OT toolkit for assessment & intervention of clients with COVID-19

Jen Featheringham, OTR/L

& Peiluen Kuo, OTR/L

OBJECTIVES

1

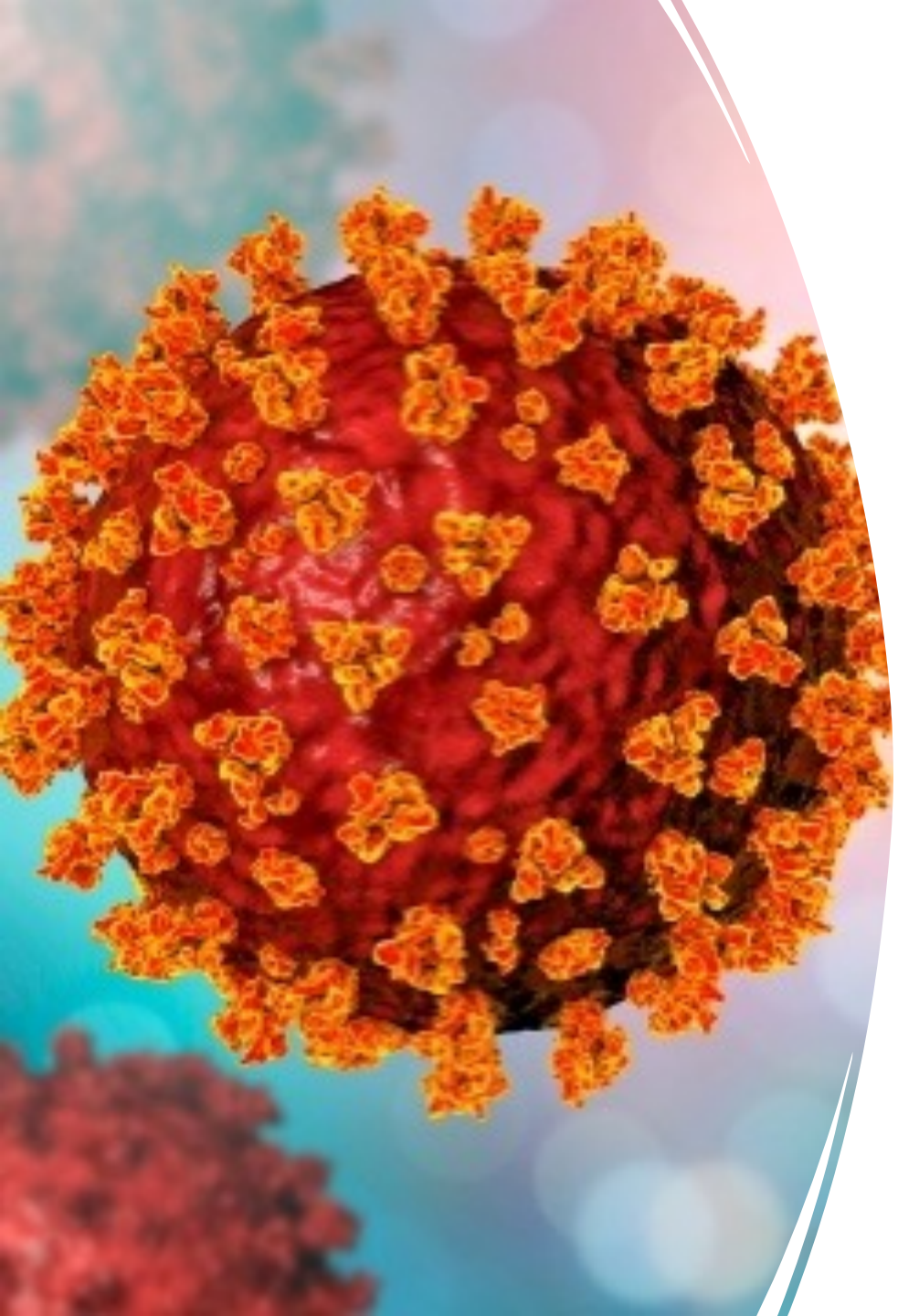
Discuss impact of secondary symptoms of COVID on the rehabilitation process.

