

An illustration of an elderly man with a mustache, wearing a blue suit and a blue hat, falling backwards. His arms are outstretched, and his hat is flying off. The background is a light blue gradient. The entire scene is framed by a dark blue rounded rectangle with a white dashed border.

FALL PREVENTION

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Today we will discuss

01 What factors increase our fall risk?

02 What can we do to combat these factors and decrease our fall risk?

03 What do we do if a fall occurs?

Are you at a risk of falling?

- Have you fallen before?
- Do you tend to trip?
- Do you feel unsteady with walking?
- Do you experience freezing episodes?
- Do you ever feel weak, dizzy, or fatigued?
- Do you take medications that may impact your balance?
- If you depend on a mobility aid, like a walker, do you ever neglect to use it?
- Do you make nighttime bathroom visits?



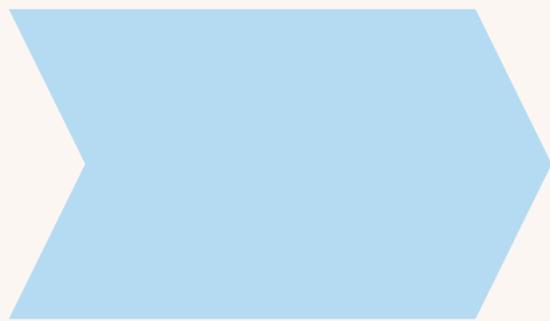
FALLS

- Falls are often multi-factorial
- Falls can happen anywhere and any time
- People with Parkinson's are twice as likely to fall as their same-aged peers without Parkinson's
- Falls may result in injuries, pain, activity limitations, and fear of falling that can compromise health and well-being



FEAR OF FALLING

can lead to...



