

## **Balance (Vestibular) Rehabilitation**

When there is a problem in the balance (or vestibular) system either in the ears or in the brain, the symptoms can range from mild to very severe. The symptoms can range from feeling dizzy for days, weeks or months to feeling dizzy for a split-second when turning quickly.

Over time, these symptoms typically become less severe, as the brain re-learns the new functioning level of the balance system.

For normal balance we rely on the inner ears' balance organs (one in the right ear and one in the left ear) to send signals to the brain when we move. Fluid in 3 semicircular canals in each ear (arranged in the 3 dimensions of space) move as our head moves, triggering movement in hair cells to send signals to the brain about where our head is in space. The purpose of these semicircular canals is mainly to stabilize the eyes, so that we can keep our vision stable when we move our head. There are other organs in the inner ear that sense gravity and linear movement. These inner ear organs work in unison.

A problem (perhaps a viral infection or a blood clot reducing the function of one ear's balance system) results in reduced signals from this affected ear, but normal signals coming from the 'good ear'. When the brain receives these signals they are out of balance we experience "dizziness".

Vestibular rehabilitation allows the brain to learn the new pattern of signals when we move. Once these patterns are learnt, then movements should not cause dizziness.

Symptoms of dizziness become less during vestibular rehabilitation as a consequence of the brain relearning the patterns of signals coming from the inner ears. The original problem which caused the dizziness often does not itself get better but as the brain relearns the new signals we stop feeling dizzy when we move. In some people, vestibular rehabilitation happens naturally, but for most people, specific exercises can help this process to happen faster and further, than otherwise it would.

The principle behind the exercises is to provide the brain with repetitive sets of signals from the inner ears produced by head and body movements, so that the brain can learn these new signals. Until these new signals are learnt by the brain, the exercises will cause dizziness.

It is important that the exercises provoke dizziness otherwise no improvement happens. This means that when you start vestibular exercises you might feel more dizzy than you do now. This is expected, and does not mean that you are doing yourself harm. This period usually lasts 2-3 weeks, and it is important not to give up. Like running a marathon, if you run for 30 seconds, and feel fine, you are no fitter and no nearer to becoming able to run the marathon!

You should start at the beginning of the exercise programme doing as many as you can in 20 minutes. Some of the exercises might not provoke dizziness. If an exercise does not cause dizziness you should move on to the next exercise.

Don't worry if you seem to be stuck at an exercise for a week or more. Progress can be fast or slow, and it may be 1-2 months before you notice the improvement. Vestibular rehabilitation exercises are an aid to recovery and you should do them alongside an increase in your daily activities.

One of the best ways of helping your balance system is to do regular walks. For some people this might be a short distance at first with someone holding an arm, but you should always be looking to progress further. Remember to be patient during these next few months. Progress will be slower than you want. Don't be disheartened by this and don't allow yourself to get bored with the exercises — invent your own if you do. Remember that moving your head around is an important aspect of the exercises (so if you go for a walk, then you need to move your head around when you walk) and running on a treadmill or cycling is of limited value if you are not moving your head around when you exercise.

Allow about 20 minutes for each session and allow time for a rest afterwards. Perform the standing exercises with no shoes on or with flat-heeled shoes. Do the exercises one, two or three times a day.

Do not rush the exercises. Do not perform the exercises more strenuously or vigorously than you can cope with and don't feel that you must do them on days when you are feeling unwell. Start at exercise one and work your way through them all.

If any of the exercises are particularly difficult to do, concentrate on them over time. It is the exercises that you find difficult, that you need to concentrate on to improve your balance system. If you find the balance exercises easy, or if you can do them without feeling dizzy, try to repeat the exercises that can be done without needing vision, with your eyes closed. This places even more emphasis on your balance system (rather than your visual system) and then your balance system gets more exercise and is more likely to adapt and improve.

## 1. SACCADES

1. Sit in a comfortable position, hold a playing card in each hand, level with your eyes and about 18 inches apart.
2. Keep your head still, move your eyes quickly from one card to the other, without stopping in between the cards. Remember to only move your eyes.
3. As you improve, try to focus on a smaller and smaller detail of the card



Repeat 15-20 times in the horizontal direction.  
Repeat 15-20 times in the vertical direction.  
Repeat 15-20 times in a diagonal direction  
Do two or three times daily

## 2. TARGETS

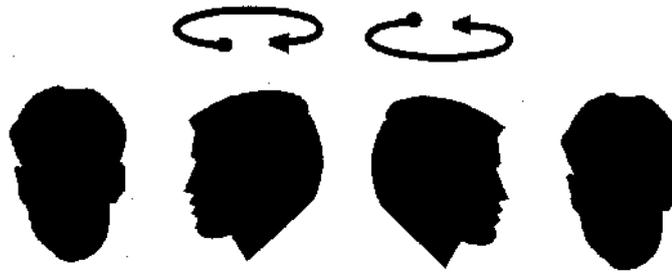
1. Find a comfortable position, preferably a sofa or a chair.
2. Find three targets in your room at eye level. One that would be over your left shoulder, one in front of you and one over your right shoulder.
3. Next move your head to look at the left target, then the centre target, then the right target.



