

Parkinson Disease,
Multiple Sclerosis,
Fibromyalgia

PD

Progressive degenerative disorder of the CNS in a region of the brain (basal ganglia) that regulates coordinated muscle movement and postural changes.

PD - Causes

- Loss of neurons that produce the chemical messenger dopamine. When dopamine levels decrease, it causes abnormal brain activity, leading to impaired movement and other symptoms of Parkinson's disease.
- **The cause of Parkinson's disease is unknown**, but several factors appear to play a role, including:
- **Genes.** Researchers have identified specific genetic mutations that can cause Parkinson's disease, but these are uncommon except in rare cases.
- **Environmental triggers.** Exposure to certain toxins or environmental factors may increase the risk.
- **The presence of Lewy bodies.** Clumps of specific substances within brain cells.
- **Alpha-synuclein found within Lewy bodies.** Although many substances are found within Lewy bodies, this is currently an important focus among Parkinson's disease researchers.

PD – Risk Factors

- **Age.** Young adults rarely experience Parkinson's disease. It ordinarily begins in middle or late life, and the risk increases with age. People usually develop the disease around age 60 or older.
- **Heredity.** Having a close relative with Parkinson's disease increases the chances that you'll develop the disease. However, your risks are still small unless you have many relatives in your family with Parkinson's disease.
- **Sex.** Men are more likely to develop Parkinson's disease than are women.
- **Exposure to toxins.** Ongoing exposure to herbicides and pesticides may slightly increase your risk of Parkinson's disease.

PD – Symptoms

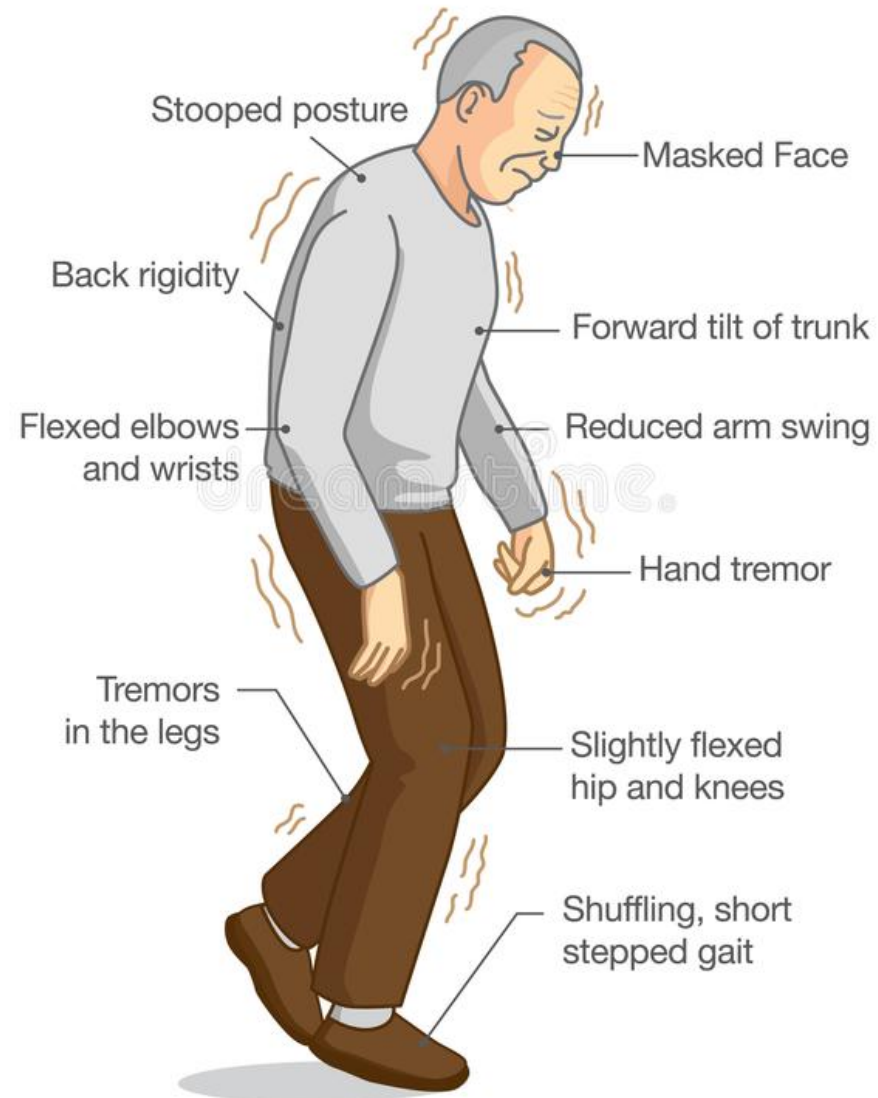
It is important to note that this is a very individualized disease. Signs and symptoms can be different for everyone. Early signs may be mild and go unnoticed. Symptoms often begin on one side of your body and usually remain worse on that side, even after symptoms begin to affect both sides.

