

Supplemental Material S1. Self-directed exercises.

Exercise 1

Rapid Eye Movements (Saccade)

1. Sit in a comfortable position and hold a playing card in each hand at a distance of 45 cm in front of your eyes.
2. Keep your head still, move your eyes quickly from one card to another card without pausing between cards. Don't forget to move only your eyes.
3. As you get better, try to focus on the smaller components of the card, such as the nose, eyes, or mouth.

Repeat this exercise 15 to 20 times in the horizontal direction.

Repeat this exercise 15 to 20 times in the vertical direction.

Repeat this exercise 15 to 20 times in the diagonal direction.

Perform this protocol twice to thrice times per day.

Exercise 2

Visual Tracking

1. Sit in a comfortable position, hold a small card with a few words written on it at a distance of 30 cm in front of your eyes.
 2. Gently move the card horizontally to the right, left, and back to the center. Keep your head still and follow the card with your eyes only. Then move in a vertical direction (up, down, and back to the center). Finally, repeat in the diagonal direction (up and left, down and right, and back to center) (up and right, down and left, and back to center).
 3. As you progress, move your arms faster and faster until you can no longer read a word. Do not forget to keep your head still and only your eyes moving.
- Repeat this exercise 15 to 20 times in the horizontal direction.
- Repeat this exercise 15 to 20 times in the vertical direction.
- Repeat this exercise 15 to 20 times in the diagonal direction.
- Perform this protocol twice to thrice times per day.

Exercise 3

Moving Head While Following the Eye Level Stationary Targets

1. Sit in a comfortable position, preferably on a chair or bench.
 2. Consider three targets that align with your eyes, one above your left shoulder, one in front, and another above your right shoulder (for example: a clock, a sign, and a light bulb).
 3. Then move your head to look at the target to the left, to the center, and then the target to the right.
 4. Repeat the rotation of the head 10 to 15 times non-stop.
 5. Repeat the rotation of the head 10 to 15 times, stopping at each target this time.
- Perform this protocol twice to thrice times per day.

Exercise 4

Horizontal Head Movements

1. Sit in a comfortable position with your feet flat on the floor and your hands on your thighs.

2. Keep your body still, turn your head quickly and look to the right, then turn your head quickly and look to the left. Then return to the center and look straight ahead. Pause for 5 seconds and then do the whole exercise again.

3. For better results, focus your head on an object or target while turn your head in any direction, as well as to the center position.

Repeat this exercise 15 to 20 times.

Perform this protocol twice to thrice times per day.

Exercise 5

Head Circles With Eyes Open and Closed

1. Sit in a comfortable position, moving your head in a circular motion with your eyes open.

2. Repeat step one with your eyes closed.

Repeat this exercise 15 to 20 times.

Change the direction of head rotation and repeat the exercise 15 to 20 times.

Perform this protocol twice to thrice times in both directions per day.

Exercise 6

Focusing on a Target While Turning Head

1. Sit in a comfortable position, keeping your index finger approximately 25 cm from your nose.

2. Focus on your fingers as you turn your head from side to side.

3. Gradually increase the speed of the head rotations.

Repeat this exercise 15 to 20 times.

Perform this protocol twice to thrice times in both directions per day.

Exercise 7

Ankle Movements

1. Spread your legs shoulder-width apart so that they are heavy your weight is the same on both feet and your arms are hanging on either side. Then look straight ahead and close your eyes.

2. Slowly move your weight back and forth, but do not move too far from the center. Do not bend the hip. All movement should be from the ankle.

3. Transfer your weight from one side to the other side, first most of the weight is on the right side and then on the left side. Do not bend the hip.

4. To help with this exercise, you can stand close to the wall or ask someone to support you from behind.

Repeat this exercise 15 to 20 times.

Perform this protocol twice to thrice times in both directions per day.

Perform this protocol with your eyes closed.

Exercise 8

Circle Sways

1. Stand with your feet shoulder-width apart.

2. Take a deep breath and relax. Focus on the feeling of your feet touching the floor.

3. Practice the angular rotation of the body in a circle. For this purpose Lean forward, to the right, backward, and left, and return forward again. Look straight ahead and focus on a target.
4. Start the exercise with small circles. Do not bend on the hip.
5. Gradually increase your body movement without bending or stepping on your hip.
6. To help with this exercise, you can stand close to the wall or ask someone to support you from behind.

Repeat this exercise 15 to 20 times.

Change the direction of movement and repeat the exercise 15 to 20 times.

Perform this protocol twice to thrice times in both directions per day.