2

Identify screens, questionnaires and assessments to support a comprehensive evaluation of the impact of COVID on occupational performance.

3

Identify holistic interventions for clients recovering from COVID.



Background

The COVID-19 pandemic has stressed the global health system

- 53% disruption in services for HTN
- 49% disruption in services for diabetes
- 42% disruption in services for cancer treatment
- 31% disruption for cardiovascular emergencies
- **63% disruption in rehabilitation services**

(World Health Organization, 2020)

Direct impact on individuals with COVID-19

- Individuals surviving acute respiratory distress syndrome (ARDS) due to COVID-19 experience impaired quality of life at 3 month follow up, experience daily pain, mental health disturbances, and worsened mobility status (Valent et al, 2020).
- Previous research on survivors of ARDS indicates that neurocognitive impairment persists in 47% of participants, and moderate to severe anxiety and depression persist in 23% of participants two years after ICU stay (Hopkins et al., 2005).
- Individuals recovering from ICU admission placed value on therapies, personal support, and information and education for both themselves and their families as being important to their rehabilitation and recovery process (Deacon, 2012).

What secondary symptoms might our clients experience?

- Fatigue
- SOB
- Persistent sensory loss/dysfunction
- Impaired cognition
- Impaired motor function
- Psychosocial concerns

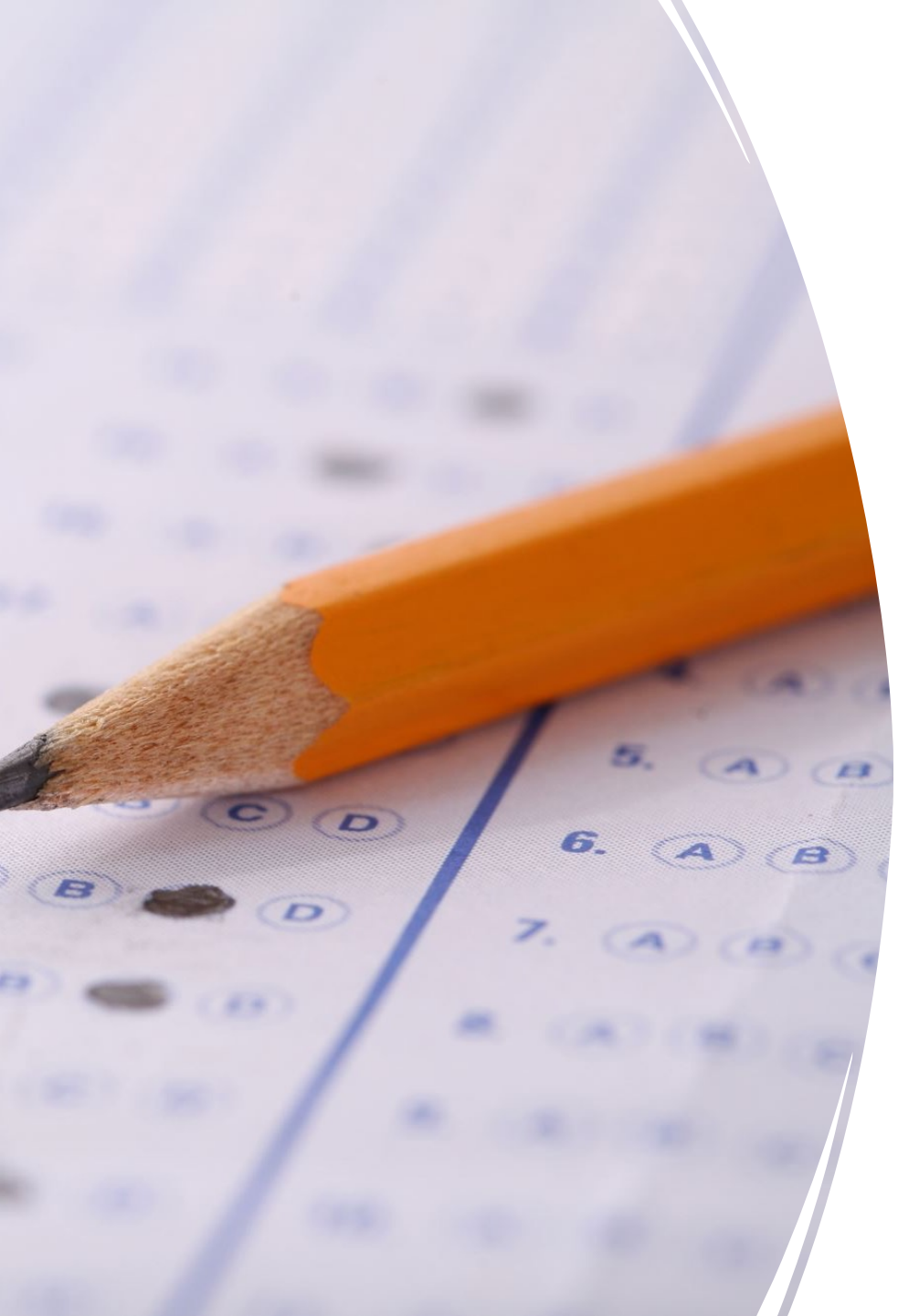
- Impaired occupational performance
  - ADLs/IADLs
  - Social participation
  - Education
  - Leisure
  - Sleep
  - Work