Repeat 10-15 times turning head without stopping.  
Then repeat 10-15 times but now stop at each target  
Do this 2-3 times daily

### 3. HORIZONTAL HEAD MOVEMENTS

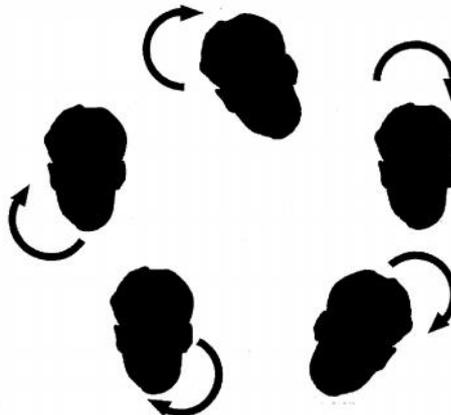
1. Sit in a comfortable position, with your feet on the floor and your hands on your thighs.
2. Keeping your body still, quickly turn your head and look to the right, then turn your head to the left, and then return to the centre, and look directly in front of you. Hold for 5 seconds. Pause, and then repeat the entire exercise.
3. For best results, focus the eyes on an object or target in each direction you turn your head, including when facing forwards.



Repeat 10-20 times  
Do 2-3 times daily

### 4. HEAD CIRCLES

Sitting in a comfortable position, begin moving your head in a circular motion with your eyes open.



Repeat with your eyes closed  
Repeat 15-20 times, reverse direction and  
Do both directions 2-3 times daily

### 5. FOCUSING WHILE TURNING HEAD

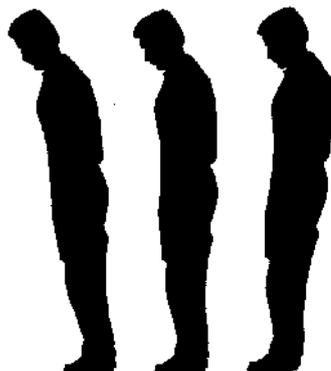
1. Sit in a comfortable position and bring your index finger approximately 10 inches from your nose.
2. Focus on your finger while turning your head from side to side.
3. Gradually increase the speed of the head turns



Repeat 10-20 times  
Do 2-3 times daily

#### **6. ANKLE SWAYS**

1. Stand with your feet shoulder distance apart, equal weight on both feet, arms relaxed at your side. Look straight ahead and close your eyes.
2. Slowly shift your weight forward and backward. Do not move very far. Do not bend at the hips. All movement should be at your ankles.
3. Shift your weight from side to side, placing more weight first to your right side and then to the left. Do not bend at the hips.
4. It may be helpful to do this exercise with your back near a wall or with someone standing close to you.

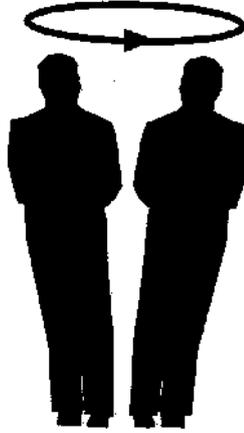


Repeat 15-20 times  
Do 2-3 times daily  
Do this exercise with your eyes closed

#### **7. CIRCLE SWAY**

1. Stand with your feet shoulder distance apart.
2. Breathe deeply and relax. Focus your thoughts on your feet in contact with the floor.
3. Practice swaying your body in a circle. Sway forward, to the right side, to the rear, to the left

- side, and forward again. Look straight ahead and find an object to focus on.
4. Begin with small circles. Do not bend at the hips.
  5. Gradually increase how far you can move your body without bending your hips, and without taking a step.
  6. It may be helpful to stand with your back to a wall or close to somebody to do this exercise.



Repeat 15-20 times.  
 Reverse the direction of the sway  
 Repeat 15-20 times.  
 Do two or three times daily

### 8. BALL CIRCLES

1. Stand in a relaxed, upright posture, weight equal on both feet. Hold a ball with both hands, arms straight. Keep your eyes on the ball.
2. Keeping your arms straight, move the ball in a large complete circle. Follow the ball with your head and your eyes.
3. Make the circle large by lifting the ball high above your head, and low to the ground, bending your knees to touch the ground with the ball. Move smoothly and continuously.
4. If dizziness increases, stop movement until feeling subsides, then begin again.



Repeat 15-20 times.  
 Reverse the direction.  
 Repeat 15-20 times.

Do two or three times daily

### **9. WALK WITH HEAD MOVEMENT**

1. Begin walking at normal speed.
  2. After three steps turn your head and look to the right, while continuing to walk straight ahead.
  3. After three steps turn your head and look to the left, while continuing to walk straight ahead.
- Repeat this activity as often as possible or 15 to 20 times