Activity
restriction



Social
Withdrawal



Reduced
strength &
balance

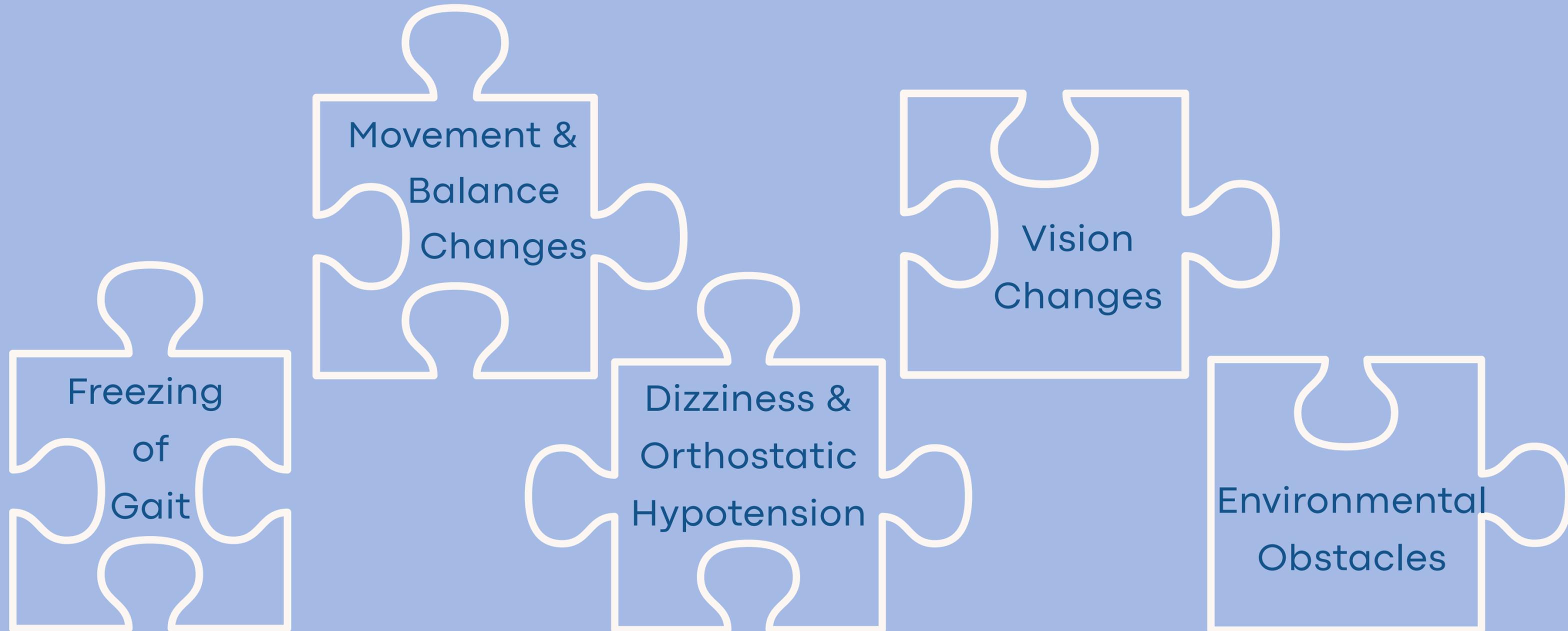


Reduced
independence

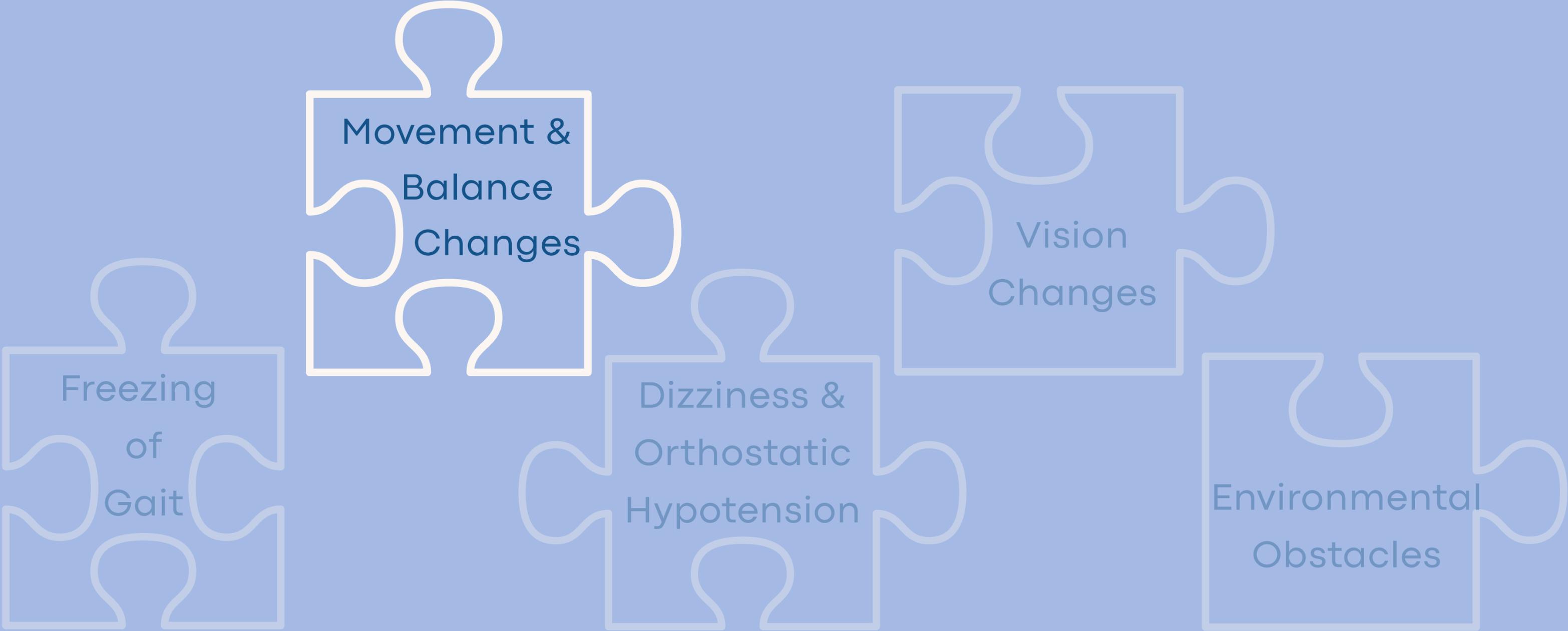


Increased
fall risk

Fall Risk Factors



Fall Risk Factors



Movement &
Balance
Changes

Vision
Changes

Freezing
of
Gait

Dizziness &
Orthostatic
Hypotension

Environmental
Obstacles

Movement & Balance Changes

Some contributing factors:

- Rigidity
- Dyskinesia
- Bradykinesia
- Fatigue
- Balance deficits

Rigidity

- Defined as muscle stiffness that causes tightness and reduced range of motion in arms, legs, or trunk, common in people with PD
- Can contribute to stooping posture, which impacts gait and balance
- Complete regular stretching to counteract rigidity
- Be aware of posture
- Avoid sitting for long periods
- Rotate trunk, swing arms, and get up frequently throughout the day

Dyskinesia

- Defined as unpredictable & involuntary movements that can impact balance and safety
- Monitoring by a medical professional is required to maximize medication and minimize side effects
- Walking at a slightly increased speed in time to a beat may help in restricting time dyskinesia can impact gait
- Use of patterns/visual cues to help guide feet and aid direction

Bradykinesia

- Defined as slowness of movement
- Allow for extra time
- Focus on one thing or a single task at a time
- Avoid distractions
- Mental rehearsal prior to difficult tasks can act as a primer and prepare the body

Fatigue

- Defined as excessive tiredness, weakness, or exhaustion, common in people with PD
- Pace yourself throughout your day and week by spreading out more exerting tasks
- Plan for micro-rest breaks during activities to avoid reaching full fatigue
- Plan more taxing activities during times of day when you have more energy

DOMAINS OF BALANCE

ANTICIPATORY POSTURAL ADJUSTMENTS

- ABILITY TO PREDICT AND REACT TO ANTICIPATED LOSS OF BALANCE
- STANDING ON TIP TOES, STANDING ON ONE LEG

SENSORY INTEGRATION

- ABILITY TO PROCESS VISUAL, SOMATOSENSORY, AND VESTIBULAR INFO
- STANDING ON SOFT SURFACES, BALANCING WITH EYES CLOSED

STABILITY IN GAIT

- BALANCE WHILE WALKING OVER GROUND
- WALKING OVER OBSTACLES, COMPLETING OTHER TASKS WHILE WALKING, TURNING

REACTIVE STEPPING

- ABILITY TO RECOVER BALANCE BY STEPPING TO AVOID A FALL
- CATCHING YOURSELF AFTER GETTING BUMPED INTO BY SOMEONE

STABILITY LIMITS

- ABILITY TO MOVE YOUR CENTER OF MASS WITHOUT CHANGING YOUR BASE OF SUPPORT
- REACHING AS FAR AS YOU CAN IN ANY DIRECTION WITHOUT NEEDING TO TAKE A STEP

What is the
best thing we
can do to help
improve our
balance?

Exercise!



What are the benefits of exercise and being active?

- Slows the progression of Parkinson's Disease
- Symptoms of Parkinson's Disease are generally less evident the more active you are
- Keeps your bones and muscles healthy and strong
- Keeps your heart and lungs healthy
- Increases your energy
- Helps you sleep
- Improves memory and attention
- Improves mood and sense of well-being
- **Reduces the fear of falling**
- **Improves your balance!**

What are some barriers to being active?

- Apathy and low motivation
- Not having the habit of exercising
- Exercise exacerbating fatigue, stiffness, soreness, etc.
- Fear of falling
- Lack of access, time, or partner

Ways to be more active:

- Give yourself a reward for being active
- Start slow - focus on building a habit of exercising before worrying about perfecting it
- Add short sessions of exercise onto habits you already have
- Join a local exercise class
- Consult with an Occupational Therapist and/or a Physical Therapist to determine the best exercise regime for yourself

Exercise Recommendations from the Parkinson's Foundation

01

**Aerobic
Activity**

02

**Strength
Training**

03

Stretching

04

**Balance,
Agility, &
Multitasking**

Aerobic Activity

Frequency: 3 days/week for at least 30 minutes of moderate to vigorous activity

Examples: brisk walking, running, cycling, swimming, dancing, interval training



Strength Training



Frequency: 2- 3 non-consecutive days/week for at least 30 minutes per session

Examples: exercises targeting upper body, lower body, and core with weight machines, resistance bands, handheld weights, or body weight



Stretching

Frequency: at least 2-3 days/week, with daily being most effective

Examples: active range of motion (dynamic stretching) or sustained stretching with deep breathing





