ACCESS: PREPARING FOR THE ATP EXAM

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Learning Objectives

After this course, participants will be able to:

- List three access methods used to control assistive technology devices.
- Identify clinical indicators for three different access methods.
- Recognize facilitators for three different access methods.

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What we will be covering:

- Access
  - Definition
  - Access Methods
    - By AT Device
    - Clinical indicators

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The ATP Certification

- The Assistive Technology Professional (ATP) certification is offered through the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA)
- This demonstrates a basic level of competence in the practice area of Assistive Technology
  - Over 4000 people hold the ATP certification
- This series of courses will include information to prepare the candidate for this examination

RESNA Rehabilitation Engineering and Assistive Technology Society of North America

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The ATP Certification

- The candidate must fulfill specific pre-requisites before taking the examination
- For Occupational Therapy Practitioners with a Bachelor's or Master's degree, 1000 hours of work experience is required over 6 years.
- For further information:
  - http://www.resna.org/get-certified/exam-eligibility-requirements

ATP RESNA CERTIFIED ASSISTIVE TECHNOLOGY PROFESSIONAL

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Access Methods

- What is Access?
- Per the HAAT Model, Access is:
  - Human Technology Interface
    - Input device or control interface
  - Provides **input** to the AT device
  - Provides **control** of the AT device

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Access Methods

- Direct
- Mouse
- Joystick
- Eye Gaze
- Voice
- Switch




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Access Methods by AT Device

- Power wheelchairs
- Speech generating devices
- Computers
- Tablets
- Electronic Aids to Daily Living


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Access Methods by AT Device

- Power Wheelchairs:
  - Joysticks (proportional control)
  - Alternative proportional controls
  - Switches (digital control)

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Access Methods by AT Device

- Augmentative Communication:
  - Direct
  - Mouse
  - Eye Gaze
  - Switch

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Access Methods by AT Device

- Computers:
  - Direct
  - Mouse
  - Eye Gaze
  - Voice
  - Switch

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Access Methods by AT Device

- Tablets:
  - Direct
  - Mouse
  - Switch

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Access Methods by AT Device

- Electronic Aids to Daily Living (EADLs):
  - Direct
  - Voice
  - Switch
  - Through other AT Devices

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Access Methods

- Categories
- Clinical Indicators
- Facilitators
- Programming

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Direct Access

- Definition
- Clinical Indicators
- Facilitators
- Programming

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Direct Access

- Definition:
  - Direct access by finger or pointer to location on AT display or keyboard

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Direct Access

- Eye Gaze and Voice Access are also considered Direct Access methods
  - As items are directly chosen, rather than having to scan or otherwise move to a selection
  - We will discuss these access methods later

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Direct Access

- Clinical Indicators
  - Requires accuracy, finger isolation
    - For the required amount of items on the display
  - Requires sufficient activation pressure
  - Requires ability to release (stability)
  - Vision and literacy

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Direct Access

- Facilitators
  - Positioning
    - Optimal positioning provides stability for function
  - Splinting
  - Pointers
  - Keyguards

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Direct Access

- Facilitators
  - Splinting
    - Wrist alignment
    - Finger isolation

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Direct Access

- Pointers
  - Hand held
  - Splint or universal cuff mounted
  - Head mounted
  - Chin mounted
  - Mouth stick

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Direct Access

- Keyguards
  - Provide stability
  - Promotes finger or thumb isolation
  - Visual implications

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Direct Access

- Programming
  - SGD specifics:
    - Activation on contact or release
    - Activation Acceptance time
      - Allows client to move across display without accidental activations
  - Audio feedback
  - Computer/Tablet specifics:
    - Operating system accessibility settings

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Direct Access

- Keyboards
  - Keyboard layout
  - One-handed strategies
  - Enlarged keyboards
  - Rate enhancements strategies
    - Word prediction
    - Word completion
    - Abbreviation Expansion

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Mouse Access

- Definition
- Clinical Indicators
- Facilitators
- Programming

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Mouse Access

- Definition:
  - Hybrid access method in which movement of the mouse is translated into movement of a highlight or cursor over specific options on display
  - 360 degree movement and proportional speed on computers
  - SGDs: typically vertical, horizontal and diagonal movement is recognized
    - If SGD is a computer, mouse acts like a computer mouse

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Mouse Access

- Mouse Types:
  - Standard mice
  - Joystick mice
  - Adaptive mice
    - Trackballs
  - Head mice

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Mouse Access

- Mouse Types:
  - Standard mice
  - Most clients having the dexterity to use a standard computer mouse can directly access many AT devices

