

Assistive Technology as a Rehabilitation Tool

Erin Muston-Firsch MS, OTR/L



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Objectives

- Participants will discriminate between the use of assistive technology as compensatory aid versus a restorative intervention.
- Participants will identify 3 assistive devices to support independence in ADL/IADLs such as work, school, or productive living
- Participants will describe how assistive technology can support increased quality of life and social participation

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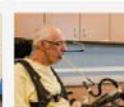



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Craig Hospital Assistive Technology Lab

<http://www.craighospital.com/assistserv/assistserv.htm>

 Augmentative and Alternative Communication	 Call Systems Resources	 Computer Access Resources
 Electronic Aids for Daily Living (EADL)	 Gaming Resources	 Mounts, Holders and Stands
		

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### History of Assistive Technology Lab

- Initially a resource closet
  - Expensive, custom, devices with steep learning curve
- Growth and expansion
  - Multiple staff, multiple disciplines
  - Push toward mainstream, consumer devices
  - Assistive technology designed to work with existing devices
  - Use of assistive technology for rehabilitation

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### Assistive Technology as a Compensatory Aid

- Typically the goal of the intervention
  - Patient can access their device = goal met
- Any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities
  - Ex. Pt. with SCI accesses a phone using built-in dictation
- Access methods sometimes relate to other therapy goals
  - Ex. Sip and puff mouse as a precursor to train sip and puff wheelchair driving

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### The Importance of Access

- Allows for greater safety
- Supports return to prior roles, routines, habits
  - Vocational or academic participation
  - Home management, financial management, parental roles
- Reduced reliance on caregiver support
  - Independent home access
- Increased social participation, quality of life, feelings of normalization

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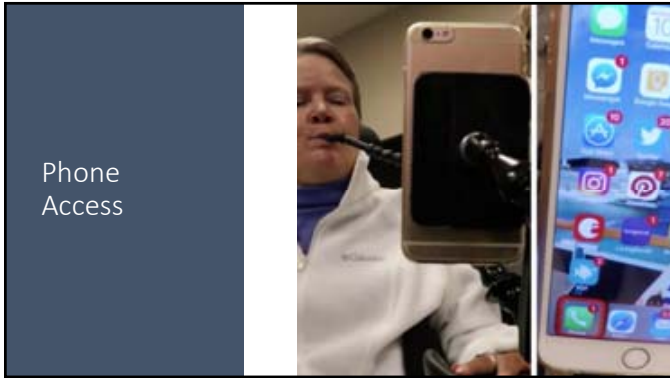
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Phone  
Access

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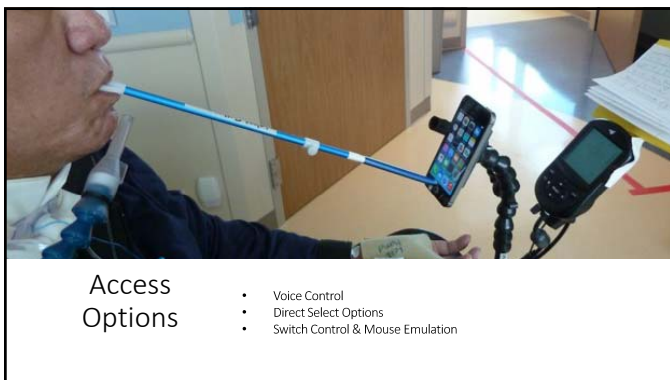
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Access  
Options

- Voice Control
- Direct Select Options
- Switch Control & Mouse Emulation

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PHONE ACCESS VIDEO CASE  
EXAMPLE