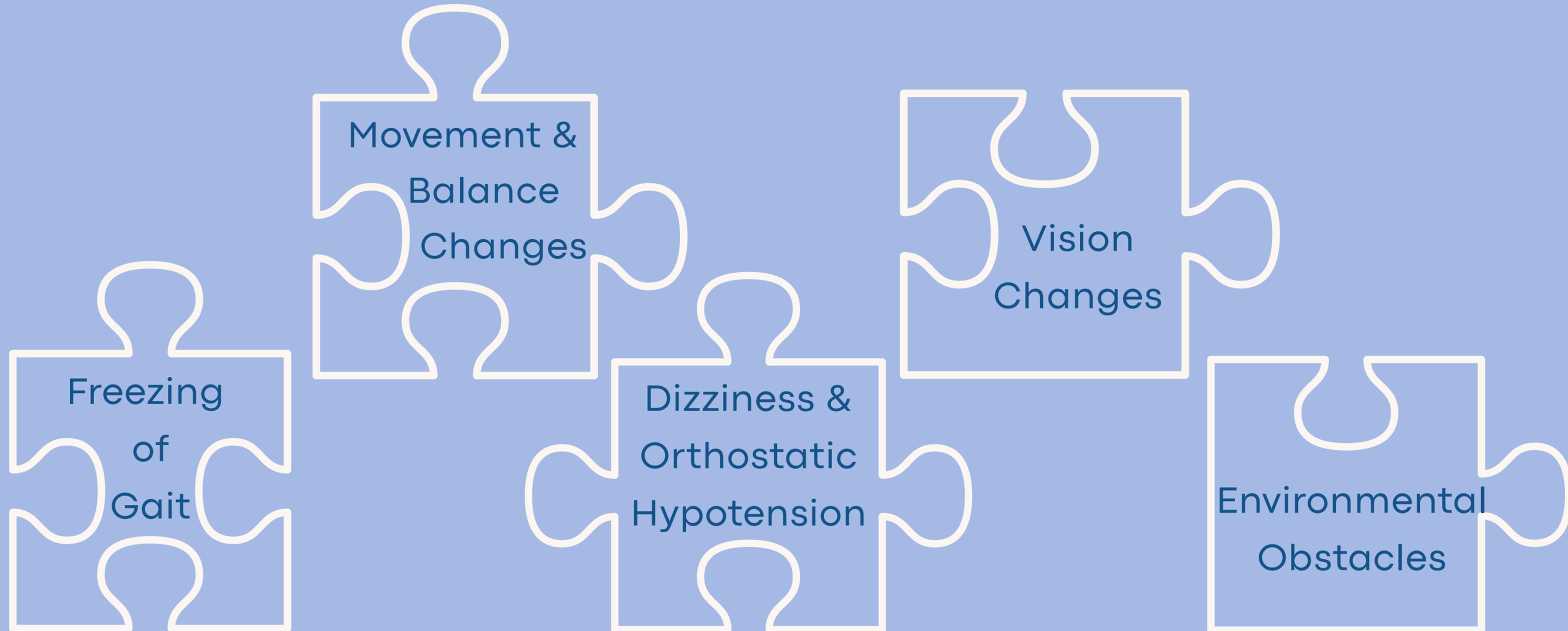
Balance, Agility, & Multitasking

Frequency: at least 2-3 days/week, with daily being most effective

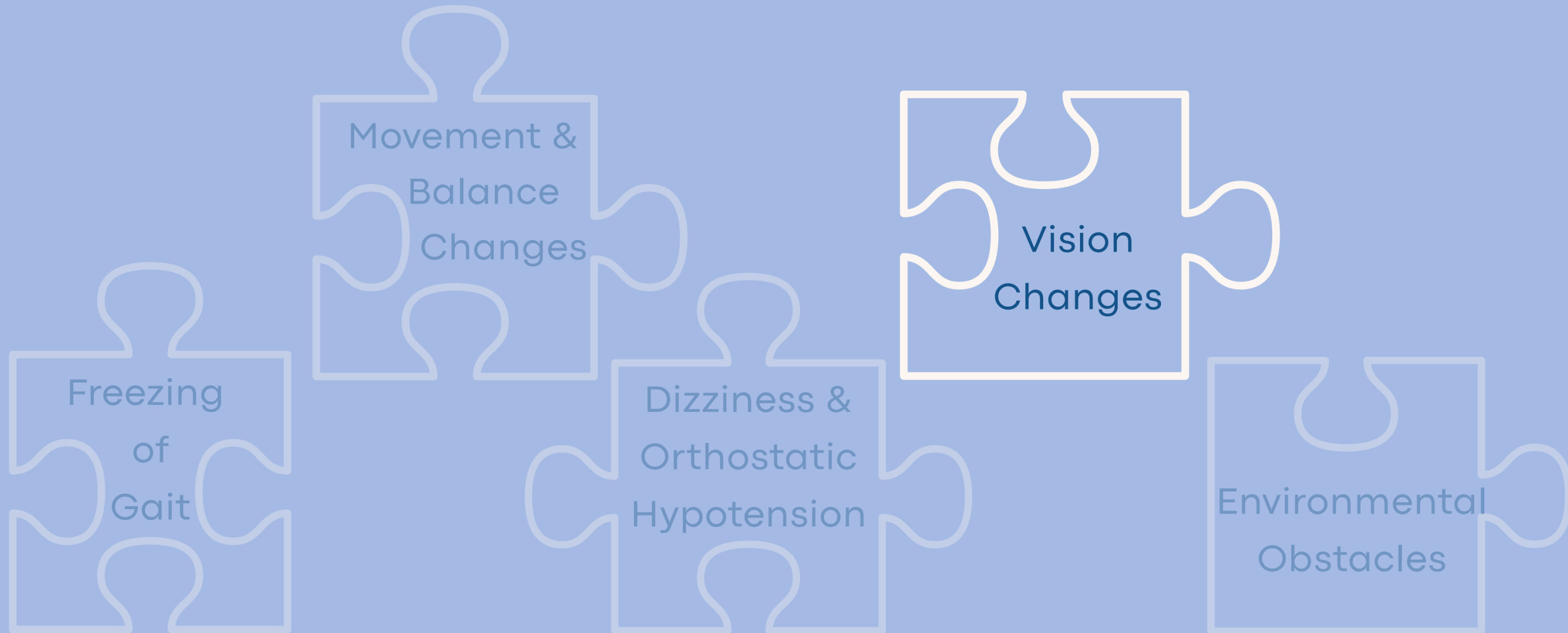
Examples: multidirectional stepping, weight shifting, turning, large movements, multitasking, such as yoga, tai chi, dance, and boxing