Exercise 9

Ball Circles

1. Stand up straight and comfortable. Distribute your weight on both feet. Hold the ball with both hands and straighten your arms. Focus your eyes on the ball.
2. Move the ball in a large complete circle while your arms outstretched. Follow the ball with your head and eyes.
3. Enlarge the circle by lifting the ball above the head and bringing it towards the ground. Bend your knees to touch the ground with the ball. Move smoothly and continuously.
4. If you feel increased dizziness, stop moving until it subsides, then start again.

Repeat this exercise 15 to 20 times.

Change the direction of movement and repeat the exercise 15 to 20 times.

Perform this protocol twice to thrice times in both directions per day.

Exercise 10

Gait With Head Turns

1. Start moving close to a wall at a normal speed. You can even touch the wall and get help from it if necessary.
2. After three steps, turn your head and look to the right while continuing to move forward.
3. After three steps, turn your head and look to the left while continuing to move forward.
4. To make the exercise more difficult, walk on the carpet from the hard surface of the floor or in the open air on uneven surfaces such as tall grass, which is very difficult.

Repeat this exercise 15 to 20 times.

Perform this protocol twice to thrice times per day.

Exercise 11

Body Rotation Against the Wall

1. Ask the patient to stand with his back to the wall. Teach him Keep your right shoulder away from the wall and turn to the left in front of your body to be placed on the wall.
2. In the same way, ask the patient to remove his left shoulder from the wall and turn to the right so that the back of his body is against the wall.
3. Ask the patient to continue steps 1 to 2 to reach the end of the wall. Now teach him to stop and maintain his balance again.
4. Ask the patient to return to the starting point and repeat this activity to certain number of times.

Note: The greatest effect of this protocol is when the patient turns to the weaker vestibular.

Exercise 12

Stepping on Ramp

1. Help the patient walk to the ramp.
2. Teach the patient to walk slowly, drop his weight from side to side, and keep his feet slightly apart on the ramp.
3. The patient should not look down.
4. When the patient reaches the edge of the ramp, ask him to look down and walk carefully.
5. The protocol can be executed in reverse.

Exercise 13

Stepping Over Obstacles

1. Clear the path of obstacles using objects such as chairs, pillows, trash cans, and anything else available. Some objects must be small enough for the patient to pass over them, yet to be seen to change direction.
2. Teach the patient to cross obstacles along a specific pattern.
3. As the patient progresses, ask him to pick up smaller objects.
4. After a while, change the direction of the obstacles so that they are not repetitive for the patient. To make the exercise more difficult, you can throw the ball to the patient after training and ask him to catch it while walking.

Exercise 14

Sudden Stops While Walking

1. Ask the patient to walk about 3 meters and then stop abruptly at your command.
2. Give the patient a chance to maintain his balance again.
3. Ask the patient to repeat this activity to certain number of times.

Exercise 15

Jumping on Balance Ball While Focusing on a Target

1. Help the patient sit on a large balance ball. The patient's feet should be in contact with the floor of the room and his hands on the side of the ball.
2. When the patient is comfortable on the ball, ask him to jump on it slowly (you can ask for help to stand behind the patient.)
3. After the patient was comfortable doing this activity, hold a small object approximately 30 cm in front of his eyes and ask him to focus only on the ball while resuming the jump.

Exercise 16

Gaze Stabilization at Different Levels

1. While the patient is standing on an uneven or moving surface (e.g. trampoline or balance board), ask him to focus on an object that you are moving in front of his visual field.
2. Teach the patient to maintain balance while focusing on the object.
3. When the patient dares to perform this activity, change the exercise by moving the object in vertical or diagonal direction.

Exercise 17

Stepping on a Trampoline With Eyes Open and Closed

1. Teach the patient to gently take a step on the trampoline, help him if needed.
2. Ask the patient to keep his head up and focus on an eye level stationary target.
3. The patient should first start with small steps and gradually increase the height and speed of his steps until he approaches the military step.
4. When the patient feels comfortable to doing this activity, ask him to continue walking, and then do a military step with his eyes closed.

Exercise 18

Weight Shifting--Front to Back With Eyes Closed

1. Help the patient stand in the middle of the trampoline.
2. The patient should spread his legs shoulder-width apart, placing his weight on both. Spread your legs, hang your hands on your sides and go straight to Look ahead.
3. Ask the patient to slowly and carefully move his weight forward and then back. All movements should be at the ankle and encourage the patient not to bend on the hip.
4. Then ask the patient to transfer his weight from side to side, first with more weight on the right side and then on the left side. Again, encourage the patient not to bend on the hip.
5. This protocol can be done first with open eyes and then with closed eyes.

