Written By: ***Brienne Leclaire***

Affecting 70-80 % of people with Parkinson's , changes in sweating is a common non-motor symptom of Parkinson disease. Parkinson's can cause changes in the skin and autonomic nervous system resulting in changes in sweating and issues regulating body temperature. There are two major types of dysfunctions seen in sweating – hypohidrosis and hyperhidrosis; diminished and excessive sweating respectively.

Hypohidrosis

Hypohidrosis diminishes/reduces the body's ability to sweat to regulate body temperature and, increases sensitivity to temperature changes. Some describe hypohidrosis as the skin feeling dry across the whole body. It is also commonly described as feeling like being in a desert. Where it is hot but very dry. The cause can be related to anticholinergic or antiparkinsonian medications. Some also experience diminished sweating caused by the progression of Parkinson disease itself.

Reduced sweating can impact a person's sleep, ability to partake in outdoor activities in the heat, difficulty transitioning between temperatures and dry or irritated skin. These all impact social, physical, and mental well being.

What can be done to manage hypohidrosis?

The condition can be managed through the use of medication if other non-drug remedies are ineffective. Outside of medication there are options that can help reduce the impact of diminished sweating.

These include, but are not limited to:

- Avoiding extended periods of time in heat as much as possible can help reduce overheating and the risk of heatstroke.
  - This includes avoiding or limiting time in saunas, hot tubs, and direct sunlight on hot days.
- Utilizing shade can help the body self regulate temperature better when outdoors for an extended period of time.
- Wearing light clothing that is loose fitting along with hats and sunscreen.
  - This helps increase airflow, reduce sun exposure, and protect the skin from damage.
- Avoid physical or strenuous exertion in the heat that would typically cause perspiration help reduce overheating.
- Lastly keeping the skin moisturized with ointment or creams to reduce irritation from dry skin.

Hyperhidrosis

Excessive sweating (hyperhidrosis) is the more common sweating symptom associated with Parkinson disease. This particular type of sweating is not necessarily related to heat or exercise. Excessive sweating typically occurs in the upper body (underarm, palms of hands or face). It is described as sweating so much you become drenched in minutes or sweat dripping off your face and hands. The condition causes excessive oil production in skin and scalp, and excessive sweat production in sweat glands. Some experience this only at night and is commonly referred to as night sweats.

Hyperhidrosis can be caused by low dopamine levels associated with Parkinson's or from some antiparkinsonian medications. The low level of dopamine is linked to dysfunction in the autonomic nervous system that is responsible for regulating body temperature and can result in excessive sweating or reduced sweating.

Excessive sweating can disrupt daily activities, cause body odor, social anxiety and trouble sleeping.

What can be done to manage hyperhidrosis?

Medical and non-medical treatment options are available to manage hyperhidrosis. From a medical perspective, botulin toxin injections may be used to reduce sweating in specific areas. While electric current therapy (Iontophoresis) can reduce the production in the sweat glands[1].

Some over the counter and topical treatments are available to help treat excessive sweating such as antiperspirants or topical creams containing aluminum chloride hexahydrate or anticholinergics.

Additional ways to help reduce sweating are:

- Taking frequent, lukewarm showers to wash away excess sweat.
- Wearing looser, breathable clothing (ex. cotton or linen) to help increase air flow.
  - If experiencing night sweats, light cotton bedding and sleepwear can help wick away sweat and provide a cooler sleep.
- Drinking plenty of water to replenish fluids being lost from perspiration.
- Avoiding triggers for excessive sweating (ex. spicy foods, alcohol, crowded rooms).
- Lowering the thermostat at night and increasing air flow by using a fan can help reduce nighttime sweating.

Changes in sweating can be an uncomfortable symptom of Parkinson disease; disrupting daily activities and affecting quality of life; but the good news is that there are steps you can take to managing changes in sweating.

References

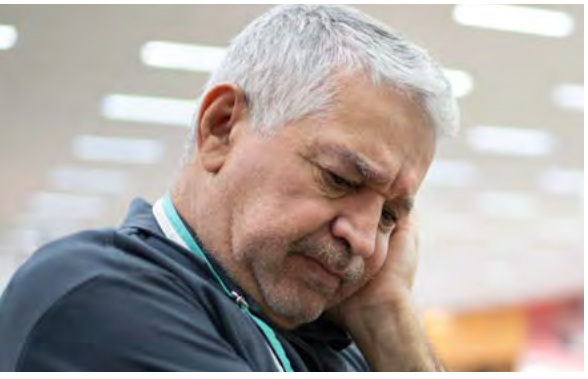
[1] *Feddersen, Berend, Klopstock, Thomas, Noachtar, Soheyl Neurology February 2005, 64 (3) 571; DOI: 10.1212/01. WNL.0000145830.94572.2E*

Written By: ***Brienne Leclaire***
With files from Ashley Ploof

Conversation is a valuable and necessary part of daily living. It is the foundation of social interaction, remaining connected and keeping feelings of isolation and loneliness at bay. Speech and voice issues are common occurrences for people with Parkinson disease, with research indicating 75-90% will develop problems over the course of their illness[1].

