

Speech-Language Pathology & Neuropsychology Collaboration in Concussion Care

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Disclosures

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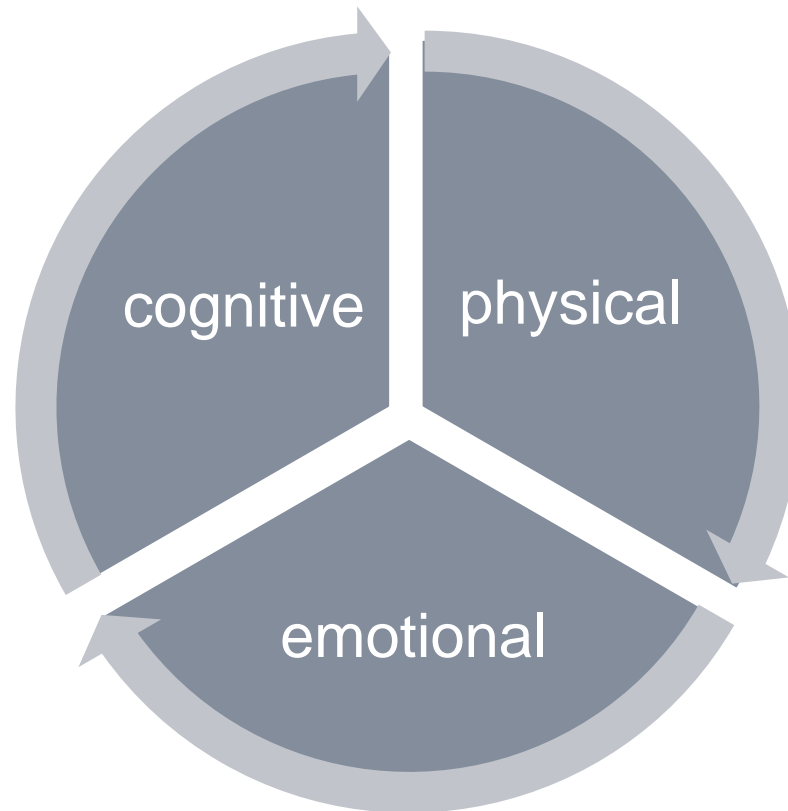
Objectives

Participants will be able to:

- Delineate the roles of SLP and Neuropsychology on the Concussion Care Team.
- Identify areas for collaboration in addressing cognitive-communication deficits.
- Identify unique contributions each specialist can bring to evaluation and treatment of executive function.
- List a minimum of two benefits in assessing emotional factors and validity and how they can impact case management.

Why Are We Having This Discussion?

With the PCS population:



Why Are We Having This Discussion?

- Differential Diagnosis so important in determining recovery trajectory and appropriate plan of care
- Complex Cognitive Questions require break down into many parts
- Secondary Characteristics (psychological, malingering, validity, learning/training) can negatively impact outcomes
- Perceived Turf Wars can hinder patient access to care

Case Study LW

Day 1

- 62 year old female
- MVA – another car hit her car head-on, off road into a fence
- airbags deployed and windows shattered
- She was restrained driver on route from one store to another for work
- LOC for unspecified amount of time (minutes?)
- No retrograde/anterograde amnesia
- Transported to local hospital – Dx musculoskeletal injury and discharged home

Case Study

Day 2 post injury

- Another hospital evaluation due to significant pain
- Dx fx L1 and L2 via spine CT

Day 5 post injury

- Another hospital evaluation due to worsening pain
- Dx fx C5-C6 and T8 vertebrae

