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Sensory Reeducation in the Upper Extremity

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Sensory Reeducation in the Upper Extremity

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UNIVERSITY OF THE PACIFIC | School of Health Sciences

Background

Interest: Neurological rehabilitation

Site: Physical Therapy outpatient clinic at the Kaiser Permanente Stockton Medical Offices

Current practices: Motor-based approach

Program Purpose

To Bridge the Gap in Care of Those with Upper Extremity Sensory Deficits Through Client and Therapist Education

- **Purpose:** To address gap in care when treating those with upper extremity deficits with sensory-based versus motor-based approach.
- **Aim:** To decrease delay in implementation of evidence-based research (EBR) through client and therapist education.

OTD

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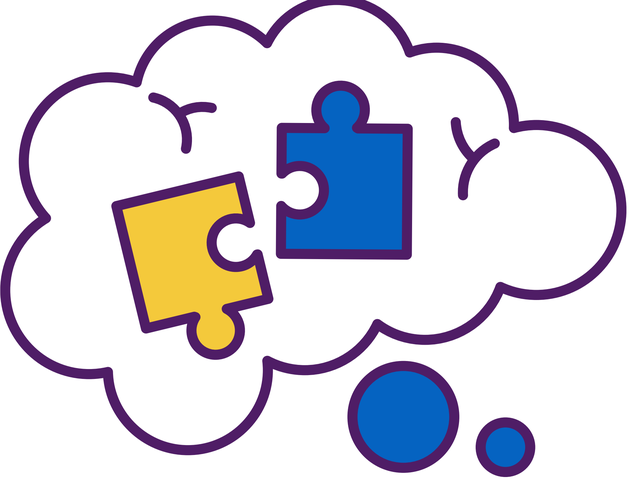

Guiding Theory

Dunn's Model of Sensory Processing discusses sensory function and its impact on behavior through neurological modulation.

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Occupational Adaptation (OA) describes the adaptations that occur when an individual meets an occupational challenge while considering the person including functions such as sensorimotor, cognitive, and psychosocial factors.

Literature Review

- Sensory dysfunctions **negatively impact occupations** and hinder occupational performance
- Leads to overreliance on unaffected limb promoting **maladaptive neuroplasticity**
- Evidence supporting sensory reeducation has shown **maximization of neuroplasticity**
- Sensory dysfunction may lead to **dysregulation** then cause difficulties with managing and processing emotions increasing susceptibility to mental health challenges
- Integration of both sensory and motor systems into interventions has been shown to produce more **meaningful functional outcomes**
- Despite what is known, a significant percentage of practitioners do not actively address sensory deficits
    - Time constraints, insufficient evidence-based interventions and assessments

Needs Assessment

Interview of five physical therapists including site mentor

- Need for **continuing education** on addressing sensory deficits
- Evidence-based research (EBR), **interventions** with dosage/frequency
- Need for **increased access** to tools to implement sensory interventions

