

## Vestibular and Non-vestibular Exercises: An Overview

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### ABSTRACT

This document outlines effective exercises designed to treat dizziness and improve postural stability. For dizziness, vestibular and non-vestibular exercises focus on enhancing gaze stability and head movement coordination. Key exercises include repeated movements of looking up and down, moving eyes left to right, focusing on a finger while moving it towards and away from the face, and rotating the head with eyes open and closed. For postural stability, balance retraining exercises are emphasized, such as half-knee bends, backward walking, walking in a figure of eight, tandem stance, single leg stance, heel stance and walking, toe walking, and sit-to-stand transitions. These exercises aim to enhance balance, coordination, and the strength of muscles involved in maintaining upright posture. Repetition of these exercises, typically 10 to 20 times per session, is recommended to achieve significant improvements in stability and reduction of dizziness symptoms.

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## Introduction

Vestibular and non-vestibular exercises are highly specialized physical exercises designed to significantly improve balance, coordination, and overall physical function. These exercises are foundational elements in comprehensive rehabilitation programs, offering essential support for individuals dealing with a range of conditions such as balance disorders, vertigo, dizziness, and those in recovery from injuries or surgeries. By focusing on different components of the body's balance systems, these exercises play a critical role in restoring stability, enhancing movement coordination, and boosting overall physical capabilities.

Vestibular exercises specifically target the inner ear and brain mechanisms that control balance and spatial orientation, making them particularly effective for individuals experiencing dizziness or vertigo. These exercises help retrain the brain to compensate for balance deficits, ultimately leading to reduced symptoms and improved function.

Non-vestibular exercises, on the other hand, focus on strengthening muscles, increasing flexibility, and improving cardiovascular health, which all contribute to better overall balance and physical health. They are crucial for maintaining general fitness, preventing injuries, and aiding in the recovery process by promoting muscle strength, flexibility, and endurance.

Together, vestibular and non-vestibular exercises offer a holistic approach to rehabilitation, ensuring that patients can regain their independence and improve their quality of life. These exercises not only expedite the recovery process but also provide long-term benefits by minimizing the risk of future balance-related issues and enhancing the ability to perform everyday activities with greater ease and confidence.

## Vestibular Exercises

Vestibular exercises are designed to help improve the function of the vestibular system, which is responsible for maintaining balance and spatial orientation. These exercises are often used in vestibular rehabilitation therapy (VRT) to treat conditions such as vertigo, dizziness, and balance disorders. Some common vestibular exercises include:

- **Gaze Stabilization Exercises:** Fixing your gaze on a stationary object while moving your head side to side or up and down.
- **Balance Training Exercises:** Standing on one foot, walking heel to toe in a straight line, or standing on an unstable surface.
- **Canalith Repositioning Maneuvers:** The Epley maneuver or the Semont maneuver.
- **Habituation Exercises:** Repeatedly performing movements that provoke dizziness (like turning the head or bending down).

## Uses of Vestibular Exercises:

- **Rehabilitation of Balance Disorders:** Used to treat conditions like vertigo, dizziness, and vestibular neuritis.
- **Improving Coordination:** Helps patients regain their ability to coordinate movements smoothly.
- **Enhancing Gaze Stability:** Vital for activities that require stable vision while moving, such as reading or driving.
- **Reducing Falls:** Especially important for elderly individuals or those with a history of falls.