Day 16 post injury

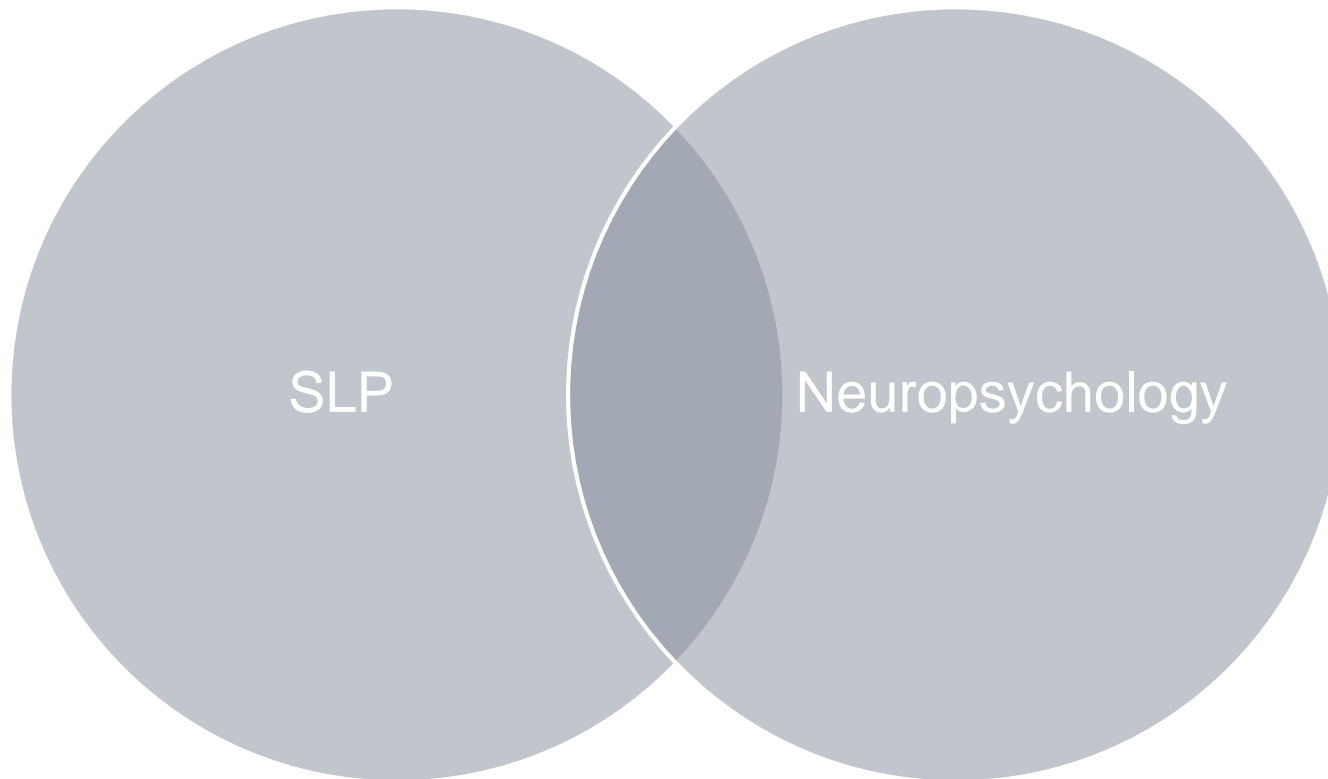
- PCP visit due to persistent pain
- Dx fx ribs 7 & 8 and Concussion

Case Study



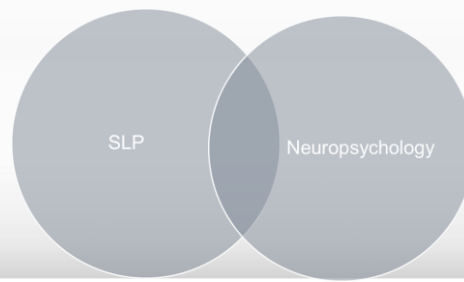
Video

Both Distinct and Common Professional Practice



Joint Committee on Interprofessional Relations Between the American Speech-Language-Hearing Association (ASHA) and Division 40 (Clinical Neuropsychology) of the American Psychological Association (APA) 2008

Overlap



Both can

- Assess cognitive-communication deficits
- Apply psychometric principles and procedures
- Identify and quantify residual impairments
- Identify the effect of cognitive exertion on symptoms
- Make appropriate recommendations to other disciplines
- Make appropriate recommendations to improve function
- Identify cognitive and behavioral accommodations for work and academic re-integration

Assessment Overlap

SLP

- Attention
- Memory
- Processing Speed
- Critical Thinking
- Executive Function
- Word-Retrieval
- Reading
Comprehension
- Social Pragmatics



