

Role of Rehab Therapy in Neurodegenerative Disorders

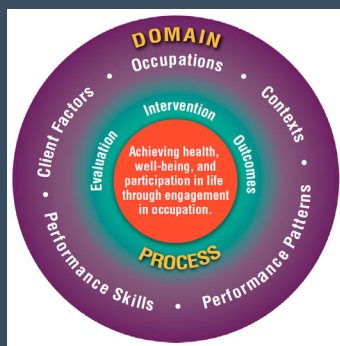
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Occupational Therapy

Help individuals be as independent as possible with the things they need to do and want to do



Note. OT Domain and Process from American Journal of Occupational Therapy (2020)

Exhibit 1. Aspects of the Occupational Therapy Domain

All aspects of the occupational therapy domain transact to support engagement, participation, and health. This exhibit does not imply a hierarchy.

Occupations	Contexts	Performance Patterns	Performance Skills	Client Factors
Activities of daily living (ADLs) Instrumental activities of daily living (IADLs) Health management Rest and sleep Education Work Play Leisure Social participation	Environmental factors Personal factors	Habits Routines Roles Rituals	Motor skills Process skills Social interaction skills	Values, beliefs, and spirituality Body functions Body structures

Note. OT Domain from American Journal of Occupational Therapy (2020)

When to Refer to OT

- Concerns with occupations and daily life activities
 - Motor skill impairments (*obtaining and holding*)
 - Process skill changes (*organizing space and objects*)
 - Change in social interaction and relationships
 - Change in mental or sensory function

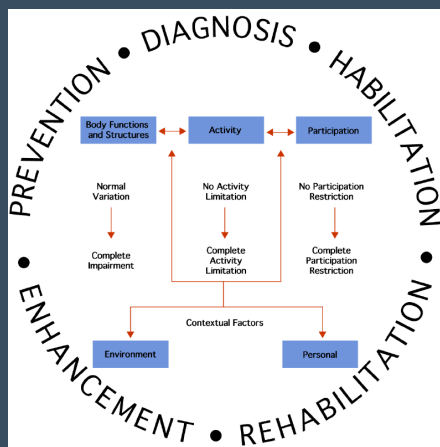
OT Trigger Examples

- “need help with...” or “can’t do...”
- “stopped doing ...”
- “always tired” or “takes too much time/effort”
- “always dropping something” or “can’t manipulate...”
- “just watch TV”
- “don’t feel safe” or “afraid of falling”
- “forgetting to do...” or “messed up...”

PT Trigger Examples

- Sedentary behaviors and activity avoidance
- “unsteady when...”
- “it is hard for me to...” or “having difficulty”
- “legs feel...”
- “holding onto ... when walking”
- “it is easier to just stay in my chair/bed”
- “don’t get out much” or “do less of...”
- “my partner helps me do...”

Speech Language Pathology



Note. ICF Model from American Speech-Language-Hearing Association (2016)

Prevent, assess, diagnose, and treat speech, language, social communication, cognitive-communication, and swallowing disorders.

When to Refer to Speech

- Struggles to say sounds or words
- Repetition of words or parts of words
- Speaks in short, fragmented phrases
- Says words in the wrong order
- Struggles with using words *and* understanding others
- Difficulty imitating speech sounds
- Inconsistent errors
- Slow rate of speech
- Slurred speech
- Slow or rapid rate of speech
- Swallow dysfunction
- Cognitive changes

Triggers for Speech Referral

- “coughing or choking when eating/drinking”
- “trouble finding words”
- “always forgetting things...”
- Voice quality changes
- Weight loss and/or dehydration
- “have trouble understanding/reading/talking...”

Rehab Evaluations

- Interview with patient and caregiver(s)
- Review of history
- Physical, cognitive, and psychosocial screen and/or assessment
- Analysis of performance
- Development of goals and frequency of plan of care (treatment)
- Use of relevant outcome measures

Rehab Interventions

- Highly dependent on specific patient goals
- May include:
 - Caregiver training
 - Adaptive equipment training
 - Use of compensatory strategies
 - Home safety and environment recommendations
 - Teaching and creating exercise plan
 - Education, education, education!