Cardinal Features –

- **Resting Tremor** 70-75%, initially unilateral, disappears during movement and sleep,
- **Rigidity** often seen first in lack of arm swing when walking, also includes lack of facial expression, can have a “catch” in flexion. Can include lack of extension at hip, knee and ankle.
- **Abnormal Posture** causing nearly 40% to experience falls resultant in a hip fracture rate 5 times more likely than peers.
- **Bradykinesia** “slow” “movement”, position changes on table, buttons, zippers.

- Loss of sense of smell, can occur up to 20 years before other symptoms present
- Depression, apathy (lack of interest or emotion) 40%
- Aphasia
- Shuffling gait
- Fatigue 1/3-1/2
- Sleep disorders
- Difficulty swallowing/drooling
- Changes in speech, soft voice
- Nonspecific achiness, weakness and fatigue
- Orthostatic hypotension

Parkinson's Disease Symptoms



PD Treatment

Parkinson's disease can't be cured, but medications can help control symptoms. In some more advanced cases, surgery may be advised.

Doctors may also recommend lifestyle changes, especially ongoing aerobic exercise, physical therapy and speech therapy.

- **Levodopa (L-Dopa), Carbidopa** – Categorized as a Precursor. The goal is to replace the loss of dopamine. These drugs are effective, but may lose effectiveness over time
- **Palodel, Permax, Mirapex, Requip** – Categorized as Dopamine Affecting drugs. The goal is to increase the effectiveness of the Precursor medications.
- Others may include MAOIs (Monoamine Oxidase Inhibitors) such as Atapryl, Carbex, Eldepryl, Selpak. The goal is to prevent further dopamine breakdown.
- B-Blockers such as Propranolol, Inderal. The goal is to reduce tremors.
- Side effects may include involuntary movement, BP changes, dry mouth, cold hands and feet, sleep disturbances, dizziness, drowsiness



PD Surgical Procedure

Deep brain stimulation.

- Surgeons implant electrodes into the brain.
- The electrodes are connected to a generator implanted in your chest near your collarbone
- Surgery involves risks, including infections, strokes or brain hemorrhage.
- Some people experience problems with the DBS system or have complications due to stimulation, and your doctor may need to adjust or replace some parts of the system.
- DBS can stabilize medication fluctuations, reduce or halt involuntary movements (dyskinesia), reduce tremor, reduce rigidity, and improve slowing of movement.
- it doesn't keep Parkinson's disease from progressing.

Interview Questions:

1. When were you dx?
2. What are your symptoms?
3. Tell me about the medications you are taking?
4. How do these medications affect you?
5. Do your muscles or joints ache or feel tight?
6. What is a comfortable sleeping position for you?

Massage Adaptations:

Use THCC Decision Making Model to map out session (SPPSG).

- May need assistance getting on and off the table.
- Consider a clothed or partially clothed session for those with greater mobility issues.
- A pillow may be needed beneath the head when in supine position due to stooped postural imbalances. Position based upon rigidity.
- Skin can be very dry, with the exception of an oily face and head.
- Assist with returning to a seated position due to risk of BP changes when changing body orientation.
- Practice ROM, gentle extension of hip, knee and ankle, and working with tremors through Tui Na and “rocking”.
- Pressure can not be too light or slow. A medium 3 is best for this population.

MS

- Define: Chronic and progressive autoimmune condition that results in damage to the myelin sheath around the CNS nerves, “demyelination”. Plaque (hardening and thickening of tissue) formation at the demyelination site dictates the signs and symptoms that are presented.
- Demographic: Usually diagnosed at 20-50 years of age, experiencing cycles of relapse and remission. The disease does not seem to shorten life expectancy.
- Causes: Unknown for now. Assumptions around pathogens such as Herpesvirus Type 6 and Chlamydia. Genetic risk is very low, 1%. Diagnosis is difficult.