## Non-Vestibular Exercises:

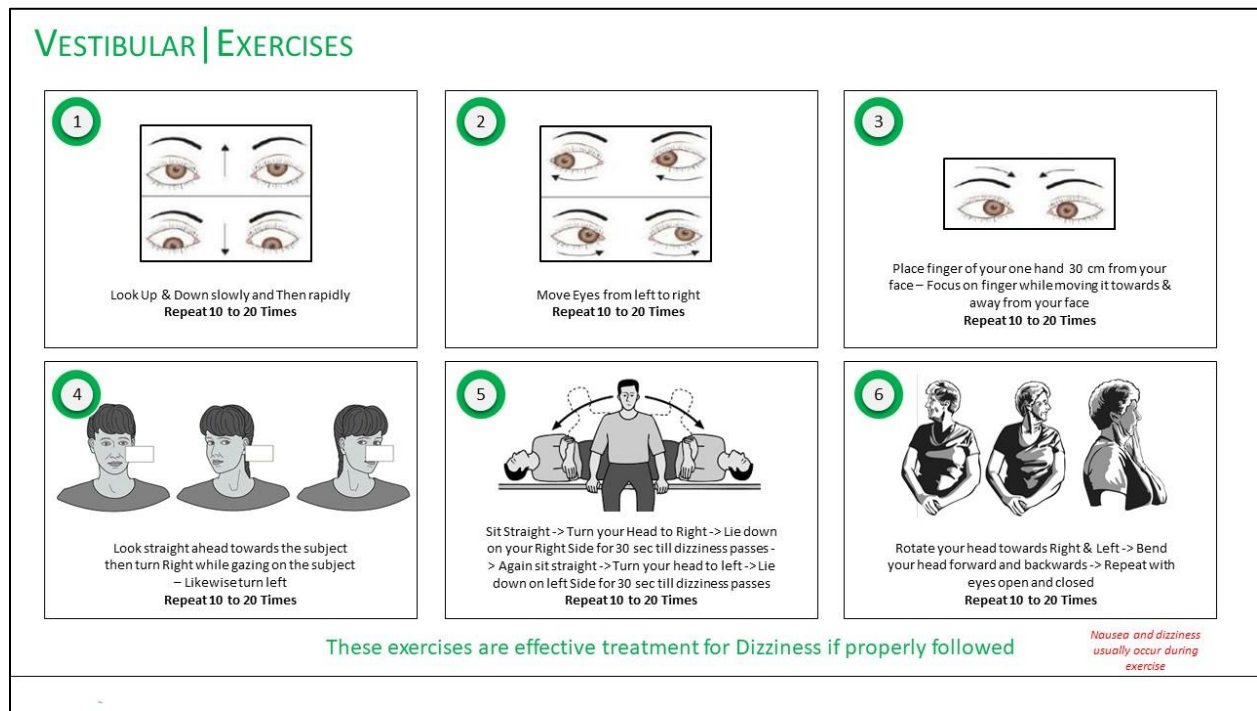
Non-Vestibular exercises are more general exercises that do not specifically target the vestibular system but still contribute to overall balance, strength, and coordination. These exercises are often used in general physical therapy and fitness programs. Some common Non-Vestibular exercises include:

- **Strength Training:** Weightlifting, resistance band exercises, or bodyweight exercises like squats and lunges.
- **Flexibility Exercises:** Stretching routines, yoga, or Pilates.
- **Cardiovascular Exercises:** Walking, jogging, cycling, or swimming.
- **Proprioceptive Training:** Exercises on unstable surfaces like balance boards or foam pads.

## Health outcomes of Non-Vestibular exercises







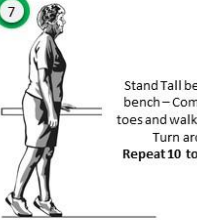
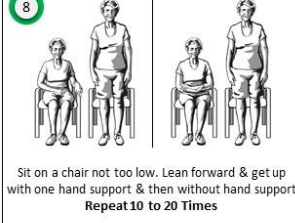
- **General Fitness and Health:** Maintains and improves overall physical health and fitness.
- **Injury Prevention and Recovery:** Strengthens muscles and improves flexibility, reducing the risk of injuries.
- **Enhancing Athletic Performance:** Improves strength, endurance, and coordination, which are critical for athletic activities.
- **Postural Control:** Aids in maintaining good posture, reducing the risk of musculoskeletal issues.

Both types of exercises play crucial roles in different contexts, whether for specific rehabilitation needs or for general health and fitness.



**Figure 1: Vestibular Exercises**

## BALANCE RETRAINING EXERCISE FOR POSTURAL INSTABILITY

 <p><b>1</b></p>	 <p><b>2</b></p>	 <p><b>3</b></p>	 <p><b>4</b></p>
<p>Stand up Tall with hands on bench – Bend your knees half way for. Hold for 30 sec Repeat <b>10 to 20 Times</b></p>	<p>Stand up Tall holding bench with one hand – walk backwards 10 Steps Repeat <b>10 to 20 Times</b></p>	<p>Walk in figure of 8 at your regular pace Repeat <b>10 to 20 Times</b></p>	<p>Stand up besides bench – Place one foot directly in front of other in a line &amp; Hold it for 10 sec (Do it for both feet) Repeat <b>10 to 20 Times</b></p>
 <p><b>5</b></p>	 <p><b>6</b></p>	 <p><b>7</b></p>	 <p><b>8</b></p>
<p>Stand on your one leg with hands support at bench – Hold position for 10 sec (Do it for both legs) Repeat <b>10 to 20 Times</b></p>	<p>Stand on your Heels – Hold position for 10 sec. Progressively walk on your Heels Repeat <b>10 to 20 Times</b></p>	<p>Stand Tall besides the bench – Come on your toes and walk 10 steps &amp; Turn around Repeat <b>10 to 20 Times</b></p>	<p>Sit on a chair not too low. Lean forward &amp; get up with one hand support &amp; then without hand support Repeat <b>10 to 20 Times</b></p>

These exercises help regain balance and postural stability

Falls may occur during exercises

**Figure 2: Balance Retraining Exercise**