Neuropsychologist

- Attention
- Memory
- Processing Speed
- Critical Thinking
- Executive Function
- Spatial Skills
- Psychomotor Abilities
- Emotional Functioning
- Validity Performance

Distinct Practice – Speech-Language Pathologist

Identify functional cognitive-communication capacities for

- targeted treatment to facilitate improvement
- training compensatory strategies/techniques

Modify tasks and environmental demands to optimize function with pacing, structure, meta-cognitive analysis, self-advocacy

Provide patient/family education

Distinct Practice – Speech-Language Pathologist

Build cognitive endurance on a hierarchy for tasks requiring reading, writing, processing, complex formulation, critical thinking, attention, memory, and executive function

Optimize function at (symptom) subthreshold level

Establish Return to Work and Return to Learn
Accommodations

Distinct Practice - Neuropsychologist

Estimate cognitive and intellectual changes from baseline

Evaluate psychological factors in recovery

Understand current test performance in context of validity measures

Provide psychotherapy or Cognitive-Behavioral Therapy (CBT)

Distinct Practice - Neuropsychologist

Estimate cognitive and intellectual changes from baseline

- Using tests/projections of premorbid intelligence
 - Educational history
 - Word reading tests
 - Wechsler Test of Adult Reading (WTAR)
 - Advanced Clinical Solutions – Test of Premorbid Functioning (ACS-TOPF)
- Analysis of current test patterns
 - Wechsler Intelligence Scales “Hold” vs. “No-hold” tests

Distinct Practice - Neuropsychologist

Evaluate psychological factors in recovery

- **Pre-existing ADD/ADHD, Depression, Anxiety, PTSD, Bipolar, etc.**
 - Clinical history (patient & family interview)
 - Pre-injury rating scales and inventories
- **Adjustment disorders with depression +/-or anxiety, PTSD**
 - Usually delayed onset after injury
- **Post-injury ratings**
 - Beck Depression Inventory –II, Children’s Depression Inventory 2
 - Beck Anxiety Inventory, Multidimensional Anxiety Scale for Children
 - Personality Assessment Inventory (PAI)
 - PTSD Checklist – Civilian Version (PCL-C)

Distinct Practice - Neuropsychologist



Understand current test performance in context of...

- Test effort and engagement (***Performance validity***)
 - “Good enough” on forced choice recognition memory, recognition vs. free recall, counting speed
 - TOMM, MSVT, Reliable Digit Span, ACS-Word Choice, MVP
- Psychological profile (***Symptom validity***)
 - Consistency, defensiveness, negativity
 - PAI, BRIEF-2/BRIEF-A, SIMS

Distinct Practice - Neuropsychologist

Provide Psychological Consultation/Referral

- Cognitive-Behavioral Therapy (CBT) for adjustment to (temporary) disability
- Coordination with community-based mental health providers
- Recommendations for consideration of medication to address psychological status or cognitive functioning based on neuropsychological test results

Case Study

Evaluation and Course of Treatment

- Initial SLP Evaluation 6 months post-injury
- Protracted symptoms reported:

Headaches	Poor reading comprehension
Neck and back pain	Irritability
“Foggy Brain”	Fluctuating tinnitus bilaterally
Poor short-term memory	Light sensitivity
Fluctuating attention	Noise sensitivity
Slow processing speed	Social isolation

Case Study

SLP Evaluation

- Medical and Injury History
- Administered subtests from
 - Woodcock Johnson IV Test of Cognitive Abilities and Woodcock Johnson IV Test of Oral Language
- Administered
 - Functional Assessment of Verbal Reasoning and Executive Strategies (FAVRES) – Adult Version
- Assessment completed over two sessions