Exercise 19

Circle Sways on a Trampoline

1. Help the patient stand in the middle of the trampoline and spread his legs shoulder-width apart.
2. Ask the patient to be relax.
3. The patient should slowly practice the angular rotation of the body in small circles. Educate the patient and help him move to forward, to the right, to the back and left, and go back forward again.
4. As the patient progresses, ask him to gradually increase the size of the angle without bend on the hip or stepping.
5. This protocol can be done first with open eyes and then with closed eyes.

Exercise 20

Sitting on Balance Ball

1. Carefully help the patient to sit on the ball.
2. Give the patient a chance to maintain balance and be as comfortable as possible.
3. The patient must roll the ball from forth to back and then from side to side.
4. When the patient feels comfortable to doing this exercise, ask him while he is maintaining balance, his feet off the floor.
5. Support the patient from behind.

Exercise 21

Tandem Walking on a Balance Beam

1. Help the patient put his right foot on the balance beam.

2. Help the patient and ask him to put his left foot on the balance beam in front of the right foot so that the heel of the left foot is in front of the right toes.
3. Ask the patient to Continue tandem walking on balance beam.
4. If necessary, allow the patient to open his arms to the sides to maintain balance.

Exercise 22

Standing Upright on a Balance Board

1. Help the patient to stand on the balance board, and make sure his feet are in the center of the board.
2. By keeping the body in upright position without bending on the hip, ask the patient to Lean gradually forward (The board will move forward with the patient).
3. Then ask the patient to lean gradually to the back on his heels, then return to the center position.
4. Ask the patient to lean more to the back on his heels, in which the board will also rise.
5. Ask the patient to lean forward without bending on the hip and then return to the center position.
6. To use this protocol on both sides, simply move the board, and ask the patient to repeat steps 1 to 5.

Exercise 23

Hitting to the Ball

1. Place the patient in a corner of the room close to the wall, and to maintain safety use a sponge mattress.
2. Educate the patient that ball rolls gently towards him, and he should hit to the ball with the side or tip of the foot as comfortable as possible is and return it to you. Advise to the patient to keep his legs apart and find his center of gravity before trying to catch the ball.
3. When the patient is in a comfortable position and good balance, gently roll the ball towards him.
4. When the patient is able to perform successfully this activity and feels comfortable with it, teach him to move sideways two steps before hitting the ball.

Exercise 24

Tossing a Ball While Stepping or Bending

1. Continuing the previous training, this time stand up to the patient's side at a distance and tossing the ball slowly in front of him.
2. The patient must try to get the ball that passes in front of him.
3. When the patient succeeded in catching the ball, throw the ball in different positions so that the patient is forced to perform other activities such as walking, bending, or stepping on the sides to catch it.

Exercise 25

Cross Stepping

1. Ask the patient to stand up near a wall with his legs slightly apart.

2. Educate the patient to put the right foot in front of the left foot, stay in this position for 5 seconds and then return to the initial position.
3. The patient should then repeat this activity with the left foot.
4. Ask the patient to repeat steps 2 and 3 in succession a number of times.

Exercise 26

Stepping in Different Patterns

1. Use number of cards and arrange them according to one of the following patterns.
2. Teach the patient to stand up behind the line, and after saying each number put the designated foot on the corresponding card and then return to the initial position.
3. Tell the patient which foot to use and count the series of numbers 2 to 5 in order while changing the pattern used in each repetition.

Exercise 27

Stepping on a Foam Surface With Eyes Closed

1. Ask the patient to stand up on one end of the sponge mattress and his face is against the wall. If necessary, let him touch the wall slightly with the palm of his hand and when stabilizes lift his hand off the wall.
2. Make sure the patient's feet are directly in front of the wall. Ask the patient to go to the other end of the sponge mattress and then return to the initial point.
3. When the patient feels comfortable to doing this activity, ask him to do it with his eyes closed.

Exercise 28

Walking on a Foam Surface in Different Patterns

1. The patient should stand up on one end of the sponge mattress in such a way that his face to be in front of the other end of it.
2. Ask the patient to stepping or walking in accordance with the following patterns.
3. Teach the patient to repeat each of the patterns to certain number of times.
4. By bringing the mattress close to the wall in the face necessity the patient can touch the wall in part.

Exercise 29

Walking With Eyes Closed

1. Before performing this exercise, ask the patient to walk close to the wall along the room with open eyes. The patient should pay attention and get used to the floor of the room.
2. Ask the patient raised his arms out of the wall at little distance so that his fingertips somewhat touch the wall.
3. Using the wall as a guide, ask the patient to walk sideways along with the eyes closed and the head held up.
4. During this activity, whenever the patient feels imbalance or falls, he should open his eyes and can continue to perform when he recovers his balance only.