MS – Sign and Symptoms

- Most people can function at high levels for many years. 70% will not need a wheelchair. 40% will experience no significant effect on normal activities.
- Spasticity – attributed to overactive stretch reflex, increases when limb is moved too quickly or too much or too little pressure.
- Ataxia (inability to coordinate movement), creates staggering gate
- Weakness
- Pain
- Numbness
- **Fatigue – most common symptom**
- Vision Impairment
- Constipation
- Bladder & bowel complications
- Lhermitte Sign - Shooting pain with neck flexion
- Symptoms are aggravated by heat

MS - Common Treatments and Side Effects:

Many medications may be used depending on the present side effects.

During an acute exacerbation, **Corticosteroids** are used to diminish the inflammation causing the range of symptoms.

Interferon B is used as an immunomodulatory, disrupting the course of the disease. Consider a shorter session, as client is likely to experience flu-like symptoms and we do not want to over treat. Avoid the injection site for 8 hours or more and avoid general circulatory intent.

Chemotherapy drugs may be used for severe cases.

Anti-seizure medications and low dose **antidepressants** may also be used.

Amantadine for fatigue.

Laxatives for constipation.

Interview Questions:

- When was your diagnosis?
- How long have you had symptoms?
- Do you have any symptoms now? What are they?
- Are you being treated at this time? How? How does it affect you?
- Have you had a massage since your diagnosis? How did you respond?

MS - Massage Modifications

Use THCC Decision Making Model to map out session (SPPSG).

- Work conservatively for the first session.
- Practice a firm medium 3, with full hand contact, even rhythm and performed at a slow speed. Avoid too light or too firm of pressure to avoid triggering spasticity.
- Joint mobilization should be done slowly to avoid overstretching.
- Avoid neck flexion.
- This client may need assistance with positioning.
- Be sure to control the heat of the room and table. Avoid hot stones, heated table or hot towels.