Fall Risk Factors



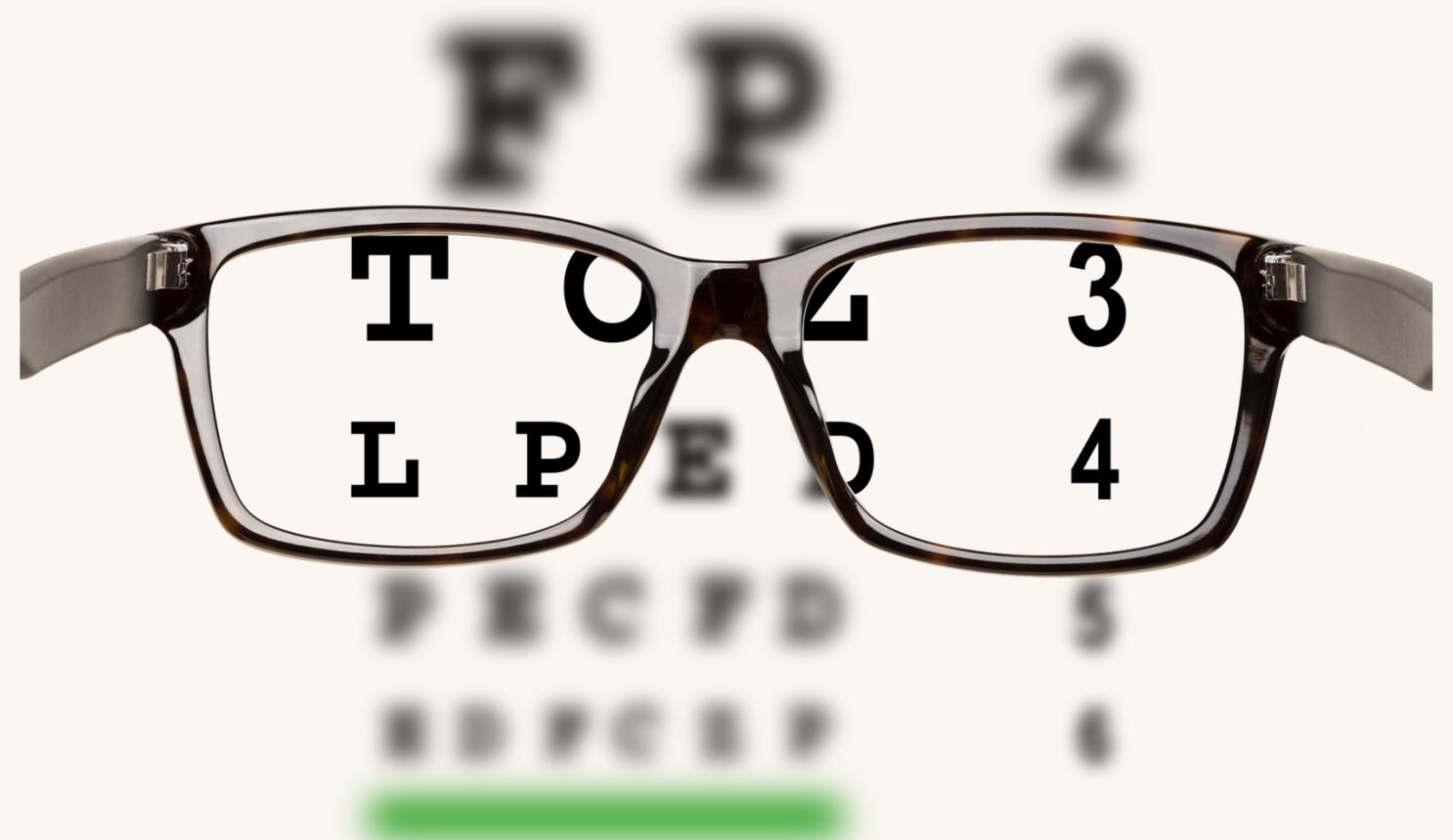
Fall Risk Factors



Vision Changes

Some contributing factors:

- Dry Eye
- Decreased acuity
- Convergence insufficiency
- Double vision
- Impaired depth perception
- Eyes take more time to adjust to changes in light or glare
- Other eye conditions, such as cataracts, glaucoma, macular degeneration that reduce vision

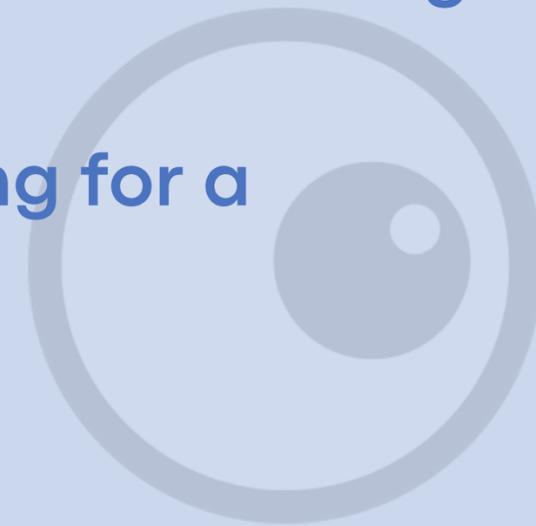


What can we do to decrease the impact of these visual changes?

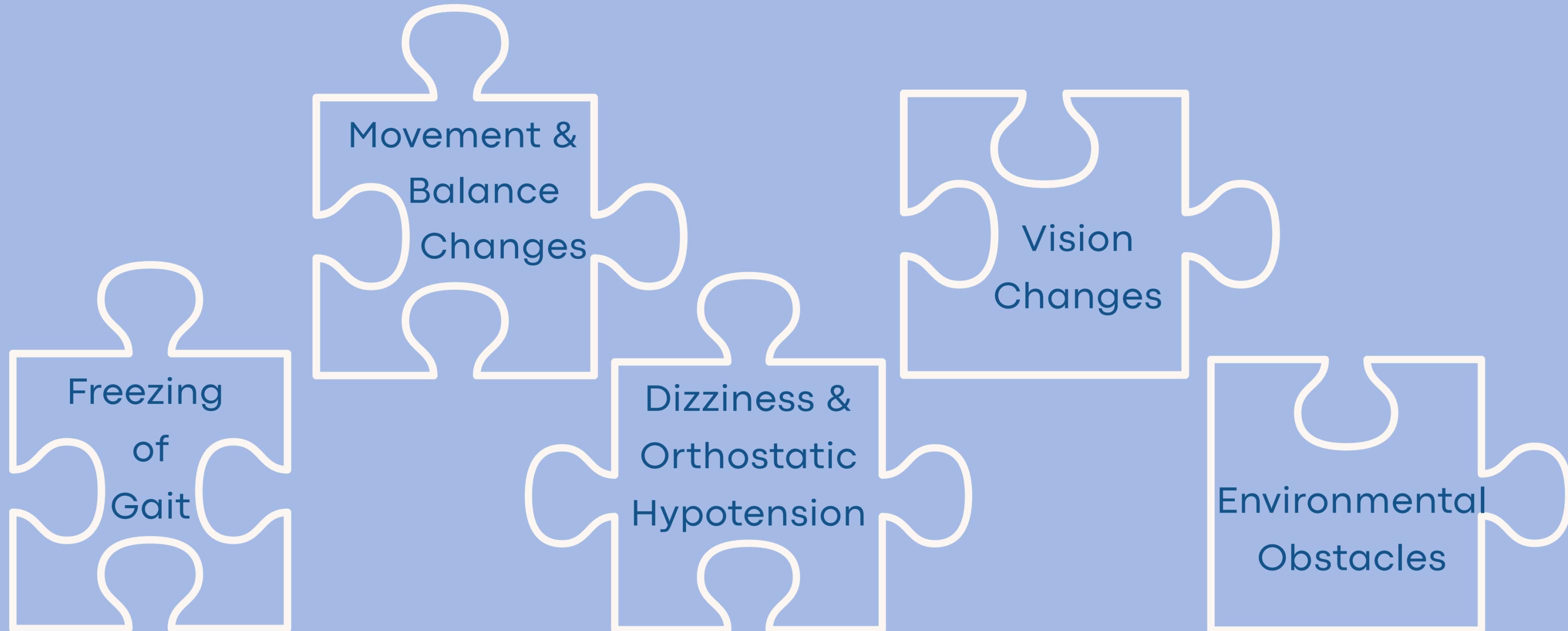
- Visit your eye doctor (optometrist or ophthalmologist) for a comprehensive eye exam every year to talk about your eye health and any changes to your vision.
- If you wear glasses, make sure they are clean and clear of debris
- Be aware of progressive lenses/multifocal lenses impact on depth perception, especially when walking up/down stairs or curbs
- If you have double vision, ask your eye doctor if prism glasses are appropriate
- Use eye drops to keep eyes moist
- Ensure adequate lighting in your home - especially when getting up at night to use the bathroom
- Use contrast to distinguish items (i.e. high contrast tape on level changes such as stairs, dark bathmat on a light floor)
- Allow eyes more time to adjust with changes from light to dark areas
- Consult with an Occupational Therapist