(Brüssow & Timmis, 2021)

Work

- Pre-pandemic research indicates that individuals having experienced critical respiratory illness often do not return to work at the same capacity or do not return to work at all (Kamdar et al., 2018)
- A U.S. study surveyed 60-day survivors of COVID and found that 40% had not returned to work because of ongoing health issues or job loss, and a quarter of those who did return to work did so with reduced work hours or modified duty (Chopra et al., 2021)
- 10% of those surveyed had used up their savings to cope with their financial situation (Chopra et al., 2021)

What's the impact??



Screening & Assessment

Client-centered measures

- Occupational Self-Assessment (OSA)
  - Establishes clients' values and occupational identity
  - Guides the development of client-centered goals and plan of care
  - Can be used as an outcomes measure of self-assessment of occupational performance and occupational competence
    (Kielhofner et al., 2009)
- Canadian Occupational Performance Assessment (COPM)
  - Looks specifically at: self-care, productivity, and leisure.
  - Outcome measure for satisfaction and performance.
  - Utilizes a semi structured interview.
    - Time management
    - Can be used across the continuum to track outcomes.

    (Law et al., 1990)

Psychosocial

Modified Interest Checklist (Kielhofner & Neville, 1983)

- Measures how interested clients are in certain activities
- Can be past, current, or future
- Allows for priortization
- Offers insight into how clients' interests will influence choices

Social Distance Interest Checklist (Adapted from Heasman & Brewer (2008))

- Similarly prioritizes leisure interests to guide how clients may choose their activities
- Specific to activities that have a physical distance focus which is quite relevant

Occupational Questionnaire (Smith et al., 1986)

- Clients will document their participation in activities throughout the day
- Categorizes into: work, recreation, or rest
- Collects perception of competence, enjoyment, and value

Functional Endurance

Borg Scales - Rate of Perceived Exertion (RPE) Scales. (Borg, 1982; Borg, 1998).

- Original Borg (6-20)
- Modified Ratio Scale (0-10)
- Modified Borg Dyspnea Scale (0-10)

Performance Assessment of Self Care Skills – PASS. (Holm & Rogers, 2008)

- Bed Mobility
- Heavy Work (Linens or Carrying Out Garbage)
- Dressing
- Bathing
- Toilet Mobility and Management
- Oral Hygiene
- Bathtub and Shower Mobility
- Nail Grooming
- Shopping
- Sweeping
- Meal Prep
- Indoor Walking, Stairs
- Also has items that address functional cognition during daily tasks.

