

Periodic limb movement disorder: Symptoms and treatment

Periodic limb movement disorder is a condition characterized by repetitive movements of the limbs during sleep.

It is the only movement disorder that occurs during sleep and, as such, is considered to be a sleep disorder as well.

Periodic limb movement disorder (PLMD) can occur at any stage of life. It is most commonly diagnosed in middle age and older adulthood, though many people report having had symptoms since childhood.

What is PLMD?



PLMD only occurs during sleep and is therefore considered to be a sleep disorder.

PLMD typically involves a twitching, jerking, or flexing of the limbs during sleep, most frequently during periods of light, non-REM sleep. These movements usually occur in the lower limbs, such as the hip, knee, and ankle, but some people may experience movement in their arms.

Movements tend to be rhythmic, occurring approximately every 20 to 40 seconds. However, limb movements and their frequency can vary significantly from night to night, and from person to person.

People with PLMD are usually unaware of their condition, and it is most often their bed partners that report the limb movements. However, those with PLMD may awaken several times during the night, and experience daytime sleepiness and fatigue.

PLMD can occur in conjunction with other sleep disorders, including restless leg syndrome (RLS).

PLMD vs. restless leg syndrome (RLS)

Some similarities exist between PLMD and RLS regarding symptoms and treatment, and some people consider them part of the same condition.

Symptoms of RLS include uncomfortable sensations in the legs and an urge to move the limbs. These symptoms get worse in the evening and during rest. Physical activity can provide some relief.

The main difference between the two disorders is that PLMD occurs only during sleep, while RLS happens when a person is awake and asleep.

Approximately 80 to 90 percent of people with RLS have PLMD, but the reverse is not true.

Causes and risk factors

PLMD can be classed as either primary or secondary.

Primary PLMD

The exact cause of primary PLMD is unknown. Researchers suggest that it may be linked to difficulties with nerve regulation, but studies have not led to any consistent findings.

Primary PLMD is not considered medically serious, although complications arising from the condition may cause issues.

According to the [National Sleep Foundation](#), primary PLMD is uncommon.

Secondary PLMD

Secondary PLMD is linked to underlying disorders or medication use.

This type of PLMD is more common in people with the following medical conditions:

- anaemia
- diabetes mellitus
- iron deficiency
- multiple system atrophy - a rare, progressive neurological disorder
- narcolepsy - a disorder causing excessive sleepiness, hallucinations, and sleep paralysis
- [obstructive sleep apnea](#) - a common disorder characterized by shallow breathing or pauses in breathing during sleep
- [REM](#) behaviour disorder - a sleep disorder where people "act out" vivid dreams, interrupting their sleep

- restless leg syndrome
- sleep-related eating disorder (SRED) - a disorder characterized by eating while sleeping
- spinal cord injury
- spinal cord tumour
- uraemia - a build-up of waste products in the blood caused by problems with kidney function

Furthermore, several medications can cause the symptoms of PLMD, including some types of:

- antidepressants
- antihistamines
- anti-nausea medications
- antipsychotics

Withdrawal from sedatives, such as diazepam, may also cause PLMD.

One of the risk factors associated with PLMD is age. It is more common in older adults, and up to 34 percent of people over 60 may have it. RLS, however, affects women twice as often as men. PLMD affects both sexes equally.

Symptoms and complications



Some people with PLMD may not even notice their condition, but the symptoms can keep bed partners awake.

The main symptom associated with PLMD is a repetitive movement of the limbs during sleep.

For most people, these symptoms do not cause distress, although they may cause problems for bed partners.

The complications that arise from the disorder, however, can be problematic for people with PLMD. These include:

- daytime sleepiness
- poor sleep
- chronic insomnia

Furthermore, the American Academy of Sleep Medicine advise that PLMD can be a factor in:

- depression
- poor memory
- short attention span

Diagnosis

PLMD is diagnosed primarily based on an overnight polysomnogram (PSG), a type of test carried out in a sleep laboratory. However, before a PSG, a doctor may carry out a physical examination to rule out other conditions.

Physical examination

A doctor will carry out a thorough physical examination to check whether there is an underlying cause of the sleep problem. The doctor will also take a full medical history and ask about medications, family medical history, and lifestyle factors.

The doctor may request blood tests to detect anaemia, other deficiencies, and infections related to PLMD. These tests may also identify any problems with thyroid function and magnesium levels. A urine sample can detect traces of drugs that contribute to sleep problems.

People experiencing symptoms of PLMD may want to complete a sleep diary for 14 days before the physical examination. This diary should detail sleeping patterns, associated symptoms, such as fatigue and daytime sleepiness, and their effects on daily life.

Polysomnogram (PSG)

A PSG records sleep, breathing, movement, and other bioelectrical signals, including brain waves and heartbeat, during sleep. This test helps to rule out the presence of other conditions that may be causing disrupted sleep and excessive limb movements.

After a PSG, a neurologist may be asked to check for other neurological issues or to confirm the diagnosis of PLMD.

In some cases, doctors may recommend additional tests in a sleep laboratory.

Treatment and coping

Treatment might improve symptoms of PLMD, but it does not usually cure the disorder, particularly if it is primary PLMD, which has no known cause.

If the movements associated with PLMD do not significantly disturb sleep or impact on daily life or relationships, treatment is not necessary.

PLMD that causes issues can be treated in the following ways:

Caffeine avoidance

Foods and drinks that contain caffeine should be avoided as they can exacerbate PLMD symptoms and disrupt sleep.

Caffeine is found in:

- chocolate
- coffee
- soda
- tea

Treating underlying conditions

Secondary PLMD symptoms may be resolved by treating the underlying condition. If, for example, medications are responsible for the PLMD, alternative medications may be considered.

A person should consult a doctor to discuss the available options.

Medications

There are several medications available to treat PLMD. They work by reducing or eliminating the limb movements or by enabling the person to sleep through the movements. Many of the medications used to treat PLMD are also used for RLS. They include:

- **Dopamine agonists:** These agents are usually the first line drug treatment for PLMD. They increase the levels of dopamine, a brain chemical which helps to regulate the movement of muscles.
- **Benzodiazepines:** These drugs may be used for PLMD, though some people avoid using them because of concerns about addiction. They act as sedatives, which enable an individual to sleep through the limb movements, and they help to suppress muscle contractions.
- **Anticonvulsant agents:** These are used to reduce muscle contractions.
- **GABA agonists:** These medications inhibit the release of some brain chemicals, helping to reduce muscle contractions.

Outlook

Primary PLMD may be chronic in nature, meaning people with the condition will have it for life. However, they often experience periods of remission where symptoms cease, although relapses can occur from time to time.

Secondary PLMD can be resolved by treating the underlying medical condition or changing medications.