Eye Exercises

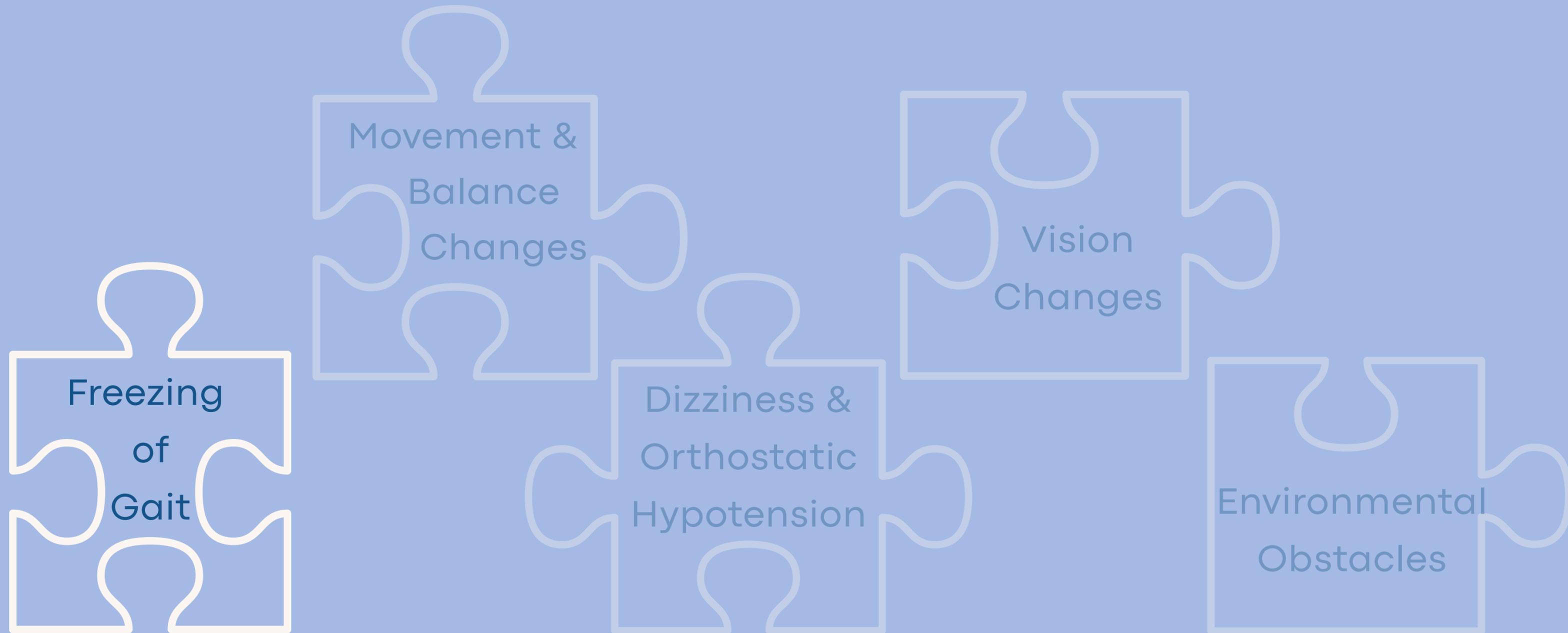
- Track a target with your eyes without moving your head
- Exaggerate rolling your eyes one direction, then roll them the other direction
- Complete pencil push-ups
- Hold a finger up on each hand, arms length away and a little wider than shoulder width apart. Quickly dart your eyes from one finger to the other without moving your head
- Blink your eyes as hard as you can, holding for a couple seconds



Fall Risk Factors



Fall Risk Factors



WHAT IS FREEZING OF GAIT?

- Abnormal gait pattern that results in sudden and temporary inability to complete voluntary movement of feet
- Feeling of being “stuck” or “frozen” in place
- Can appear as trembling in place (foot bouncing when attempting to move), short steps when starting to move, or akinetic freezing (no movement of lower extremities)
- Although our feet do not move, our torso often continues to move, resulting in frequent loss of balance and increased fall risk
- Freezing can also impact other parts of the body or speech

What triggers Freezing of Gait (FoG)?



- Initiation of movement (starting walking from standing, transitioning from sitting to walking)
- Turning
- Multi-tasking
- Walking through doorways
- Walking over changes to flooring (i.e. carpet to tile)
- Medication timing (being in an "off" period)
- Experiencing a stressful situation

Prevent the Freeze

- Identify your triggers for freezing so that you can address them proactively
- If you have been sitting for a while, complete a few seated marches before standing
- After standing, pause for a moment, then focus on your first step being a BIG step
- Use visual cues to focus on in high-risk areas (i.e. think about stepping over the edge of the rug, put tape on the ground in doorways)
- Consider use of an adaptive device such as a LaserCane or U-Step II Walker designed to help prevent and overcome FoG
- Make sure you are taking your medication on time as directed by your neurologist

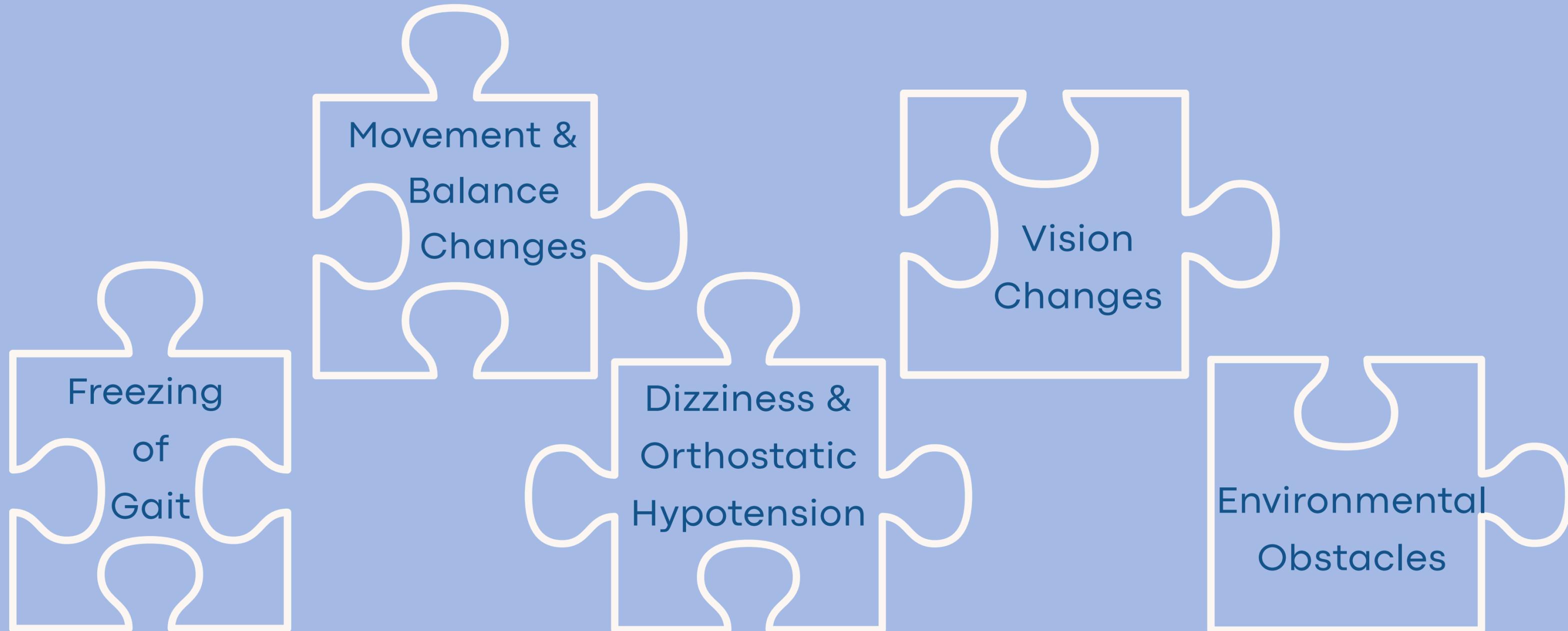
Overcome the Freeze

- The moment you notice your are freezing, STOP
- Shift your weight side to side until you are able to get a foot off the ground to step
- Try another movement (i.e. shake your arms, touch your head), then try to step again
- Try moving a different direction
- Give yourself a rhythm to step to (i.e. hum a tune, count out loud, use a metronome)
- Pick a target in the distance. Guess and count number of steps to the target
- Use the 4 S Strategy
 - STOP all movement
 - SIGH and take a deep breath
 - SHIFT your weight side to side
 - STEP when you are ready to walk