Exertion	RPE scale	Borg scale	Activity examples
none	0	6	laying on the couch
just noticeable	0.5	7 to 8	bending over to put on your shoes
very light	1	9 to 10	easy chores, such as doing laundry
light	2 to 3	11 to 12	leisurely walking that does not increase your heart rate
moderate/ somewhat hard	4 to 5	13 to 14	brisk walking or moderate activity that speeds up your heart rate without making you out of breath
hard	6 to 7	15 to 16	vigorous activity, such as jogging, biking, or swimming (increases your heart rate and makes you breathe harder and faster)
very hard	8 to 9	17 to 18	the highest level of activity that you can continuing doing without stopping, such as running
maximum effort	10	19 to 20	a short burst of activity, such as a sprint, that you cannot keep doing for long

https://www.healthline.com/health/RPE

Cognition

- Kettle Test (Hartman-Maeir et al., 2005)
  - Client prepares 2 hot drinks that differ by 2 ingredients
  - 10-30 min to administer
- Multiple Errands Test (Shallice & Burges, 1991)
  - Multiple versions of assessment
  - Can be used across multiple setting (completing a shopping task in community vs hospital lobby)
  - 60 min to administer
- Weekly Calendar Planning Activity (Toglia, 2015)
  - 3 levels of assessment based on age & cognitive functioning
  - Client enters series of 17-18 appointments into a calendar while adhering to certain rules
  - 10-40 min to administer
- Executive Function Performance Test (Baum, 2008)
  - Top-down assessment of executive function
  - 4 IADL subtasks (cooking, telephone use, medication management, bill payment)
  - Measures what client can do and the level of support needed
  - 30-45 min to administer

Sensory Function

- Cranial nerve screening
  - CN I (Olfactory)
  - CN VII (Facial)
- Interoceptive awareness
  - Is the client experiencing loss of appetite and physical sensation of hunger?
- Hypersensitivity
  - Is the client experiencing aversion to touch? Clothing sensitivity?
- Dizziness
  - Is the client experiencing dizziness at rest and/or with change of head position?
  - Vestibular screening & assessment
    - CN VIII (Vestibulocochlear)
    - Modified Clinical Test of Sensory Interaction on Balance (Antoniadou et al., 2020)
    - Functional observation

Motor Function

- Upper Extremity Functional Index (Stratford et al., 2001)
  - Patient reported outcome measure to assess functional impairment in individuals with upper limb dysfunction
  - 20 questions on a 5-point rating scale assessing level of difficulty in performing activities across various areas of occupation
  - 10-15 min to administer
- Manual Ability Measure (MAM) (Chen et al., 2007)
  - Client rates functional abilities based on perception of the difficulty or ease in completing one or two-handed daily tasks
  - 10-15 min to administer
- Wolf Motor Function Test (WMFT) (Wolf et al., 2005)
  - Quantifies UE motor ability through times & functional tasks; 17 test items
  - 30 min to administer

Intervention

Functional Endurance

https://www.istockphoto.com/photos/chasing-grandkids

Task Analysis and Modification
- Breaking down activities

Energy Conservation
- Pacing

Positioning
- Side position
- Prone

Breathing
- Purse lipped
- Diaphragmatic breathing
- Breath control

Psychosocial

Relaxation Techniques
- Meditation
- Progressive muscle relaxation
- Guided imagery

Self-Image
- Coping with changes in body function or structure
- Drawing from values, beliefs, competency

Occupational Balance and
Role Participation/Fulfillment
- Defining this with the client
- Priorities - values, beliefs, competency
- Social Participation

Habit Training
- Implementing new routines for health management

Cognition

http://psychology.iresearchnet.com/social-psychology/interpersonal-relationships/interpersonal-cognition/

- Health literacy education
- Family education
- Adaptive strategies to improve household management capacity
- Scheduling to promote healthy routines/habits
- Use of metacognitive strategy training
  - Improving clients' own awareness of cognitive processes and assisting them to problem-solve their own compensatory approaches (AOTA, 2013)
  - Must be embedded in context of occupation (Engel et al., 2017)
  - Involves use of environmental modifications or assistive tech as necessary
  - Use of "Goal-Plan-Do-Check" model (Hunt et al., 2019)
  - Generalize to various contexts

Sensory Function

https://www.nytimes.com/2021/01/28/magazine/covid-smell-science.html

Taste/Smell

- Olfactory/gustatory retraining
    - Controlled exposure to strong smells/taste
    - Use of essential oils

(UCHealth, 2021)

Hypersensitivity

- Desensitization; controlled exposure
- Clothing management

Interoceptive Awareness (Hunger)

- Meal planning
- Implementing routines

Compensatory Training

- Safety!!