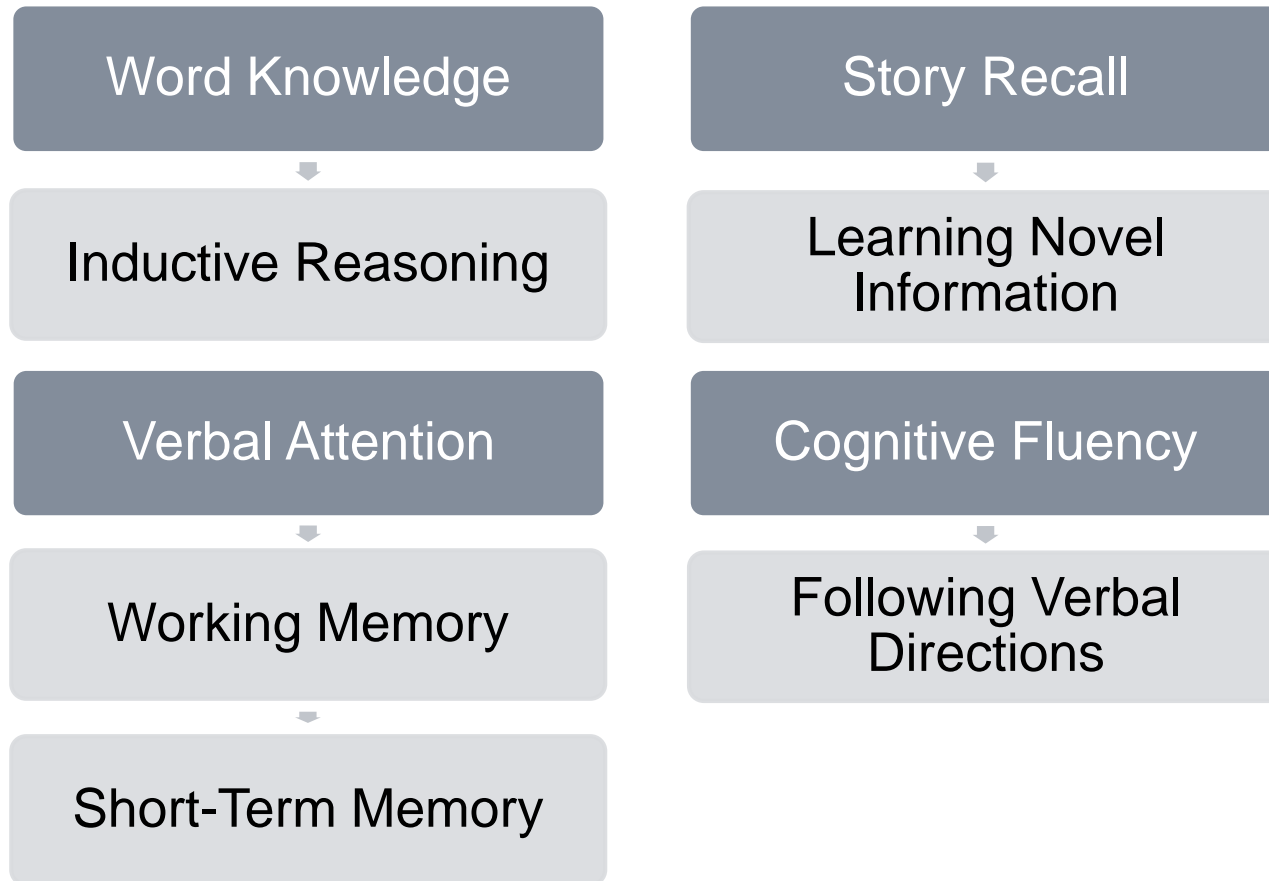
Case Study

SLP Evaluation

- Testing was administered in a controlled setting (dimmed lights, quiet room, no interruptions) to limit symptom provocation
- Patient observed to be tearful and verbalized frustration when perceived test stimuli as challenging
- Reported symptom escalation upon completion of testing using Wong Baker Faces Pain Scale

Case Study

SLP WJ IV Average performance on all subtests



Case Study

SLP FAVRES -Executive Function

Weaknesses

Synthesizing
Information

Decision Making

Quickly Generating
Ideas

Strengths

- ✓ Time management
- ✓ Organizing Complex Schedule
- ✓ Predicting Consequences
- ✓ Eliminating Irrelevant Information

Case Study

SLP Treatment Recommendations

Speech pathology treatment x1 per week for cognitive-communication therapy to

- provide patient/family education and community resources
- build cognitive endurance on a hierarchy
- strengthen executive function skills
- teach strategies to manage symptoms at a sub-threshold level
- establish a Return to Work plan that was gradual and allowed for accommodations