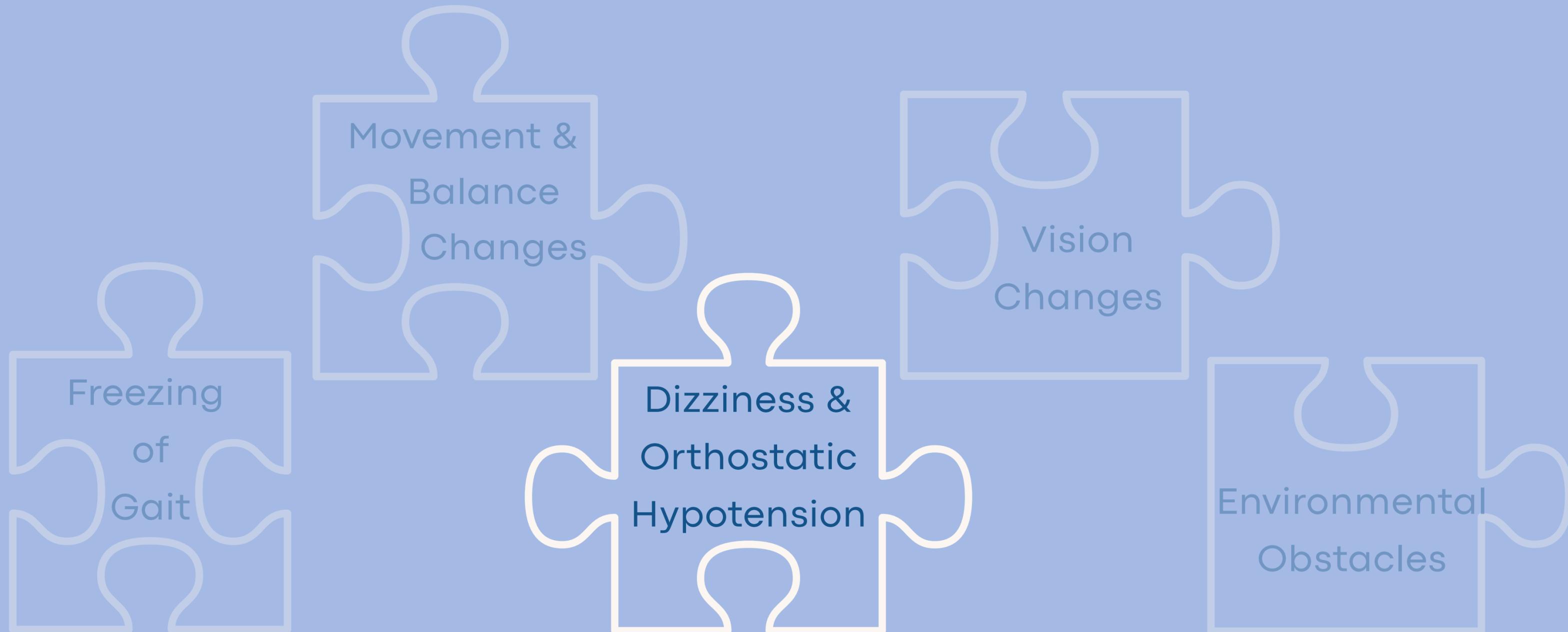
How to assist someone when they are freezing:

- Do not rush your care partner who is freezing, as this will often make the freezing worse
- Do not try to physically move the foot of your care partner who is freezing
- Give them a target to step over (such as stepping over your foot)
- Encourage them to stand tall with feet hip width apart
- Provide simple and encouraging cueing to help your care partner utilize their strategies more effectively
- Walk beside them at a steady pace and encourage them to match their steps with yours
- Face your care partner, and place your hands on them as if you were slow dancing, and gently help them rock side to side

Fall Risk Factors



Fall Risk Factors



Dizziness and Orthostatic Hypotension

- The prevalence of dizziness is twice as high in people with Parkinson's Disease compared to their same-aged peers without Parkinson's Disease
- Dizziness can be caused by a variety of factors
- Common factors include:
 - Visual deficits
 - Dehydration
 - Vestibular dysfunction
 - Orthostatic hypotension (OH)



Orthostatic Hypotension

- A sudden drop in blood pressure that occurs when going from lying down or sitting to a standing position
- Defined as a reduction of systolic blood pressure of at least 20 mm Hg or a reduction of diastolic blood pressure of at least 10 mm Hg within 3 minutes of standing
- Can occur with any positional changes - lying to sitting, sitting to standing, bending over to standing
- People will often feel light headed or dizzy with the drop in blood pressure, but these symptoms are not always present
- If severe enough, orthostatic hypotension can cause people to pass out
- Prevalence of OH is 30-50% of people with Parkinson's Disease
- 50% of people with OH also have supine hypertension

What might make OH symptoms worse?