Motor Function

https://jefferson.kctcs.edu/education-training/program-finder/occupational-therapy-assistant.aspx

Occupational Engagement for:

- Strengthening
- Coordination
- Dexterity

Neuro Developmental (Bottom-up)

- Development of typical movement patterns via handling & facilitation
- Incorporation of functional tasks & progression towards independence

Motor Relearning (Top-down)

- Task practice
- Trial/error & refinement of skill
- Dependent of therapist's feedback & discussion of performance
- Goal is for task performance to be generalizable

In Summary

- Individuals recovering from COVID-19 may experience a unique set of sequelae that interfere with occupational performance
- Occupational therapists are well situated to provide holistic assessment and intervention to address these sequelae in order to improve occupational performance, health, and wellness.

Questions & Discussion

References

- American Occupational Therapy Association. (2013).Cognition, cognitive rehabilitation, and occupational performance. *The American Journal of Occupational Therapy*, *67*(6_Supplement), S9-S31.
- Armstrong, R. A., Kane, A. D., & Cook, T. M. (2020). Outcomes from intensive care in patients with COVID-19: A systematic review and meta-analysis of observational studies. *Anaesthesia*, *75*(10), 1340-1349. doi:10.1111/anae.15201
- Antoniadou, E., Kalivioti, X., Stolakis, K., Koloniari, A., Megas, P., Tyllianakis, M., & Panagiotopoulos, E. (2020). Reliability and validity of the mCTSIB dynamic platform test to assess balance in a population of older women living in the community.Journal of Musculoskeletal & Neuronal Interactions, 20(2), 185-193.
- Baum, C. M., Connor, L. T., Morrison, T., Hahn, M., Dromerick, A. W., & Edwards, D. F. (2008). Reliability, validity, and clinical utility of the Executive Function Performance Test: A measure of executive function in a sample of people with stroke. *American Journal of Occupational Therapy*, *62*, 446–455.
- Borg G. A. (1982). Psychophysical bases of perceived exertion. *Medicine and science in sports and exercise*, *14*(5), 377–381.
- Borg, G. (1998). *Borg's perceived exertion and pain scales*. Human Kinetics.
- Brüssow, H., & Timmis, K. (2021). COVID-19: Long covid and its societal consequences. *Environmental Microbiology*, *23(8)*, 4077-4091.

References

- Chopra, V., Flanders, S.A., O'Malley, M., Malani, A.N., and Prescott, H.C. (2021). Sixty-day outcomes among patients hospitalized with COVID-19. *Ann Intern Med 174*: 576–578.
- Deacon, K. S. (2012). Re-building life after ICU: A qualitative study of the patients' perspective. *Intensive & Critical Care Nursing*, *28*(2), 114-122. doi:10.1016/j.iccn.2011.11.008
- Engel, L., Chui, A., Goverover, Y., & Dawson, D. R. (2019). Optimising activity and participation outcomes for people with self-awareness impairments related to acquired brain injury: an interventions systematic review. *Neuropsychological Rehabilitation*, *29*(2), 163–198.
- Hartman-Maeir, A., Armon, N., & Katz, N. (2005). The kettle test: A functional cognitive screening tool protocol.
- Holm, M.B., Rogers, J.C. (2008). The Performance Assessment of Self-Care Skills (PASS). IN Hemphill-Pearson BJ ed. *Assessments in Occupational Therapy mental Health.* 2nd ed. Thorofare, NJ: SLACK
- Hopkins, R. O., Weaver, L. K., Collingridge, D., Parkinson, R. B., Chan, K. J., & Orme, J. F. (2005). Two-year cognitive, emotional, and quality-of-life outcomes in acute respiratory distress syndrome. *American Journal of Respiratory and Critical Care Medicine*, *171*(4), 340-347. doi:10.1164/rccm.200406-763oc