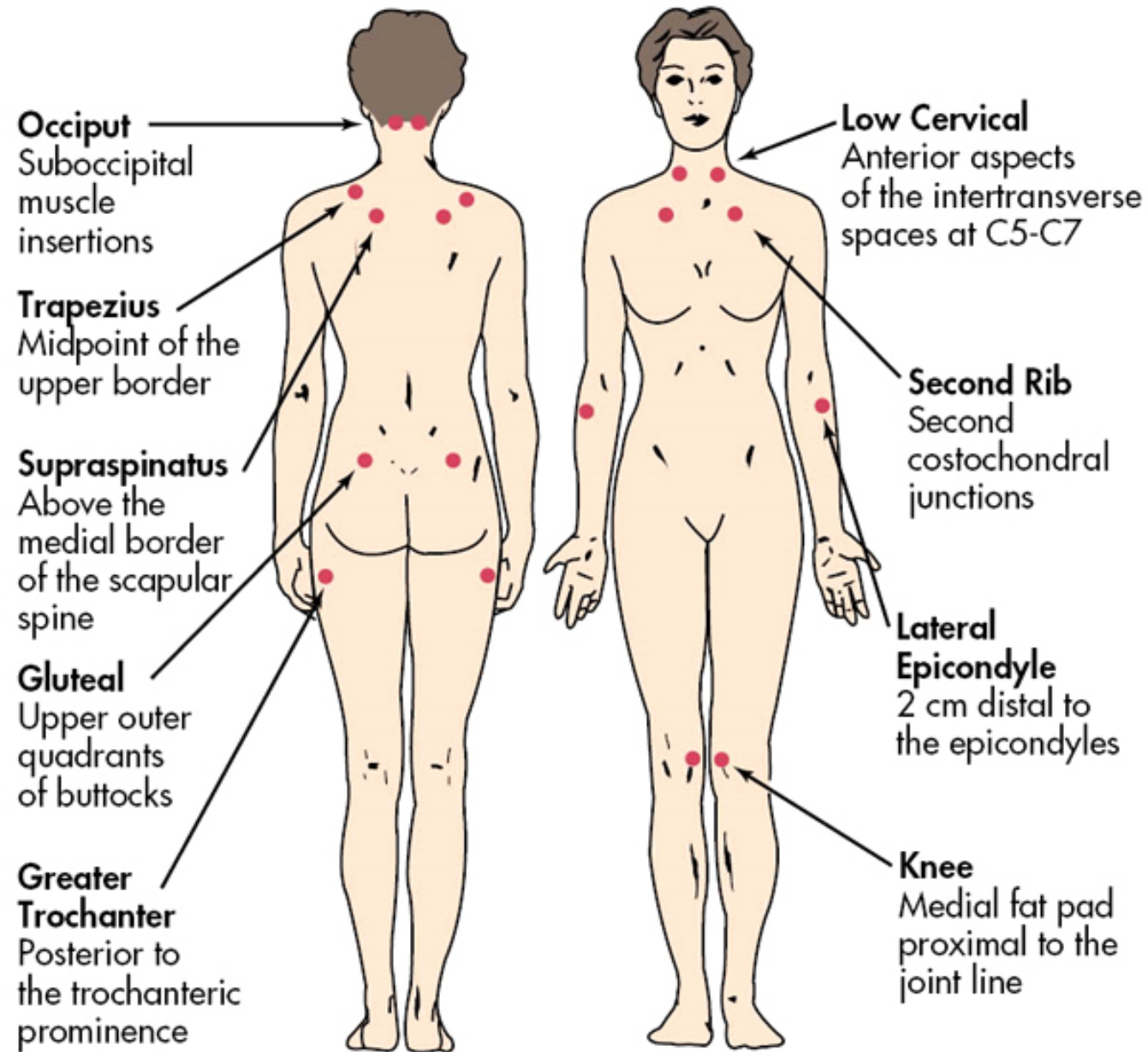
Fibromyalgia

Define:

- Fibromyalgia describes a group of chronic pain conditions characterized by widespread pain in muscles, fatigue, weakness, and sleep disturbances. It is believed to be caused by the changes of the *concentration and activities of neurotransmitters* as a result of unknown triggers, such as, trauma, sleep disorders, hormonal changes, stress and chemical exposures.

Diagnosis:

- The average person will visit 5 physicians before receiving a diagnosis.
- For many years, physician's relied upon the 18 point test. If 11 of the 18 points were noted as tender with "diffused pain" with the points being represented in different quadrants, this was encouraging toward a diagnosis. This test is being used less as it is difficult for a doctor to know how much pressure to apply.
- Current diagnosis is primarily based on the presenting symptoms with widespread pain for at least 3 months.
- Presents similarly to lyme disease, celiac disease, rheumatoid arthritis and hypothyroidism.



Sign and Symptoms:

- Widespread pain lasting for at least 3 months
- Presence of fatigue, trouble thinking and no other underlying conditions
- No signs of inflammation

Complications:

- Comorbidities can include; chronic fatigue syndrome, headaches, migraines, IBS, TMJ, restless leg syndrome and depression.
- Time delays in proper diagnosis often cause emotional challenges. It is not uncommon for individuals to feel depressed during the process and prior to treatment.

Fibromyalgia Treatment

Medical Intervention

- Lyrica – Beneficial to diminishing the associated pain component due to its action on the nervous system. Side effects may include sedation, dizziness, weight gain, lower leg edema.
- NSAID's
- Antidepressants – Prescribed to relieve pain, improve sleep, relax muscles and activate the release of endorphins. There may be a pairing of this classification with alternate effects of morning stimulation and evening sedation (Zoloft and Prozac).
- Opioid Analgesic –Ultram/Tramadol

Fibromyalgia Treatment

Lifestyle Support

- Stress reduction
- Regular exercise
- Rest as needed
- Local applications of heat or massage as needed

Interview Questions:

- Describe how you are feeling today?
- Where do you feel discomfort/pain? How would you rate your discomfort/pain 1-10?
- What medications are you taking? How do they affect you?
- How are you sleeping?
- How is your mood?

Massage Modifications

- Practice slow speed and even rhythm to assist with quieting the nervous system.
- Gentle, slow stretches (twists, hip flexor opening, side lying shoulder joint ROM and arm/chest stretches).
- Use of ice or any kind of cold can exacerbate symptoms.
- Do not over treat with too much pressure
- Use craniosacral or acupressure techniques for TMJ.

Let's Compare all 3

	Parkinson Disease	Multiple Sclerosis	Fibromyalgia
Site	Postural Muscles ROM Issues Oily Face and Head	Avoid Neck Flexion Locations with Pain or numbness	Locations with Pain
Position	May need assistance Pillow under head in supine	May need assistance Possibly seated if wheelchair in use	For comfort
Pressure	Medium	Medium ***Light if numbness is present	Light
Stamina	Medium Pace ROM Slow due to rigidity	Slow Spacticity	Slow, even
Goal			
Other factors	Fatigue Slow Response	Fatigue No Heat	Fatigue No Ice