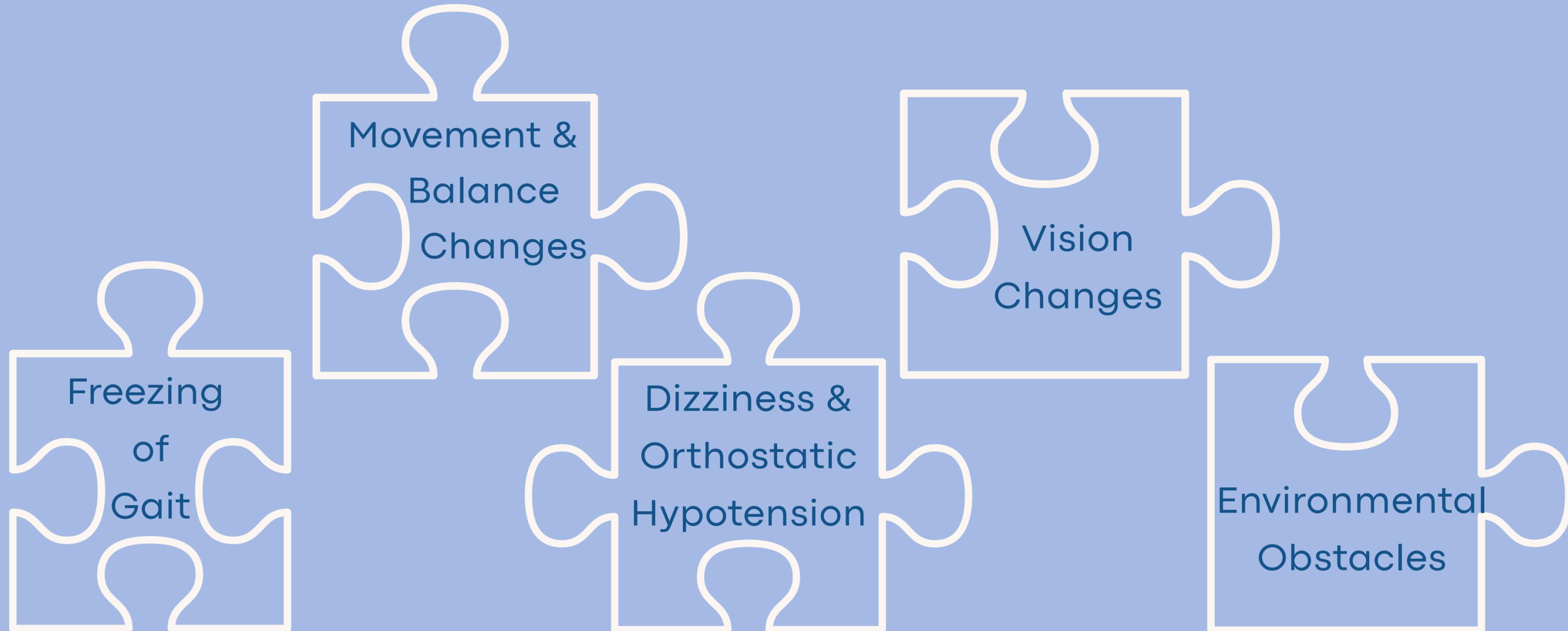


- Heat
- Drinking alcohol
- Large, carbohydrate-rich meals
- Prolonged standing
- Long periods of inactivity
- Vigorous exercise
- Straining while going to the bathroom

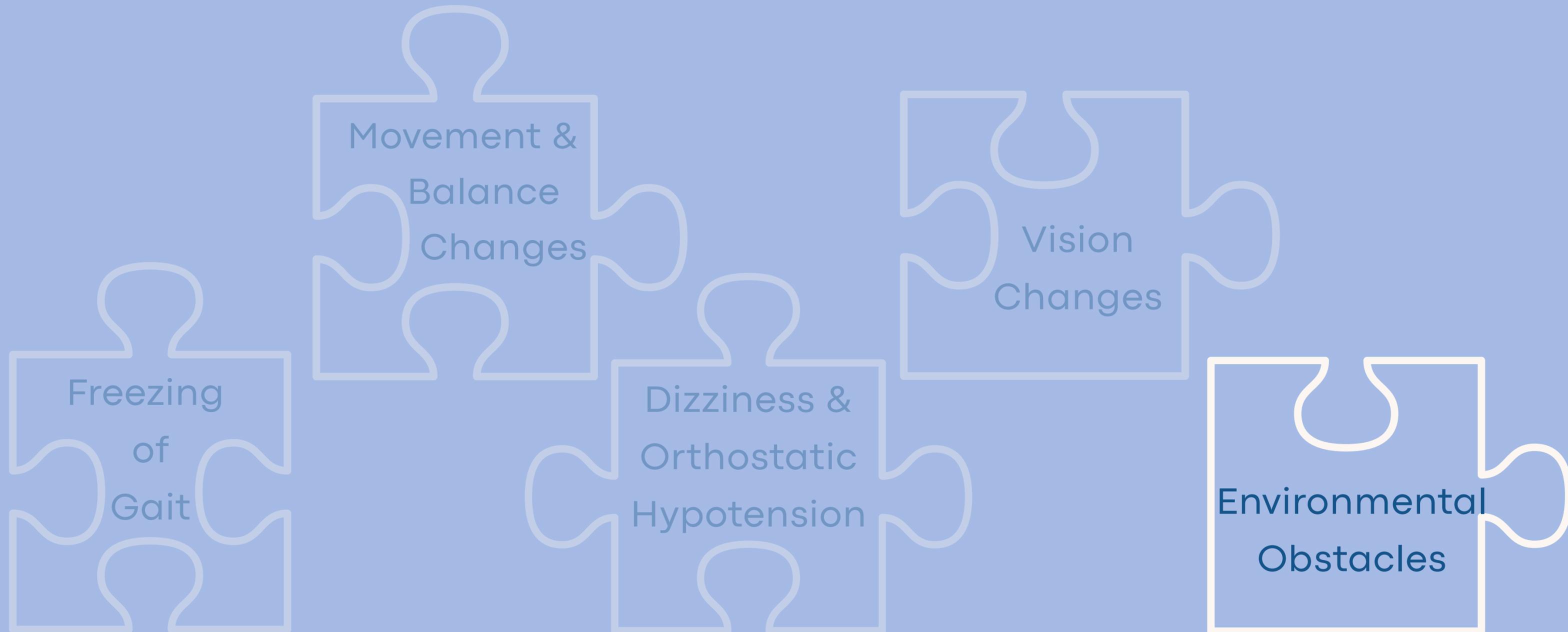
How to Manage Orthostatic Hypotension

- Discuss symptoms with your doctor to see if medication may be beneficial for you
- Increase fluid intake
- Wear compression stockings (discuss with your doctor)
- Complete lower body strengthening exercises
- Elevate the head of your bed
- Move slowly when changing positions to give your body time to adjust. Pause for at least 5 seconds between each move.
- Avoid bending at the waist – if you drop something on the floor, squat with your knees to pick it up
- If you feel dizzy when you stand up, sit back down
 - cross your legs in a scissor fashion and squeeze for 30 seconds
 - squeeze your fists as tight as you can for 30 seconds
 - elevate feet above heart level
 - do not begin walking until the dizziness has subsided

Fall Risk Factors



Fall Risk Factors



Environmental Obstacles

Oftentimes, we don't notice hazards around our home because we have lived at home for so long without any problems.

Making simple adaptations to your home and to your habits can greatly reduce your fall risk and improve your safety around your home and in the community.



