weak	It is possible that levodopa improves RLS symptoms.	The most common AE was nausea, which was generally mild.

**IV iron products are associated with a risk of potentially life-threatening allergic reactions and have associated FDA warnings and prescribing instructions.

† Oral iron may be appropriate for patients with low ferritin.

For patients or families wanting to use non-medication approaches to treat RLS, what does the evidence show?

The guideline authors also examined the currently available evidence for non-medication therapies used to treat RLS symptoms.

None of the studies showed a strong level of evidence for the non-medication therapy options listed in the table below.

Table: Evidence for Non-prescription Drug Treatment Options

Therapy	Strength of Evidence*	Conclusion/Recommendation	Adverse Events (AEs)
Pneumatic compression	Moderate	Pneumatic compression is likely effective in the treatment of patients with primary moderate to severe RLS.	No AEs were reported.
Near-infrared spectroscopy (NIRS)	Weak	NIRS is possibly effective in the treatment of primary moderate to severe RLS.	No AEs were reported.
Repetitive transcranial magnetic stimulation (rTMS)		rTMS is possibly effective in the treatment of primary moderate to severe RLS.	No AEs were reported.
Vibrating pads		Vibrating pads are possibly ineffective in treating RLS symptoms.	No AEs were reported.
Transcranial direct current stimulation (tDCS)		tDCS is probably ineffective for improving RLS in women who have never taken medication for RLS.	No AEs were reported.

*After the experts review all of the published research studies, they describe the strength of the evidence supporting each recommendation:

Strong evidence = more than one high-quality scientific study

Moderate evidence = at least one high-quality scientific study or two or more studies of a lesser quality

Weak evidence = the studies, while supportive, are weak in design or strength of the findings

Not enough evidence = either different studies have come to conflicting results or there are no studies of reasonable quality

This statement is provided as an educational service of the American Academy of Neurology. It is based on an assessment of current scientific and clinical information. It is not intended to include all possible proper methods of care for a particular neurologic problem or all legitimate criteria for choosing to use a specific procedure. Neither is it intended to exclude any reasonable alternative methodologies. The AAN recognizes that specific patient care decisions are the prerogative of the patient and the physician caring for the patient, based on all of the circumstances involved.

The AAN develops these summaries as educational tools for neurologists, patients, family members, caregivers, and the public. You may download and retain a single copy for your personal use. Please contact guidelines@aan.com to learn about options for sharing this content beyond your personal use.