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Parkinson's Disease: Sleep & Pelvic Health

Emily Summerfield, OTR/L, CBIS

SMALL STEPS. GIANT STRIDES.

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PD and Sleep

- Research estimates *2 in 3 people* with PD have troubles sleeping
- An early (non motor) predictor of PD?
  - REM Sleep Behavior Disorder
  - Constipation
  - Olfactory dysfunction
- Chemical changes in the brain
- Medication side effects
- Mood disorders
- Parkinson's symptoms
  - Pain
  - Urinary urgency
  - Motor symptoms

Sleep Problems with Parkinson's Disease, n.d.

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Non-Motor Symptoms: Autonomic

- Thermal regulation
- Sweating
- Urinary dysfunction
- Constipation
- Seborrhea "flaky scalp"
- Sialorrhea "drooling"
- Sexual dysfunction
- Erectile dysfunction
- Orthostatic hypotension "low blood pressure"
- Insomnia
- Daytime somnolence
- REM sleep behavior disorder

Vitek & Bobinger, 2019

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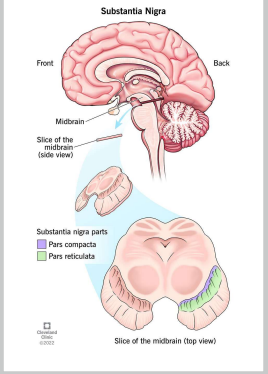
Basal Ganglia's Functional Role:

- Group of structures, near center of brain
  - Movement: posture and control
  - Reward and addition
  - Decision-making

Substania Nigra's Functional Role:

- Part of BG, located in midbrain
- Production of dopamine
- Two sections:
  - Reticulata (green)
  - Compacta (purple)



Substantia nigra (SN): What it is, Function & Anatomy, 2022

Basal ganglia: What it is, Function & Anatomy, 2022

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Common Sleep Disorders

- Sleep Apnea
- Obstructive Sleep Apnea (OSA)
- REM Sleep Behavioral Disorder
  - Affects 15-47% of individuals with PD
  - "REM sleep is also characterized by an increase in dopamine release….this evidence further supports the hypothesis that dopamine plays an important role in regulating the sleep-wake cycle,"
- Insomnia
- Daytime Sleepiness
- Inverted Sleep Cycle
- Early Morning Awakening
- Restless Legs Syndrome (RLS)

Sleep Disorders, n.d

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OT's Role in Sleep

- Establishing structure, routine
- Addressing performance barriers to sleep such as transfers, positioning, toileting, etc.
- Establishing individualized sleep hygiene techniques
- Education on bedroom modifications and equipment
- Education on stress management techniques
- Pain and fatigue management
- Addressing secondary conditions impacting sleep (i.e., pain, reduced ROM, emotional distress, etc.).

Picard, 2017

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Sleep Hygiene Techniques

1. Regular sleep schedule
    1. Limit daytime napping
2. Bed = sleep and sexual activity
3. Hungry? Eat a light snack
4. Bedroom = cave-like
    1. Cool, dark, block out noise, etc.
5. Limit liquid intake 1-2 hours before bed and empty your bladder before sleep
6. Goal for 7-8 hours of sleep, in bed per night.
7. Establish a bedtime routine or "sleep ritual"
8. Regular exercise and outdoor time.
    1. Avoid exercise after 8 pm
9. Consider an adequate mattress and firm pillow

Logemann, 2019

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Resources

- Book
    - "Sleep: A Mind Guide to Parkinson's Disease"
- Podcast
    - https://www.parkinson.org/library/podcast/121

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Parkinson's Disease & Pelvic Health

SMALL STEPS. GIANT STRIDES.

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What is Pelvic Floor Therapy?

- "Rehabilitation of dysfunctions in the pelvis that contribute to bowel, bladder, sexual health and pain complaints. Approaches may include behavioral strategies, manual therapies, modalities, therapeutic exercise, education and functional re-training"
  - Herman & Wallace Pelvic Rehab Institute

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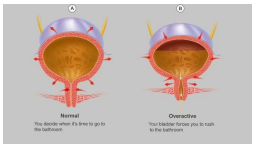
PD and Bladder

- Research estimates 30-40% people experience urinary challenges
  - Strong urinary urgency
  - Urinary frequency
  - Urinary incontinence
    - Typically seen in later stages
- Overactive bladder
- Urinary tract infections (UTI)



Example: Overactive Bladder

Urinary problems in Parkinson's disease, n.d.

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PD and Bowels

- Constipation, an early predictor of PD
- Gut lining: smooth muscle activity
- Medication side effects
- Other factors
  - Poor fluid intake (water)
  - Poor fiber intake
  - Sedentary lifestyle
  - Resisting the urge to produce a bowel movement
  - Weak pelvic floor muscles
  - Past medical history

Constipation & nausea n.d.