General Home Safety



General Home Safety

- Remove clutter to decrease risk of tripping and falls, such as rugs and electrical cords
- Create wide walking paths for easy access and the use of a walker or wheelchair, if needed.
- Ensure all furniture is secure, sturdy and does not swivel. Chairs should be stable, have arm rests and adequate seat height to make standing up easier.
- Use bright lights and nightlights inside your home, especially in the bathroom and hallways.
- Create good lighting throughout the home to minimize dark or shadowy areas. Adjust blinds and shades to minimize glare.
- Make sure floors are stable with non-skid surfaces. Avoid excessive patterns.
- Install handrails on at least one side of the steps. Handrails two to three inches from the wall allow for a good grasp.
- Make a bedside commode or urinal available for nighttime use if needed.
- Place frequently used items at an easy-to-reach height that allow access without stooping, bending, or reaching too far overhead, or use a reacher

Bathroom Safety



Bathroom Safety

- Install grab bars near the toilet, tub and shower: no location should require use of towel racks, faucets or soap dishes as grab bars.
- Ensure the toilet has an elevated seat and arm rests or grab bar within easy reach.
- Add a shower chair with back support to the tub or shower for safety.
- Make seating available to perform tasks such as brushing teeth or shaving.
- Place light switches near the door to avoid walking into a dark area.
- Place a non-slip mat inside the shower
- Have a non-slip bathmat outside of shower so the floors do not become wet and slippery
- Dry off completely before exiting shower to decrease risk of water on slick bathroom floor

Footwear Safety



Footwear Safety

- Wear shoes with good support and a proper fit
- Shoes should be long enough that your toes are not touching the front and should be supportive around the middle
- Replace shoes with worn-out tread
- Avoid slip-on shoes, shoes with heels, or canvas shoes with little support
- Beware of sneakers with thick soles

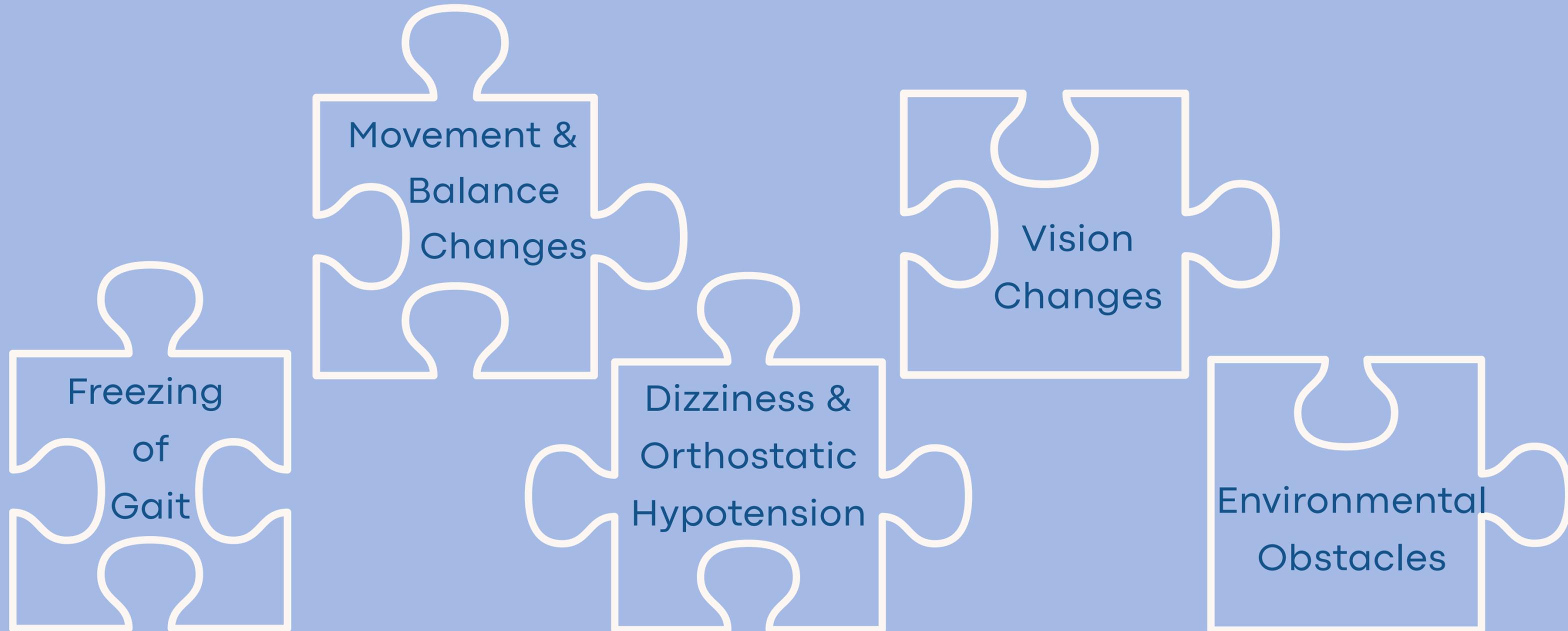
Community Safety



Community Safety

- Watch out for cracks in sidewalk or uneven surfaces
- Be aware of ice and snowy areas. Walk slower and more carefully on sidewalks in the winter
- Be aware of outdoor items in yard, such as garden hose or rakes, and put items away after using them
- Scan new environment to be aware of curbs, steps, or other obstacles
- When walking in crowds, try to walk by a wall or to one side to reduce number of people walking past you
- Bring an assistive device (such as a cane or walker) when walking in the community if you need one

Fall Risk Factors



Safe Movement Techniques

Sitting in a Chair

- Get as close to the chair as possible before you sit
- If you have room, walk in a wide arc to approach the chair rather than turning in a small space in front of the chair
- Make sure you feel the edge of the chair on the backs of your legs before sitting
- Reach back for the arm rests to control your descent
- Bend forward and stick your hips back to keep control while sitting down

Standing Up from a Chair

- Scoot forward to the edge of the chair prior to standing
- Scoot your feet back as far as you are able
- Push up with one or both arms on the armrests or seat of chair - do NOT grab for your walker to pull yourself up
- Lean forward with your nose over your toes as you stand
- Make sure you have your bearings with your weight evenly distributed in your feet before moving

Reaching

- Get as close as possible to object you are trying to reach
- Stand in a power stance - feet at least shoulder width apart and in a slightly staggered position to allow you to shift your weight more easily
- If available, rest one hand on a steady surface
- If using your walker as a stabilizing surface, ensure the brakes are locked

Backing Up

- Avoid backing up when possible by instead turning to walk forward
- When opening door to the refrigerator, oven, etc, stand to the side in a power stance to avoid stepping back
- When backing up, stand with feet shoulder width apart
- Bend slightly at your knees and hips to lower your center of gravity
- Practice control with each step, pausing slightly to ensure you don't gain unwanted backward momentum

WHAT DO IF
YOU'VE
HAD A FALL



1. Take a moment to assess how you are feeling.
 - a. If you are in pain or do not feel safe getting up on your own, call for help.
 - b. If you do not have any pain, look for a sturdy piece of furniture.
2. Roll onto your side, and then onto all fours.
3. Crawl over to a chair or sturdy piece of furniture.
4. From a kneeling position, put your arm up onto the seat of the chair.
5. Bring one knee forward and place that foot on the floor.
6. Push up with your arms and legs. Pivot your bottom around.
7. Sit down and rest before trying to move.
8. If you hit your head during the fall, seek medical attention regardless of how you feel in the moment.

How to help someone else get up from a fall

- Allow time for your care partner to assess themselves before attempting to help them up
- Place a support or pillow under their head, and encourage them to take a few breaths before moving
- Only assist if you are able to do so safely. If you are unable or unsure if you can safely help, call emergency services
- A gait belt is helpful to protect yourself and your care partner in assisting with fall recovery
- Encourage your care partner to do as much as they are able to do safely and without pain by guiding them through the steps on the previous slide
- Do not grab/pull your care partner by their arms. Instead use a gait belt around the waist or grab by the waist band of their pants to assist
- Once seated, help your care partner re-check for injuries
- Afterwards, facilitate a discussion on what may have caused the fall and how it may be prevented in the future

Questions?



Thank

you