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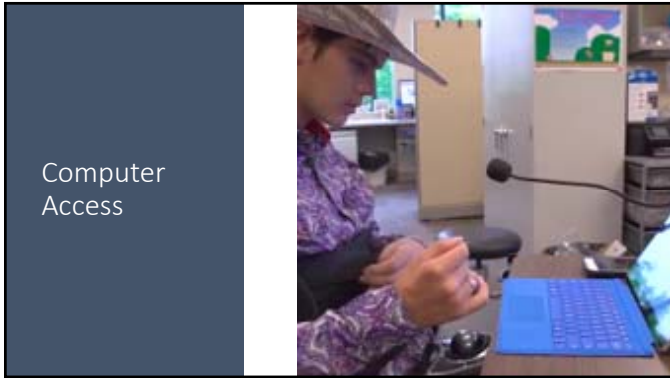
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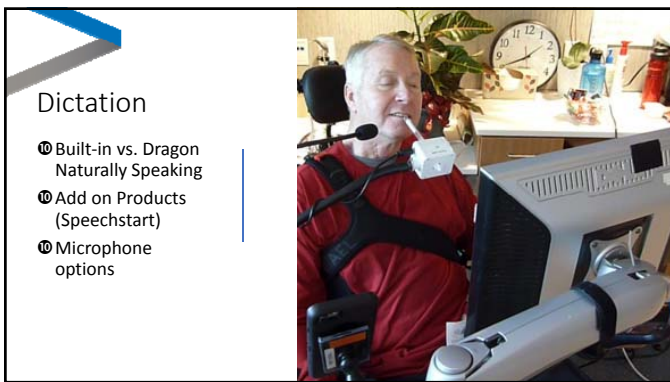
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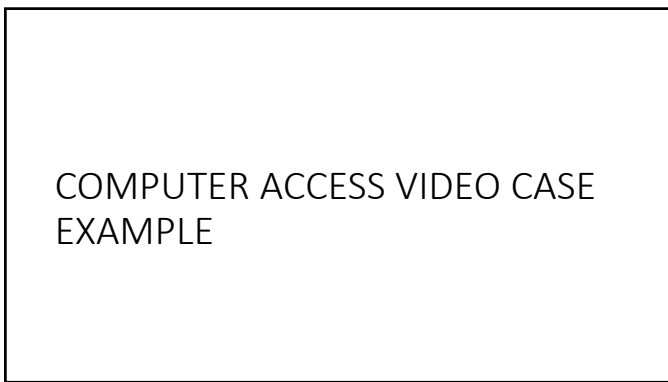
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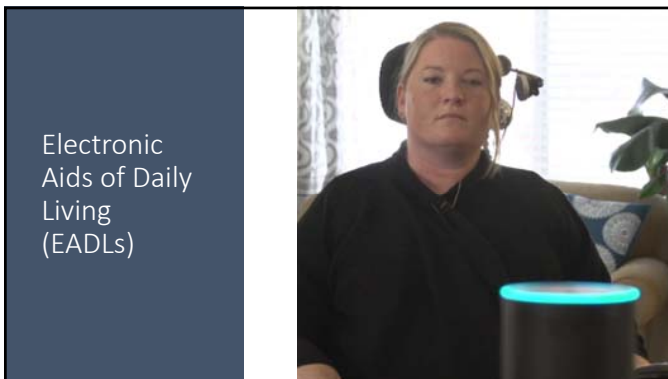
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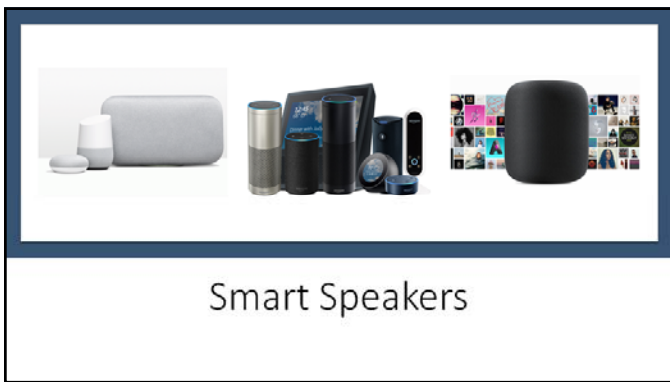
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Smart Speakers

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EADL ACCESS VIDEO CASE  
EXAMPLE