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Did You Know This is Common?

- Neurogenic Bladder
  - PD: 37-72%
    - Suprapontine/pontine = detrusor overactivity
- Neurogenic Bowel
  - PD: constipation > 40%, 25% FI

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How Long Has This Been Going On?

- Acute
  - Symptoms started within the last week or so. No apparent significant change in medical status.
- Chronic
  - Symptom started several months or years ago.
  - Likely an "event" that occurred that contributed and was never addressed.

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When Does This Happen?

- Stress incontinence
- Urge incontinence
- Muscle weakness
- Nocturia
  - Fluid shifting
  - Sleep hygiene education
  - Adaptive equipment
    - Night lights, condom catheters, beside commode/urinal

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Did You Know There is Help?

- Pelvic floor services
  - PF therapy is not always an internal service. There are various options for external therapy, too.
  - OWL: offered both in IP and OP
    - Management of neurogenic bowel and bladder is complex. PF required a multi-disciplinary team approach
    - Goals:
      - Achieve urinary continence
      - Achieve urinary completion
      - Improve quality of life
      - Prevent or reduce UTI risk
      - Optimize independence
      - Promote sexual activity, sexual intimacy

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Pelvic Floor Rehab- Bladder

- Bladder diaries
- Diet/Fluid education and management
- Bladder retraining
- Urge control
- Timed voiding
- Cueing strategies
- Caregiver education
- Manual therapy

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Pelvic Floor Rehab- Bowel

- Gut-Brain connection
- Less dopamine = slower colon motor movement
- Medication side effects of PD = constipation
- Exercise
- Education on fluid/diet- specifically water intake
- Toileting routine using gastrocolic reflex
  - Natural reflex
  - Research suggests, 90 min post morning meal
- Biofeedback
- Abdominal massage
- Breathing techniques
- Toileting equipment
  - Example: https://www.squattypotty.com/
- Multidisciplinary approach for medication management
  - Polyethylene glycol
  - Probiotics

Vitek & Bobinger, 2019

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Noll, L. 2013

TABLE Summary of Evidence-Based Recommendations Regarding Constipation

Study	Interventions	Why Helpful?
Sikirov (2003)	Sitting position	It straightens the anal rectal angle to allow defecation. It is better to be sitting than to be lying down to have a BM. Squatting may not be possible, so sitting is the closest.
Spiro (2007)	Toileting schedule	Consider 90 min after meals for gastrocolic reflex. Assists with poor mobility and delayed defecation.
Banchella et al (2006) Campbell et al (1990)	Dopamine effectiveness	Consider decreasing protein intake and separating iron supplement dose time to decrease interaction with dopamine.
Basson and Katz (2013)	Other medications	Consider need for anticholinergics, calcium, and NSAIDs as it is a cause of constipation.
Spiro (2007)	Diet	Assist patient with adequate fluid and food intake due to tremors.
Martine and Duda (2005)	Antipsychotics	Take clozapine or Seroquel, preferably Seroquel to avoid agranulocytosis.
Song et al (2012)	Physical activity and/or range of motion	Benefits balance, posture, and gait. Improves quality of life and ability to improve BM.
Attar et al (1999)	Polyethylene glycol	1–2 times daily for constipation. Found to be more effective than lactulose.
Chey (2012)	Probiotics	Increase friendly bacteria in colon. Trial of 2–4 weeks to determine effectiveness.
Landmann and Wexner (2008)	Pelvic floor dysfunction	Biofeedback may be helpful.
Basson and Katz (2013)	Comorbidities	Hypothyroidism, diabetes

Abbreviations: BM, bowel movement; NSAIDs, nonsteroidal anti-inflammatory drugs

https://nursing.ceconnection.com/ovidfiles/00129191-201310000-00005.pdf

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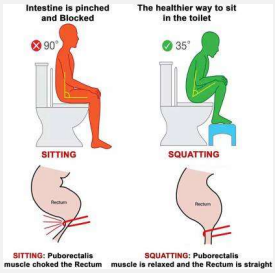

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Diet: Bowel and Bladder Health

- Common bladder irritants:
  - Alcoholic beverages
  - Carbonated beverages
  - Soft drinks with caffeine
  - Dairy products
  - Coffee, even decaf
  - Tea (not including natural/herbal)
  - Citrus juices/fruits
  - Tomatoes and tomato-based products
  - Highly spiced foods
  - Sugar
  - Artificial sweeteners
  - Honey
  - Chocolate
  - Corn syrup

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Dietary Resources

- https://www.nutritionucanlivewith.com/shop/
- https://briangrant.org/nutrition/
- https://www.michaeljfox.org/search?query=Nutrition%20and%20diet

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PD and Sexual Function

1. Primary
   1. Reduction in dopamine
   2. Nerve damage or diminished sensation
2. Secondary
   1. Urine or bowel incontinence
   2. Loss of impulse control
   3. Changes in thinking skills and emotional barriers
   4. Lack of coordination of body movements
   5. Difficulty with verbal and physical communication
   6. Interpersonal relationship changes
   7. Sleep disturbances and fatigue

Wittmann , 2017

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Table 3
Sexual dysfunction and treatment modalities in people with PD and their partners.

