

# Motion Sickness

## Traveler Summary

### Key Points

- Motion sickness consists of a group of signs and symptoms that develop in response to real or perceived motion.
- Symptoms include dizziness, nausea, and vomiting.
- Prevention includes:
  - Eating light meals
  - Avoiding alcohol
  - Sitting in the front seat of a car, over the wings on an airplane, or mid-deck on ships and facing forward in buses and trains
  - Avoiding tasks requiring a close focus (e.g., reading)
  - Using over-the-counter (OTC) or prescription medication
- OTC medications include:
  - Dimenhydrinate, diphenhydramine, cyclizine, or meclizine: take 1 hour before departure and continue during the trip. These medications can cause sedation; do not mix with alcohol. Read labels carefully. Check for cautions regarding use in certain conditions.
- Prescription medications include:
  - Scopolamine patches: place behind the ear; change every 3 days; apply 8 hours before the first incidence of rough weather or rough roads. Dry mouth and dry eyes may result. Patches do not work if cut in half. More than 1 patch should never be applied; hallucinations or psychosis may result.
  - Strong sedatives (such as promethazine or prochlorperazine): take orally or by suppository after onset of severe symptoms, but anticipate sleep for a number of hours. A cruise medical clinic may administer injectable promethazine if absolutely necessary.

### Introduction

The human body has a delicate system of equilibrium that relies on fluids in the inner ear, visual sensors, and other physical input to maintain a sense of balance. When incoming signals are in conflict—for example, when the body is at rest yet the eyes sense movement—this system is disturbed, causing the symptoms of motion sickness. Seasickness is the most common type.

### Risk Factors

Traveling through water, on land, in air, or even in space can trigger motion sickness. Seasickness is the most common type and is responsible for up to 25% of cruise ship medical visits. Persons who suffer from migraines, pregnant or menopausal women, and children aged 2-12 years are more susceptible. Factors such as turbulence, anxiety, and illness can increase the possibility of motion sickness.

### Symptoms

Symptoms include fatigue, discomfort, drowsiness, yawning, headache, dizziness, a sensation of body warmth, paleness, cold sweats, nausea, vomiting, excessive saliva production, and loss of appetite.

### Need for Medical Assistance

Travelers who develop symptoms of motion sickness, especially if they interfere with planned activities, should seek medical attention (e.g., at the cruise ship medical clinic). Persons with nausea and vomiting may not be able to take oral drugs and may require strong sedatives that are administered by injection or suppository. Several medications are available, including promethazine or prochlorperazine. Injectable promethazine is the treatment of choice for severe motion sickness and may be administered if absolutely necessary but causes severe drowsiness for several hours. Zofran (ondansetron) is not effective for motion sickness.

### Prevention

## Nonmedication

Short-term, drug-free management includes the following behavioral and environmental recommendations:

- Choose to be the driver or pilot rather than a passenger.
- Select a position in the most stable part of the vehicle (e.g., over the wings on an airplane, mid-deck on ships, the front seat of a car [except for children who should sit in the back for safety], and facing forward sitting near the front of trains or just forward of the midsection on buses)
- Lie recumbent and sleep if possible.
- Limit head movements by using restraints across the upper body and leaning against a headrest.
- Occupy a seat with good visibility, especially that of a stable horizon.
- Stand with a wide stance and focusing visually on a distant point when at sea.
- Control breathing.
- Avoid tasks requiring a close focus (e.g., reading)
- Ensure good ventilation.
- Eat only light meals.
- Avoid alcoholic beverages and smoking.
- Listen to pleasant music.

Non-medicinal therapies are very appealing, although sometimes without clear benefit. One such product is a popular wristband, or acupressure band, recommended to be placed 3 fingers' width from the wrist crease. Ginger root has been recognized for years for its calming effects on digestion. Although ginger does not prevent motion sickness, it may reduce nausea without the sedation caused by antihistamines.

## Medications

Medications for motion sickness are most effective when taken before symptoms begin. Antihistamines are frequently used and are relatively safe and effective for the prevention and treatment of mild to moderate motion sickness, though nearly all cause some drowsiness.

Four over-the-counter medications that are approved in the US for this use are cyclizine (Marezine), dimenhydrinate (Dramamine), diphenhydramine (Benadryl), and meclizine (Bonine and Dramamine II). Meclizine is the most popular and is effective for mild motion sickness. Side effects of any of these medications may include drowsiness, blurred vision, increased heart rate, or dry mouth; do not take with alcohol. Antihistamines should not be used by anyone with glaucoma, breathing problems such as asthma, or urinary difficulties caused by an enlarged prostate. Check labels carefully for appropriate dosages, precautions, and age restrictions.

Antihistamines are not very effective in children younger than 12 years and are banned for use in children younger than 2 years in the US and younger than 6 years in Canada. When age appropriate use is indicated, the first dose should be given 1 hour before travel and then every 6 hours.

If over-the-counter medications are not effective, prescription drugs such as scopolamine may be needed and should be discussed with a health care provider. Scopolamine transdermal application should be applied 8 hours before the first incidence of rough weather or rough roads and provides up to 72 hours of medication; patches do not work if cut in half. Thereafter the original patch can be removed and replaced with another patch behind the opposite ear and repeated every 3 days, making this a convenient option for longer journeys. Do not apply more than 1 patch at a time because hallucinations or psychosis may result. Scopolamine causes dry eyes and mouth and its use should be avoided in children; pregnant women; persons with an enlarged prostate, narrow-angle glaucoma, or gastric outlet obstruction; and should be used cautiously in the elderly and persons with heart conditions.

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