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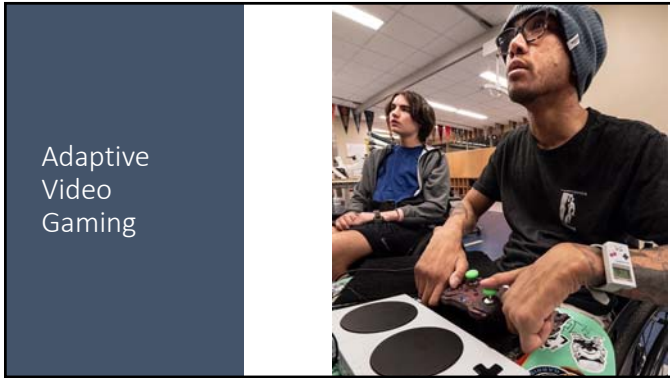
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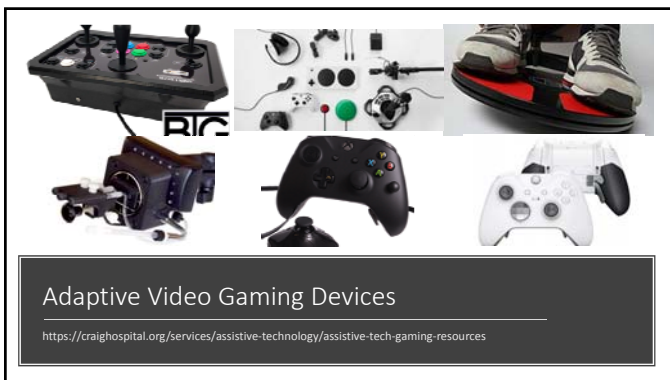
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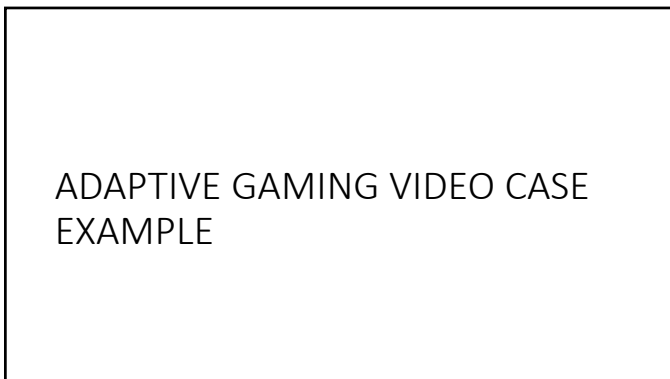
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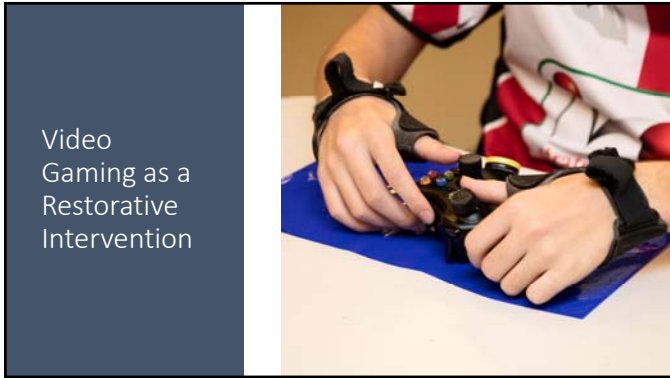
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### Assistive Technology as a Restorative Intervention

- Typically the "means" of the intervention
  - Using the device as a tool for treatment
- Remedial approach with graded activity focused on improving occupational performance, performance skills (motor skills, process skills, social interaction skills) and client factors to build capacity and ability to complete client-directed goals.
- It's primary treatment approach is immersive, task-oriented, offering high repetition and intensity.
  - Ex. Patient used virtual reality headset to address goal of standing balance

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### Rationale for Restorative Approach

- Immersive nature can facilitate increased engagement, participation
- High repetition/intensity, mass practice
- Highly customizable to meet client-specific goals (e.g. AROM, strength, balance)
- Highly gradable at both hardware and software levels to grade the activity in either direction
- Easy to demonstrate progress over time
  - (e.g. repetitions, duration, MMT, etc)

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Restorative Gaming Goals

- Motor control/Range of Motion
- Strength
- Endurance
- Balance
- Vision & Perception
- Cognition
- Pain management/ relaxation

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THERAPEUTIC GAMING VIDEO CASE EXAMPLE

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Summary

- Assistive Technology is a useful tool in restoring safety, independence, social participation, and quality of life for individuals after catastrophic injury
- Matching and training the most appropriate device to unique patient needs can facilitate return to ADL/IADL participation, such as work, school, and productive living
- Assistive Technology can be used as both the means and the ends of therapy; as a compensatory aid or a restorative intervention
- With the myriad of devices on the market, occupational therapists and assistive technology specialists are uniquely able to identify the most appropriate device for a patient's needs.

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## Thank You

Questions?

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