Further on in her care, concerns raised regarding emotional adjustment and possible PTSD symptoms that could be barriers to optimal recovery

Communicated concerns to Medical Provider -> referred for Behavioral Counseling and Neuropsychological Evaluation

Case Study

SLP Treatment Recommendations



Once treatment initiated

Concerns raised regarding patient's emotional adjustment and possible PTSD symptoms which could be potential barriers to optimal recovery

Communicated concerns to Medical Provider who referred for

- Behavioral Counseling and
- Neuropsychological Evaluation

Case Study Discharge

- Participated in a course of speech pathology treatment for cognitive-communication therapy to address protracted symptoms
- Made excellent progress towards achievement of established goals
- Maintained a very high level of motivation to participate throughout therapeutic program
- Became more independent with functional activities within the home and community settings and less socially isolated
- Was not able to successfully prepare patient for transition back into the work setting due to lingering issues with gaps in memory, poor sleep, anxiety/panic
- Was continuing with behavioral counseling at time of discharge
- Awaiting neuropsychological evaluation to assist with determining readiness to return to work setting.

Case Study

Neuropsychological Evaluation and Course of Treatment

- Referred by SLP for consideration of psychological/trauma issues
- Receiving PT, VT, neck/back lidocaine injections (PAIN!)
- Type 2 diabetes, hypertension
- 2 prior concussions
 - In college: MVA LOC 8 hours – no persisting problems
 - 6 years ago: fell against her house > cluster headaches
- gabapentin, amitriptyline 20 mg, sumatriptan

Case Study

Clinical Interview 11months post-injury

- Short-term memory problems
- Reduced focus and attention
- Sleep: trouble falling and staying asleep; nightmares
- Daily headaches and chronic body pain
- Driving: “zones out,” feels dazed, startles
- Recent working dx of PTSD in psychotherapy

Case Study

Neuropsych Eval #1 - 1 year post

- Just started escitalopram 10 mg 5 days earlier
- **TOMM – Trial 1 = 50/50**
- Most scores average/high average
- RBANS Attention Index – **37th %ile**
- RBANS Language Index – **30th %ile**
- RBANS Visuospatial Index – **30th %ile**
- RBANS Immediate Memory Index – **73rd %ile**
- RBANS Delayed Memory Index – **75th %ile**

Case Study

Neuropsych Eval #1 - 1 year post

- Executive function tests
 - **Errors** on Trails B and D-KEFS Color-Word Interference
- Beck Depression Inventory – 2: **24 (moderate)**
- Beck Anxiety Inventory: **11 (mild)**
- PCL-C: **51 (Elevated!!)**
- PAI - Valid: **Depression, Anxiety, Past trauma**
 - **Concern about physical function (chronic pain)**
- Symptom Checklist: **Pre: 18/49 Post: 17/47**

Case Study

Neuropsych Eval #1 - Formulation

- 1. Mild processing inefficiency relative to baseline**
(likely related to sleep, pain, depression +/-or anxiety)
- 2. PTSD:** related to head-on motor vehicle accident with confusion, physical pain, and fear of death upon regaining consciousness

Case Study

Neuropsych Eval #1 - Recommendations

1. EMDR for PTSD
2. Review sleep medication
3. Consider upward titration of escitalopram
4. Continue cognitive rehab
5. Not ready to return to work (handled very valuable items and large amounts of money)
6. Neuropsych re-eval in 3 months

Case Study

NEUROPSYCH EVAL #2 - (15 -17 months post)

CLINICAL INTERVIEW

- Sleeping better with amitriptyline 40mg, melatonin
- Headaches better, less than daily
- Regular exercise with personal trainer (3+/week)
- Continued lidocaine neck/back injections (PAIN)
- Began EMDR – 2 sessions/ alternating with therapy
- Started Ritalin 5 mg twice daily (taken during testing)

Case Study

NEUROPSYCH EVAL #2 - (15 -17 months post)

1. Validity: mixed (anxiety > headache ?)
 - TOMM – Trial 1 = 49/50n (good)
 - Reliable Digit Span: 5F + 3B = 8 (OK)
 - CVLT-3 Forced Choice = **15/16**
2. Symptom checklist: **Pre- 16/59 Post: 17/64**
Prior eval: Pre: 18/49 Post: 17/47

