



## Mal de Débarquement

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### What is it?

Mal de débarquement literally means sickness of disembarkment.<sup>1</sup> Although this term originally referred to the illusion of movement felt as an aftereffect of travel on water by ship or boat,<sup>2</sup> some experts now include other types of travel (such as by airplane, automobile, and train)<sup>3-4</sup> as well as situations with novel movement patterns (such as reclining on a waterbed).<sup>5-6</sup> Most individuals experience this illusion of movement almost immediately after the cessation of the precipitating event, and the sensation usually resolves within 24 hours.<sup>7-8</sup> This sensation is very common, and approximately 75% of all professional sailors experience it.

However, for some individuals, this illusion of movement lasts for longer periods of time.<sup>1</sup> In fact, it can last for weeks, months, and even years after the precipitating event. Persistent mal de débarquement has been defined as that which lasts longer than one month.<sup>3</sup> Although a majority of the cases of persistent mal de débarquement resolve on their own within one year, the possibility that this spontaneous resolution will occur decreases after an individual has had the disorder for over 12 months. This persistent type of mal de débarquement was formally described in the medical literature in 1987<sup>2</sup> and is the type covered in this publication.

### What causes it?

Mal de débarquement is caused by exposure to an unfamiliar movement and then the removal of that movement. Sea

travel is the most common precipitating event.<sup>2</sup> However, the reason it becomes the persistent form in a few individuals (especially middle-aged women) and not in the vast majority of individuals is unknown.

A leading explanation for mal de débarquement is that the problem is not in the inner ear but rather in the brain.<sup>4</sup> This explanation is based upon studies which have demonstrated changes in the brain metabolism and functional brain connections of those individuals who have the disorder. Because of these changes, the brain is able to adapt to an unfamiliar movement but is unable to readapt once the movement has stopped.

Although the reason for this problem with re-adaptation is not completely understood, one theory suggests that certain movements (such as those experienced on a ship or boat) expose an individual to novel movement patterns in all planes of motion.<sup>9</sup> During this time, the brain must send signals to the body so the muscles will be able to adapt to the novel movement patterns.<sup>7-8</sup> This adaptation is often referred to as developing "sea legs." After a while, the brain becomes accustomed to these novel movements; and in some cases, it cannot readapt to the old patterns once the movement has stopped.<sup>5-6</sup> Therefore, certain individuals are unable to redevelop their "land legs."

### What are the symptoms?

The most common symptoms associated with mal de débarquement are rocking,

swaying, and disequilibrium.<sup>1,7</sup> Although this disorder may be accompanied by anxiety and depression,<sup>4</sup> it is seldom accompanied by a true spinning vertigo.<sup>1,8</sup>

The symptoms of mal de débarquement usually feel worse when an individual is in an enclosed space or is attempting to be motionless, such as while lying down in bed.<sup>9</sup> Stress and/or fatigue cause the symptoms to become more noticeable in some individuals.<sup>10</sup> Although the symptoms often improve or even disappear during continuous movements such as those experienced while driving a motor vehicle,<sup>1,5</sup> overall, mal de débarquement negatively affects an individual's quality of life.<sup>11</sup>

### **How is it diagnosed?**

Currently, there is no specific test to diagnose mal de débarquement.<sup>2</sup> For a diagnosis of mal de débarquement to be made, the individual must subjectively report a history of a novel movement pattern (such as travel on water by ship or boat), the return to a normal environment, and the beginning of rocking, swaying, and disequilibrium sensations shortly thereafter. These symptoms begin immediately, not weeks or months later.

In order to rule out other causes of the symptoms, objective diagnostic procedures such as vestibular testing and radiologic imaging may be performed.<sup>3</sup> In individuals with mal de débarquement, these examinations are usually normal.<sup>12</sup>

### **How is it treated?**

Currently, there is no single highly successful treatment approach for mal de débarquement.<sup>1</sup> Standard drugs prescribed for motion sickness (including meclizine and scopolamine patches) are usually ineffective in stopping or even

decreasing the symptoms.<sup>5-6</sup> Some treatments that have shown promise include vestibular rehabilitation, the use of benzodiazepines (such as valium), and the use of tricyclic antidepressants (such as amitriptyline).<sup>1,5</sup>

If you have previously experienced mal de débarquement and your symptoms have finally resolved, avoiding the same precipitating event may be helpful in preventing a recurrence.<sup>1</sup> If this activity cannot be avoided, the use of benzodiazepines (such as valium) during the possible precipitating event may prevent the recurrence of symptoms. It is up to the individual who has had the mal de débarquement to determine if participating in the activity again is worth the risk.

### **References**

- 1 Hain TC, Hanna PA, Rheinberger MA. "Mal de débarquement." *Archives of Otolaryngology: Head and Neck Surgery*. 1999;125:615-620.
- 2 Brown JJ, Baloh RW. "Persistent mal de débarquement syndrome: A motion-induced subjective disorder of balance." *American Journal of Otolaryngology*. 1987;8:219-222.
- 3 Cha YH, Brodsky J, Ishiyama G, Sabatti C, Baloh RW. "Clinical features and associated syndromes of mal de débarquement." *Journal of Neurology*. 2008;255:1038-1044.
- 4 Cha YH, Chakrapani S, Craig A, Baloh RW. "Metabolic and functional connectivity changes in mal de débarquement syndrome." *Plos One*. 2012;7:1-8.
- 5 Murphy TP. "Mal de débarquement syndrome: A forgotten entity?" *Otolaryngology: Head and Neck Surgery*. 1993;109:10-13.
- 6 Zimbelman JL, Walton TM. "Vestibular rehabilitation of a patient with persistent mal de débarquement." *Physical Therapy Case Reports*. 1999;2:129-138.

7 Gordon CR, Spitzer O, Doweck I, Melamed Y, Shupak A. "Clinical features of mal de débarquement: Adaptation and habituation to sea conditions." *Journal of Vestibular Research*. 1995;5:363-369.

8 Gordon CR, Spitzer O, Shupak A, Doweck I. "Survey of mal de débarquement." *British Medical Journal*. 1992;304:544.

9 Cohen H. "Vertigo after sailing a nineteenth century ship." *Journal of Vestibular Research*. 1996;6:31-35.

10 Clark BC, LePorte A, Clark S, Hoffman RL, Quick A, Wilson TE, Thomas JS. "Effects of persistent mal de débarquement syndrome on balance, psychological traits, and motor

cortex excitability." *Journal of Clinical Neuroscience*. 2013;20:446-450.

11 Macke A, LePorte A, Clark BC. "Social, societal, and economic burden of mal de débarquement syndrome." *Journal of Neurology*. 2012;259:1326-1330.

12 Parker DA, Jennings SJ. "Mal de débarquement syndrome: Review of an unusual cause of dizziness." *Audiological Medicine*. 2008;6:228-232.

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