Parkinson disease affects the body's motor system, which means it affects the voice as well. From the diaphragm to the larynx to the face itself, a multitude of muscles are used in speaking. Though symptoms vary widely from person to person, the speech and voice symptoms most commonly demonstrated by people with Parkinson's are:

- **Reduced vocal loudness** ***(soft voice or hypophonia)***
  What is tricky about this one is that you may think you are speaking loudly, when in reality you are not.
- **Monopitch**
  (lacking the normal variation in inflection)
  Typically, when people talk, voices go up and down in pitch, also known as inflection. In Parkinson's this inflection disappears and the voice sounds flat.
- **Disruptions of voice quality**
  This could mean that your voice sounds hoarse, slurred, rough, or breathy.
- **Abnormally fast rate of speech**
  In this instance the words seem to tumble out quickly almost over top of one another.
- **Fatigue in speech**
  The voice may start off strong, however the longer one speaks volume and pronunciation decline.



This cluster of symptoms is often termed "hypokinetic dysarthria". These issues can happen at any time and tend to increase as Parkinson's progresses.

Another aspect that can affect speech is one's cognitive abilities. Parkinson's can cause cognitive impairments that can affect one's ability to recall words, alter one's normal speech patterns and the production of speech. People with Parkinson's might find they struggle recalling or saying certain words. Described often as the feeling of a word being on the tip of one's tongue but unable to say or remember the word.

Vocal changes are not just part of Parkinson's but also a normal part of aging. These changes begin from around age 60 to 70. The muscles that produce sound called vocal folds get weaker and become less flexible. Changes also start to occur that can affect how efficiently one breathes. The maximum amount of air one's lungs can hold decreases, and the diaphragm (a muscle which helps us to breathe deeply) becomes weaker.

What can be done to combat voice and speech issues in Parkinson's?

Speech Language Pathologists (SLP) are an excellent resource if you have access to one near you. They can help by providing an assessment to find out more about the changes happening with your voice and provide assistance in improving or maintaining your speech.

If you do not have access to a Speech Language Pathologist, there are vocal exercises that can help. There are also some things you can try on your own (or with a group) to incorporate into your day to aid in maintenance of your speech.

- Stay social! Having conversations with friends and family is one of the best things you can do for your voice. Go for coffee with friends, video call or talk on the phone; all of these keep your voice active.
- If you're reading something, read part of it out loud.
- Like music? Sing along to your favourite songs or join a singing group or church choir!
- Keep being active. Many people already incorporate physical activity into their daily routine, but exercise also keeps your lungs strong, which will help you maintain your voice.

Speech is often overlooked in the early stages of Parkinson disease. Sometimes it can be hard to recognize the small changes that are occurring early on in the journey. When you or your loved one starts to notice these changes, it is important to take care of your voice now to maintain your independence and relationships. Everyone has different goals in maintaining their voice. Some may want to continue things like reading stories to their grandchildren, singing, and being able to converse with loved ones. Others may worry about maintaining their independence through being able to speak for themselves in the future.

References

[1] *Cleveland Clinic. "Tips for Improving Communication in People with Parkinson's Disease." https://my.clevelandclinic.org/health/diseases/9392-speech-therapy-for-parkinsons-disease. 2020-08.*

VISION ISSUES IN PARKINSON'S

Written By: ***Brandi La Bonte***
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Changes in vision are common as people get older. For those with Parkinson's, problems with eyes and eyesight are a little more complex than just "getting older". Parkinson disease does not cause vision loss, however it can lead to significant vision changes that directly impact day-to-day life (including watching tv, reading, etc). It is important to note that all of the Parkinson's related vision changes will impact driving to varying degrees. For those with Parkinson's Plus Syndromes, particularly Progressive Supranuclear Palsy (PSP) and Multiple Systems Atrophy (MSA), vision issues are more likely and often more severe.