Evidence-Based OT

- Engagement in meaningful activity is the art and science of OT, and it will never be superseded by technological innovation because true creativity and genuine empathy cannot be mechanized.
- Evidence supports promotion of social physical activity, health behavior change techniques, and task-specific training for problematic IADL's in PD.
- OT's are uniquely qualified to systematically assess the cognitive functioning of persons with dementia, caregivers, and home environments and to integrate this information to derive and implement activities tailored to the person's capacities and context, thereby reducing neuropsychiatric behaviors and increasing engagement in meaningful activity.
- Caregiver education and training is supported for all neurodegenerative disorders
- OT is well positioned to contribute to enhancing the QoL of people who need to cease paid work earlier in the life trajectory than expected, with practitioners' expertise in negotiating life transitions, promoting engagement in meaningful activity, and applying holistic models.
- OT's can identify limitations of participation and autonomy in people living with MS to implement occupation-based and client-centered practice. OT's assess relevant environmental factors and suggest actions to decrease environmental barriers, through environmental modification or caregiver education.

(Smallfield et al., 2017; Piersol et al., 2017; Giles, 2018; Foster et al., 2021; Karhula et al., 2019; Brown, 2018; Marx et al., 2019; Hoffman et al., 2020)

Evidence-Based PT

- Ongoing vigorous exercise and physical fitness should be highly encouraged for all neurodegenerative disease.
- PT programs for PD should include structured, graduated fitness instruction and guidance for deconditioned patients.
- No balance assessment possesses acceptable predictive ability in determining who is at risk for falls within the next 12 months, suggesting the need for regular balance evaluations every 6 months among people with PD.
- Aside from a brain neuroprotective effect, physical exercise may attenuate cognitive decline via mitigation of cerebrovascular risk, including the contribution of small vessel disease to dementia.
- People living with MS should perform more than 150 min/week of exercise and/or more than 150 min/week of lifestyle physical activity. Personalized care adapted to each individual and their needs is vital, specifically providing a range of options that meet the patient where they are at.
- Just one month of PT was associated with decreases in gait, balance, and cognitive impairment in individuals with AD, VaD, DLB<, and MCI.

(Ahlskog, 2011; Duncan et al., 2012; Kalb et al., 2020; Longhurst et al., 2020)

Evidence-Based Speech

- SLP's should consider acting as coaches to support positive communication for people with dementia, leading to a decrease in negative responsive behaviors.
- Cognitive interventions for patients with dementia such as errorless learning, spaced-retrieval training, vanishing cues, or verbal instruction/cueing were measured at the cognitive-communication impairment level of functioning and were generally positive.
- Visual aids improved decision-making capacity of individuals with dementia and contained the potential for judges familiar with SLP to reach a stronger consensus when determining the decision-making capacity of individuals with dementia
- Discrepancies between SLPs' beliefs, the literature, and self-reported practices for feeding tube placement in patients with advanced dementia suggest the need to connect the evidence base to clinical practice and to include SLPs in local and national discussions about end-of-life care protocols.
- SPEAK OUT! and The LOUD Crowd programs, in which patients rely on goal-directed basal ganglia-cortical circuits to compensate for deficits in habitual automatic control, have evidence for effectiveness in mitigating hypokinetic dysarthria for individuals with PD programs.

(Behrman et al., 2020; Chang & Bourgeois, 2020; Douglas & MacPherson, 2021; Hopper et al., 2013; Sharp & Shega, 2009; Tiaden & Martel-Sauvageau, 2017)



Every life deserves world class care.