Case Study

NEUROPSYCH EVAL #2 - (15 -17 months post)

1. Digit Span – improved to upper average
2. CVLT-3 (word lists) – average+
3. Coding – improved to upper average
4. Trails B – still 1 sequencing error, slightly faster
5. Color-Word Interference – fewer errors (6 < 9)
6. Verbal Fluency – much faster (average to superior)
7. *Nelson-Denny Reading: 3rd %ile timed; 17th %ile overtime*

Case Study

NEUROPSYCH EVAL #2 - (15 -17 months post)

- BRIEF-A : highly elevated problems in everyday functioning
- Beck Depression-2: 22 (down from 24)
- Beck Anxiety Index: 14 (up from 11)
- PCL-C: **32** (down from 51) – (***below PTSD cut-off***)

Case Study

NEUROPSYCH EVAL #2 - (15 -17 months post)

FINDINGS

1. Overall sense of progress on the patient's part
2. Fluctuating sleep reported
3. Improved PTSD sx's with therapy, EMDR, escitalopram
 - Mild-moderated depression/anxiety >> Adjustment Disorder
4. Continuing ***experience of*** executive dysfunction
5. Report of ***increased sx's in testing***
6. Improved cognitive test scores: ***mostly normal***

Case Study

NEUROPSYCH EVAL #2 - (15 -17 months post)

Recommendations

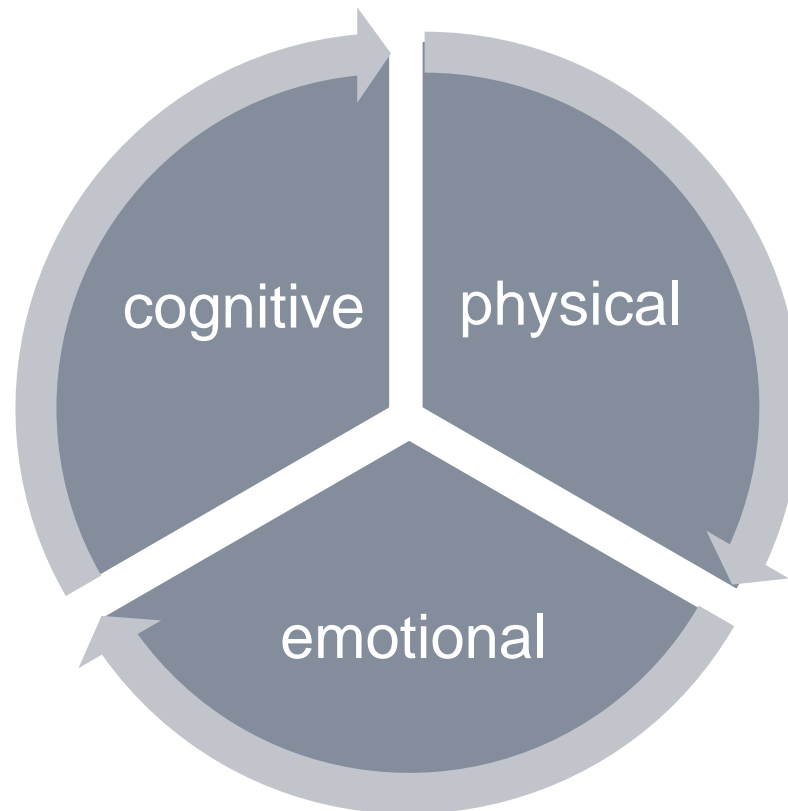
1. Continue individual psychotherapy (EMDR completed)
2. Review sleep medication (sleep back to 4-5 hrs by feedback)
 - Amitriptyline cut to 10 mg (dry mouth), melatonin 30 mg
3. Consider alternatives to Ritalin
4. Consider alternatives to escitalopram
 - (Cut to 10 mg due to leg tremor)
5. Continue regular vigorous exercise
6. Begin vocational counseling (referral to Mass Rehab)
7. Neuropsych re-eval as needed for psychological issues