Sexual problem	Solutions/treatment
Sexual dysfunction or difficulties	-Patient's education on age related sexual changes, effect of PD symptoms and treatments on sexual life. -Removal of potentially exacerbating/causative drugs whenever possible. -Sex therapy, psychotherapy, couple therapy. -Sex counseling enabling "pleasure oriented" outercourse instead of "goal-oriented" intercourse.
Loss of/decreased sexual desire	-Treating the source for lack of desire (e.g. depression, fatigue, pain, hormonal deficiency, couple relationship problems).
Arousal problems due to fatigue, pain, role changes, concentration difficulties, sensory changes, motor symptoms and physical limitations.	-Plan sexual activity when fatigue is minimal. -Plan time for rest and day sleep. -Choose position which demands minimal effort. -Administer medications to diminish pain before sex. -More intense stimulation or vibrators use.
Erectile dysfunction, PDE5-inhibitors treatment failure.	-Refer to specialist or prescribe PDE5-inhibitors. -Consider testosterone deficiency and treat it. -Consider reduced effectiveness of PDE5-inhibitors due to slowed gastrointestinal motility. Suggest an extended time between drug consumption and initiation of sex. -Sex counseling enabling "pleasure oriented" outercourse instead of "goal-oriented" intercourse.
Lack of/reduced vaginal lubrication. Painful intercourse	-Refer to gynecological evaluation. -Recommend temporary outercourse to avoid further pain during penetration. -Recommend use of water soluble lubricants or natural plant-based oils for sexual activity. -Hormonal treatment (systemic or local).
Orgasmic problems: 1. Anorgasmia (loss of capacity, difficulties to reach orgasm or decreased frequency) 2. Hyporgasmia (reduction of orgasmic sensation or intensity of orgasm).	-Sex counseling: effective stimulation, choice of better positions and planning the timing of sexual activity. -Shorten penetration time to avoid secondary female sexual pain. -Sex counseling enabling "pleasure oriented" rather than "orgasmic-oriented" sexual activity.
Orgasmic problems due to depression anxiety and their medical treatment.	-Consider change of medications. -PDE5-inhibitors treatment for male and female. -Recommend psychological treatment.
Partner's sexual problems Compulsive or uncontrolled sexual behavior, increased desire or Hypersexuality	Medical and sexual evaluation and treatment. Differentiate between desire discrepancy within the couple and compulsive uncontrolled sexual behavior. Consider medical treatment. Refer to psychiatrist, psychologist or sex therapy for diagnosis and treatment.

Bronner, 2011

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Would You Like Help With This?

On With Life has trained staff to address these concerns. Please let us know if you would like to meet with them to address any of these issues.

You are not alone!

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Pelvic Health Resources

- Book
  - "Sex, Love, & Chronic Illness" by Lucille Carlton
- Articles
  - https://nursing.ceconnection.com/ovidfiles/00129191-201310000-00005.pdf
- Presentation
  - Dr. Daniela Wittman's Presentation titled, "Sexuality and Parkinson's Disease"
  - https://www.youtube.com/watch?v=dWNjqttLnHw&t=2s

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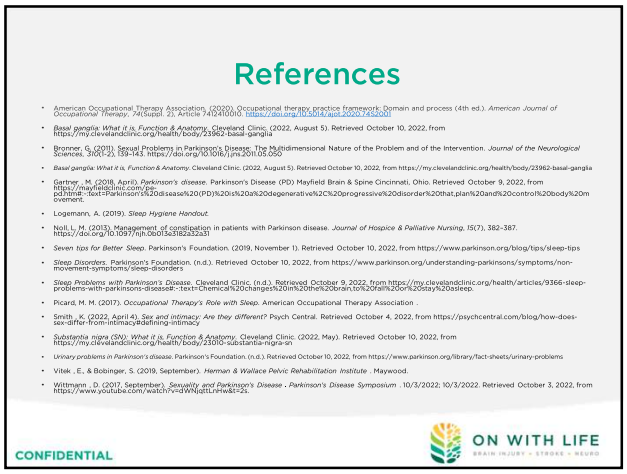
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