Deliverables

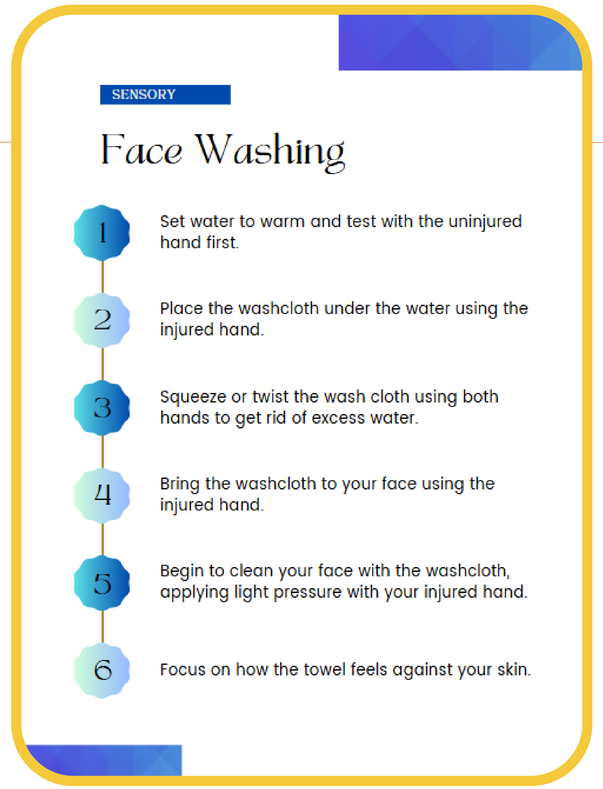
Sensory Tools

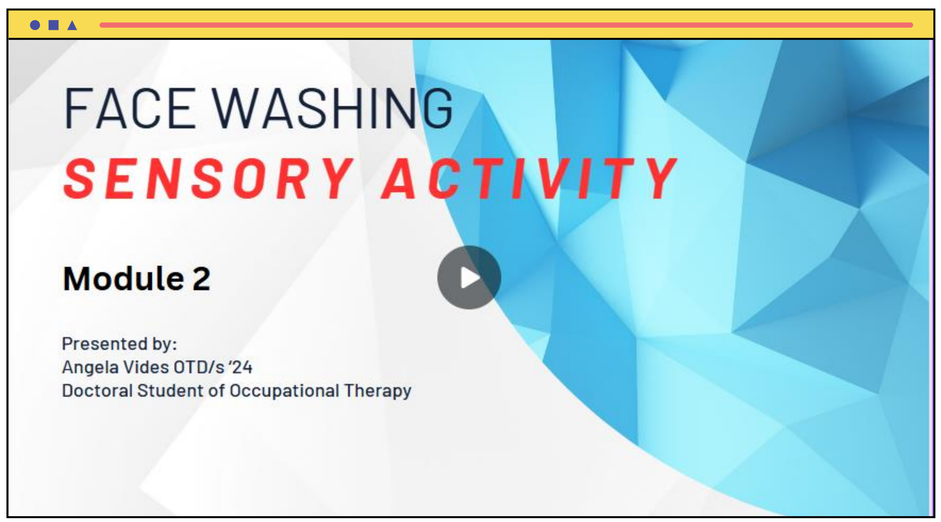
Tools for sensory interventions provided to the clinic

6 video tutorials created outlining ideas for interventions
- Grade-up/down
- Duration/Frequency

All tools and intervention ideas are **evidence-based**

Deliverables





Asynchronous Class

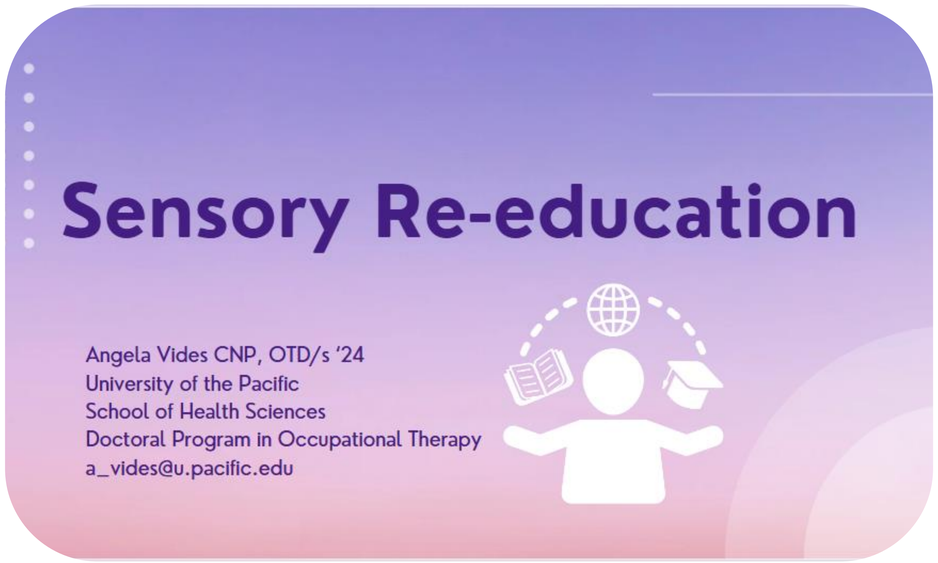
Sensory activities to complete at home
- 6 video tutorials
- Each video accompanied by patient handout

Asynchronous class
- What are sensory deficits?
- What's the prognosis?
- What does treatment consist of?

All materials created in **4th and 5th grade reading level**, with modifications for **low vision**

Deliverables

In-Service Presentation



- Provided to five physical therapists at facility
- Presented **newest research** on topic
- Presented **sensory tools** made available
- Offered ideas on **strategies and modifications** to implement during current treatments to engage of sensory system

Outcomes

- **Great therapist response**
  - "I did not realize how important the sensory system was to motor function."
  - "This work is so important."
  - "This has the potential to start a great change in Kaiser."

- **Implementation** into sessions per therapist reports and observations of client sessions

Discussion

- **What did I learn?**
  - Immersion into newest research on topic
  - Sensory and motor-based interventions
  - Creation of patient resources
  - Implementation of resources into client care

- **What are my thoughts on the Capstone site?**
  - Professional and open to new ideas
  - Open to sharing experience, knowledge, and offering constructive feedback

Impact

Increased Confidence and Evidence-based Research Carry-Over

- **Impact on site**
  - Increased **confidence levels**
  - Increased implementation of active sensory-reeducation in conjunction with traditional motor-based approach potentially **improving client care**
  - Possible **implementation at other Kaiser facilities** in the Northern California region

- **Personal Impact**
  - Increased experience with **compiling, synthesizing, disseminating, and implementing** EBR into clinical practice
  - Increased knowledge in this area of practice with possible direct **application with future clients**
  - Increased experience with **project management**

Future Implications

- Demonstrates the **feasibility of implementation** of similar resources at other Kaisers facilities
    - Cost effective and evidence-based
- **Personal Implications**
    - Highlights the important of addressing sensory deficits in future practice
    - Increased awareness of importance of staying up-to-date with new research
    - This information can be applied to all settings
        - Encounter individuals during all phases of recovery

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