



# Periodic Limb Movement Disorder

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## Background

Periodic limb movement (PLM) disorder is unique in that the movements occur during sleep. Most other movement disorders manifest during wakefulness. The condition is remarkably periodic, and the movements may cause poor sleep and subsequent daytime somnolence. Periodic limb movement disorder may occur with other sleep disorders and is related to, but not synonymous with, restless legs syndrome (RLS), a less specific condition with sensory features that manifest during wakefulness. The majority of patients with restless legs syndrome have periodic limb movement disorder, but the reverse is not true. Treatment involves either dopaminergic medication in an attempt to modify activity of the subcortical motor system or, more commonly, sedative medications to allow uninterrupted sleep. Many new agents are proving efficacious for treatment as well.

Symonds first described periodic limb movement disorder in 1953. The original name, *nocturnal myoclonus*, does not describe the condition accurately, since the movements are slower than are those of myoclonus. The term nocturnal myoclonus is seldom used today.

## Pathophysiology

The etiology of the primary form of periodic limb movement disorder is uncertain. Suprasegmental disinhibition of the descending inhibitory pathways may be a factor. Vetrugno and colleagues report that evidence supports neuronal hyperexcitability with involvement of the central pattern generator for gait as the pathophysiology of periodic limb movement.<sup>[1]</sup> This results in decreased dopamine transmission, potentially supporting the use of dopaminergic therapy to treat the condition.

Because the etiology is not clear, treatment is primarily to treat symptoms and does not modify the disease. Studies differ regarding the frequency of polyneuropathy in cases of periodic limb movement disorder. Martinez-Mena and Pastor found that only 1 of 9 patients had signs of neuropathy.<sup>[2]</sup>

The secondary forms of periodic limb movement disorder may be due to diabetes mellitus, spinal cord tumor, sleep apnea syndrome, narcolepsy, uremia, or anemia. Many authors report an association between attention deficit hyperactivity disorder (ADHD) and periodic limb movement disorder. Antidopaminergic, dopaminergic, or tricyclic drug therapy or cessation of treatment with barbiturates or benzodiazepines may initiate the syndrome as well.<sup>[3]</sup> Voderholzer and colleagues noted an increased incidence of periodic limb movements during sleep in patients with Gilles de la Tourette syndrome.<sup>[4]</sup> However, the authors emphasized that the different responses to pharmacological treatments are evidence against a pathophysiological relationship between periodic limb movement disorder and Gilles de la Tourette syndrome.

## Epidemiology

### Frequency

#### United States

The exact frequency is not known.

## International

The exact frequency is not known.

## Mortality/Morbidity

Comorbid conditions may include other sleep disturbances or coexisting disorders (see Causes). **The morbidity of periodic limb movement disorder itself is related to sleep disturbance.**

## Age

**Prevalence increases with increasing age.** The idiopathic form is **rare before age 40** years.

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