Some of these issues include:

Reduced Blinking and dry eyes

This is one of the most common vision problems in Parkinson's. Did you know that most people blink 15-20 times/minute, but for people with Parkinson's that number is reduced by approximately 30%; and for those with PSP the number of blinks drops to 3/minute[1]? The reduced blinking is caused by the general slowing down (bradykinesia) that happens with Parkinson's and often results in dry, sore, and tired eyes.

Blepharospasm

This phenomenon happens when the muscles that move your eyelids contract or go into a spasm. Caused by impaired electrical signals in the brain blepharospasm can result in excessive blinking or twitching of the eyelid or difficulty keeping your eyes open.

Blurred vision

This issue occurs either as a side effect of some Parkinson's medications (particularly anticholinergics), OR by difficulties moving the eyes (see the next point).

Eye Movement Issues

Your eyes are a moving part of the wonderful machine that is your body. Just like other parts of your body (legs, hands, etc) Parkinson's can affect your ability to move your eyes as well. You may begin to notice that you have difficulties when starting to move your eyes (left to right or up and down) or when trying to move them quickly. It may be more noticeable when looking at a fast-moving object, such as when watching moving cars or a tennis match. Sometimes, instead of a smooth movement, your eyes may move in a slow and jerky way. Issues with eye movement can make driving quite difficult, and depending on severity, very unsafe.

The three main types of eye movements affected are:

- **Saccadic** - the rapid movement eyes make that allow you to quickly change what you are looking at. An everyday example of this would be when reading a book and moving from one line to the next or shoulder checking while driving.
- **Pursuit** - the kind of movement eyes make when following an object either horizontally or vertically. The eyes typically move smoothly, instead of in jumps. In Parkinson's, these movements can become jerky. An everyday example in this case

would be drawing a line on a piece of paper or watching a grandchild throw a ball towards you.

- **Vergence** - the movement eyes make when an object moves towards or away from you, focusing naturally as that object moves towards or away from you or if an object is closer to you or further away. If these movements are abnormal in Parkinson's, it may cause double vision. Your everyday life is made up of these eye movements from driving, to walking, to preparing a meal or getting groceries.

Double *(diplopia)* vision

Double vision is pretty much what it sounds like — seeing two images of a single object some or all of the time. You may see the two images one on top of the other, side by side, or a mix of both. This is also often caused by problems moving the eyes. Typically, a side effect of medication but can also be attributed to dyskinesia. It should be noted however that not all instances of double vision are caused by Parkinson's. A head injury, diabetes or even astigmatism can also cause this.

Colour and Contrast Impairments

People with Parkinson's tend to have less sensitivity to contrast and colour. With contrast it is the ability to perceive the difference between light and dark areas. For example, a shadow may be perceived as a real object. The ability to distinguish colours from one another becomes impaired and can be particularly problematic with shades of blues and greens or more pastel colours. This is often caused by one or both of the following: 1) Parkinson's causes a loss of retinal cells in the eye that rely on dopamine to process and perceive colour[2], and 2) cognitive impairments can also play a role in this issue.

Spatial awareness

Some people with Parkinson's may have difficulty judging the space around them. They may not be able to gauge the distance between objects and may have problems when walking past objects or getting through a narrower space (like a doorway). Sometimes reaching out to touch the sides of doorways or other objects may help. In this instance it is likely not a medical professional who deals with eyes that can help you, rather an occupational therapist.

The good news is that depending on the specific issue, treatment options are available. These can include medication adjustments, eye drops or artificial tears, botulinum toxin injections, new glasses/contact prescriptions or even changing the lighting in a room.

Some other things that can help:

- » See your optometrist regularly for an eye exam.
- » You might consider getting two pairs of glasses, one for distance and one for reading instead of bifocals. (Talk to your optometrist about this option and why it might be helpful)
- » Use a warm moist compress to help with sore, tired eyes, and eyelid redness or irritation.
- » Try limiting screen time (tv, computer or phone) when you feel your eyes getting tired or sore.

Your neurologist will often assess vision as part of your ongoing neurological exams. However, if you notice any changes in your vision between appointments, your regular optometrist is a great place to start as they can provide a thorough exam. This of course, should be followed up with your neurologist at your next appointment. They can help you determine if there may be more health-help available with other medical professionals like an ophthalmologist or orthoptists.

References

[1] *Hamedani, A and Gold, D. "Eyelid Dysfunction in Neurodegenerative, Neurogenetic, and Neurometabolic Disease," Front. Neurol., 18 July 2017. doi.org/10.3389/fneur.2017.00329*

[2] *Dolhun R. "Vision and Parkinson's Disease," www.michaeljfox.org, 27 October 2015*