Case Study

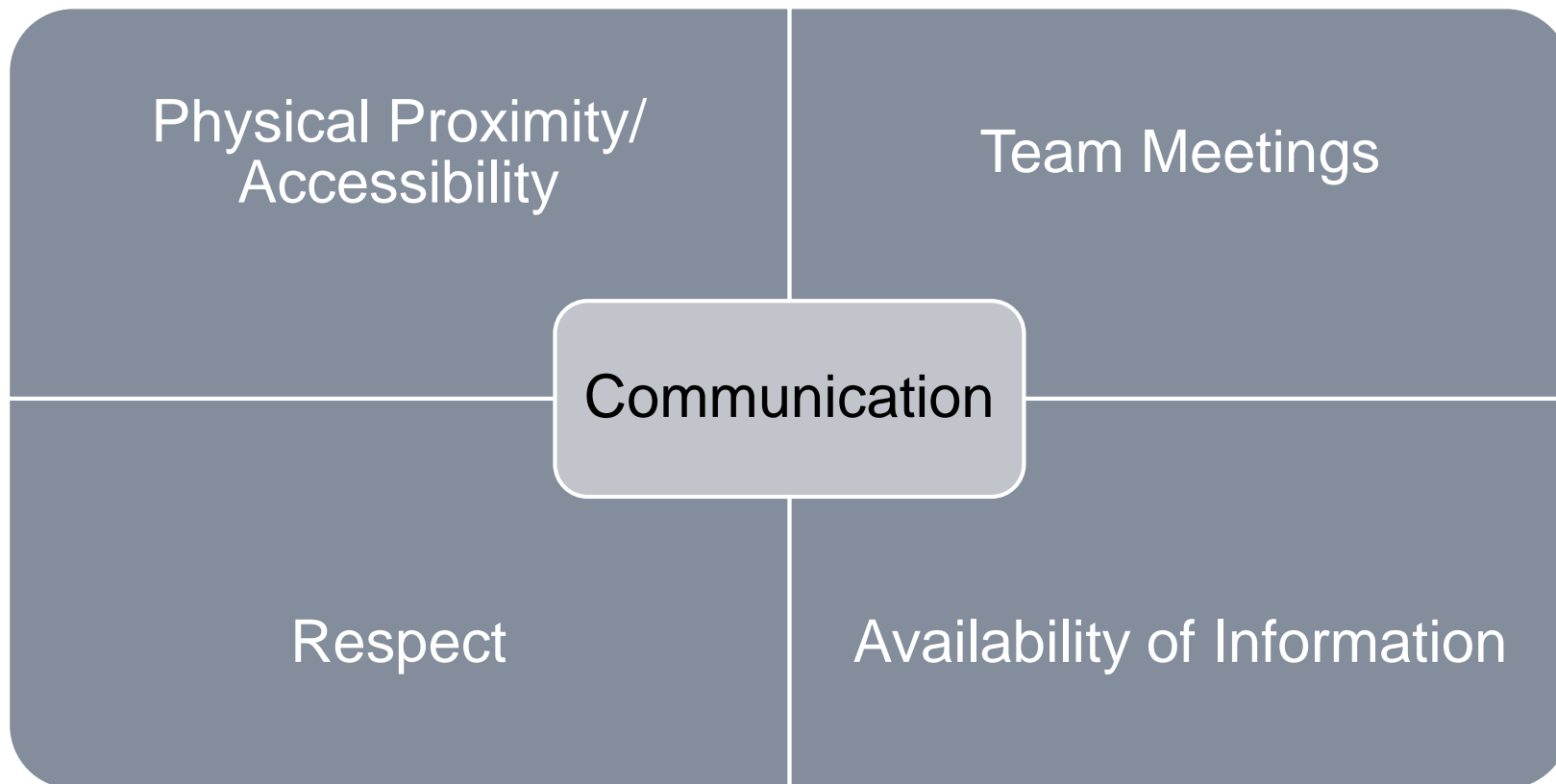
Patient video

Why Collaboration So Important

With the PCS population:



SLP and Neuropsychology: Facilitators to Effective Collaboration



SLP & Neuropsychology Collaboration in Concussion Care

Thank you!



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