References

- Ahlskog J. E. (2011). Does vigorous exercise have a neuroprotective effect in Parkinson disease? *Neurology*, 77(3):288-94. doi: 10.1212/WNL.0b013e318225ab66. PMID: 21768599; PMCID: PMC3136051.
- American Occupational Therapy Association. (2020). Occupational therapy practice framework: Domain and process. *American Journal of Occupational Therapy*, 74. <https://ajot.aota.org/article.aspx?articleid=2766507>
- American Physical Therapy Association. (2021). *Choose physical therapy*. Choose PT. <https://www.choosept.com/toolkit/>
- American Speech-Language-Hearing Association (2016). *Scope of practice in Speech-Language Pathology* [Scope of Practice]. Available from <http://asha.org/practice>.
- Behrman, A., Cody, J., Elandary, S., Flom, P., & Chitnis, S. (2020). The Effect of SPEAK OUT! and The LOUD Crowd on Dysarthria Due to Parkinson's Disease. *American Journal of Speech-Language Pathology*, 29(3), 1448-1465.
- Brown, C. L. (2018). Expanding the occupational therapy role to support transitions from work to retirement for people with progressive health conditions. *American Journal of Occupational Therapy*, 72(6), 7206347010p1-7206347010p5.
- Chang, W. Z. D., & Bourgeois, M. S. (2020). Effects of visual aids for end-of-life care on decisional capacity of people with dementia. *American journal of speech-language pathology*, 29(1), 185-200.
- Douglas, N. F., & MacPherson, M. K. (2021). Positive Changes in Certified Nursing Assistants' Communication Behaviors With People With Dementia: Feasibility of a Coaching Strategy. *American Journal of Speech-Language Pathology*, 30(1), 239-252.
- Duncan, R. P., Leddy, A. L., Cavanaugh, J. T., Dibble, L. E., Ellis, T. D., Ford, M. P., ... & Earhart, G. M. (2012). Accuracy of fall prediction in Parkinson disease: six-month and 12-month prospective analyses. *Parkinson's Disease*, 2012.
- Foster, E. R., Carson, L. G., Archer, J., & Hunter, E. G. (2021). Occupational therapy interventions for instrumental activities of daily living for adults with Parkinson's disease: A systematic review. *American Journal of Occupational Therapy*, 75(3), 7503190030p1-7503190030p24.
- Giles, G. M. (2018). Neurocognitive rehabilitation: skills or strategies?. *American Journal of Occupational Therapy*, 72(6), 7206150010p1-7206150010p16.
- Hoffman, L., Hutt, R., Tsui, C. K. Y., Zorokong, K., & Marfeo, E. (2020). Meditation-Based Interventions for Adults With Dementia: A Scoping Review. *American Journal of Occupational Therapy*, 74(3), 7403205010p1-7403205010p14.

References

- Hopper, T., Bourgeois, M., Pimentel, J., Qualls, C. D., Hickey, E., Frymark, T., & Schooling, T. (2013). An evidence-based systematic review on cognitive interventions for individuals with dementia.
- Kalb, R., Brown, T. R., Coote, S., Costello, K., Dalgas, U., Garmon, E., ... & Motl, R. W. (2020). Exercise and lifestyle physical activity recommendations for people with multiple sclerosis throughout the disease course. *Multiple Sclerosis Journal*, 26(12), 1459-1469.
- Karhula, M. E., Tolvanen, A., Hämäläinen, P. I., Ruutiainen, J., Salminen, A. L., & Era, P. (2019). Predictors of participation and autonomy in people with multiple sclerosis. *American Journal of Occupational Therapy*, 73(4), 7304205070p1-7304205070p8.
- Longhurst J, Phan J, Chen E, Jackson S, Landers MR. (2020). Physical Therapy for Gait, Balance, and Cognition in Individuals with Cognitive Impairment: A Retrospective Analysis. *Rehabil Res Pract*, 8861004. doi: 10.1155/2020/8861004. PMID: 33204533; PMCID: PMC7655244.
- Marx, K. A., Scott, J. B., Piersol, C. V., & Gitlin, L. N. (2019). Tailored activities to reduce neuropsychiatric behaviors in persons with dementia: Case report. *American Journal of Occupational Therapy*, 73(2), 7302205160p1-7302205160p9.
- Piersol, C. V., Canton, K., Connor, S. E., Giller, I., Lipman, S., & Sager, S. (2017). Effectiveness of interventions for caregivers of people with Alzheimer's disease and related major neurocognitive disorders: A systematic review. *American Journal of Occupational Therapy*, 71(5), 7105180020p1-7105180020p10.
- Sharp, H. M., & Shega, J. W. (2009). Feeding tube placement in patients with advanced dementia: the beliefs and practice patterns of speech-language pathologists.
- Smallfield, S., & Heckenlaible, C. (2017). Effectiveness of occupational therapy interventions to enhance occupational performance for adults with Alzheimer's disease and related major neurocognitive disorders: a systematic review. *American Journal of Occupational Therapy*, 71(5), 7105180010p1-7105180010p9.
- Tjaden, K., & Martel-Sauvageau, V. (2017). Consonant acoustics in Parkinson's disease and multiple sclerosis: Comparison of clear and loud speaking conditions. *American Journal of Speech-Language Pathology*, 26(2S), 569-582.