References

- Hunt, A. W., Paniccia, M., Mah, K., Dawson, D., & Reed, N. (2019). Feasibility and effects of the CO-OP approach™ in postconcussion rehabilitation. *American Journal of Occupational Therapy*, *73*(1), 7301205060p1-7301205060p11.
- Kamdar, B. B., Sepulveda, K. A., Chong, A., Lord, R. K., Dinglas, V. D., Mendez-Tellez, P. A., Shanholtz, C., Colantuoni, E., von Wachter, T. M., Pronovost, P. J., & Needham, D. M. (2018). Return to work and lost earnings after acute respiratory distress syndrome: A 5-year prospective, longitudinal study of long-term survivors. *Thorax*, *73(2)*, 125-133.
- Kielhofner, G., Forsyth, K., Kramer, J., & Iyenger, A. (2009). Developing the Occupational Self Assessment: The use of Rasch analysis to assure internal validity, sensitivity and reliability. *British Journal of Occupational Therapy*, *72*, 94–104.
- Law, M., Baptiste, S., McColl, M., Opzoomer, A., Polatajko, H., & Pollock, N. (1990). The Canadian occupational performance measure: an outcome measure for occupational therapy. *Canadian journal of occupational therapy. Revue canadienne d'ergotherapie*, *57*(2), 82–87. https://doi.org/10.1177/000841749005700207
- Shallice, T., & Burgess, P. W. (1991). Deficits in strategy application following frontal lobe damage in man. *Brain*, *114*, 727–741.
- Smith, N., Kielhofner, G., Watts, J. (1986). The relationship between volition, activity pattern and life satisfaction in the elderly. *American Journal of Occupational Therapy*, *40*, 278-283.

References

- St. John, B. (2021, October 19). *How to regain your sense of taste and smell after COVID-19*. UCHealth. https://www.uchealth.org/today/how-to-regain-sense-of-taste-and-smell-after-covid-19/
- Stratford, P. W., Binkley, J. M., and Stratford, D. M. (2001). Development and initial validation of the upper extremity functional index. *Physiotherapy Canada*, *53*(4). 259-267.
- Sudre, C. H., Lee, K. A., Lochlainn, M. N., Varsavsky, T., Murray, B., Graham, M. S., Menni, C., Modat, M., Bowyer, R. C. E., Nguyen, L. H., Drew, D. A., Joshi, A. D., Ma, W., Guo, C., Lo, C., Ganesh, S., Buwe, A., Pujol, J. C., du Cadet, J. L., . . . Ourselin, S. (2021). Symptom clusters in COVID-19: A potential clinical prediction tool from the COVID symptom study app. *Science Advances*, *7*(12), eabd4177.
- Toglia, J. (2015). Weekly calendar planning activity: A performance test of executive function. AOTA Press.
- Valent, A. Dudoignon, E., Ressaire, Q., Depret, F., & Plaud, B. (2020). Three-month quality of life in survivors of ARDS due to COVID-19: A preliminary report from a french academic centre. *Anaesthesia Critical Care & Pain Medicine*, doi:10.1016/j.accpm.2020.10.001
- Wolf, S., Thompson, P., Morris, D., Rose, D., Winstein, C., Taub, E., Giuliani, C., & Pearson, S. (2005). The EXCITE Trial: Atrributes of the Wolf Motor Function test in patients with Subacute Stroke. *Neurorehabil Neural Repair*, *19*, 194-205.
- World Health Organization (2020, June 01). COVID-19 significantly impacts health services for noncommunicable diseases. https://www.who.int/news/item/01-06-2020-covid-19-significantly-impacts-health-services-for-noncommunicable-diseases