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Mouse Access

- Mouse Types:
  - Joystick mice
  - Provides stability of a joystick and the maneuverability of a mouse

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Mouse Access

- Mouse Types: Adaptive mice
  - Trackballs
    - Accommodates larger, less controlled movement patterns
    - Speed may be adjusted on the mouse

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Mouse Access

- Mouse Types: Adaptive mice
  - Touchpads
    - Accommodates limited range of motion and strength
    - Requires good fine motor control
    - Tapping may select

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Mouse Access

- Mouse Types:
  - Head mice
  - Typically a light reflective dot is placed on the forehead or close by
  - Camera mounted to SGD translates head movement into movement of the cursor
  - These clients may also be able to use eye gaze

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Mouse Access

- Facilitators
  - General Positioning
  - If hand is used, provide adequate upper extremity support
    - Splinting for alignment and stability, if needed
  - If hand is used, provide mounting of mouse, if needed, in optimal location

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Mouse Access

- Programming
  - Selection Method
    - If client cannot press a mouse button or one is not present
    - Dwell or Pause
    - Switch Activation

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Mouse Access

- Programming
  - Speed
    - Typically programmed on AT device
  - Keep the cursor on the display!
  - May be helpful to program “resting” areas for the cursor on SGD layouts

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Joystick Access

- Definition
- Clinical Indicators
- Facilitators
- Programming

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Joystick Access

- Joysticks are primarily used with power wheelchairs and are not an access option on other AT Devices
- Joysticks translate movement of the joystick into movement of the power wheelchair
- Many kinds
  - Size, handle, force required, travel required

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Joystick Access

- Joysticks and a few others
- Requires grading of force and distance of movement
- Proportional Control
  - 360 degree control
  - Speed control

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Joystick Access

- Facilitators
  - Positioning of joystick and client
  - Support forearm and hand

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Joystick Access

- PWC Programming
  - Driving parameters
  - Proportional specific parameters

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Eye Gaze Access

- Definition
- Clinical Indicators
- Facilitators
- Programming

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Eye Gaze Access

- Definition:
  - Eye movement is translated into cursor movement

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Eye Gaze Access

- Clinical Indicators
  - Good eye gaze control
  - Adequate vision to distinguish desired selection
  - Good head control
    - Newer technologies can accommodate this much better than before

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Eye Gaze Access

- Facilitators
  - Positioning for optimal head control and stability
  - Head support that provides optimal support and stability

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Eye Gaze Access

- Programming
  - Selection Method
  - When used as a mouse, a means of making a selection is required
    - Dwell or Pause
    - Switch Activation
      - Head mounted option
  - Speed
    - Dependent on speed of eye movements

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Voice Access

- Definition
- Clinical Indicators
- Facilitators
- Programming

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Voice Access

- Available access method for computers and EADLs primarily
- Voice commands provide direct input, such as dictation, or execute commands
- Computer:
  - Voice can be used to emulate keyboard and mouse

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Voice Access

- Clinical Indicators:
  - Clear and consistent voice
  - Important to use voice correctly to minimize RSI risk
  - Back-up method may be required

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Voice Access

- Facilitators:
  - Positioning
    - EADLs may be used from wheelchair or bed
  - External, high quality microphone
  - Training

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Voice Access

- Programming
  - Programming shortcuts
  - Training to improve recognition level

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Switch Access

- Definition
- Clinical Indicators
- Facilitators
- Programming

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Switch Access

- Definition:
  - Indirect access method
  - 1 – 5 switches are used, dependent on AT Device controlled
  - SGDs, Computers/Tablets and EADLs – scanning
  - PWCs – each switch represents a directional movement

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Switch Access

- Clinical Indicators
  - When client cannot use the other access methods
  - Least efficient method…most of the time
  - Any switch type or location

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Switch Access

- An ideal switch site uses:
  - small movement
  - isolated movement
  - volitional movement
  - controlled activation
  - sustained pressure
  - controlled release

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Switch Access

- Facilitators
  - Positioning of the client
  - Positioning of the switch
  - Stability for isolated control

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Switch Access

- Programming - SGD
  - Scanning Method
    - Single switch
      - One switch starts scan, makes selection
    - Dual switch
      - One switch moves highlight
      - Second switch selects

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Switch Access

- Programming - SGD
  - Scanning Pattern
    - Auto scan, single switch
    - Linear
    - Row Column
    - Column Row
    - Quadrant

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Switch Access

- Programming - SGD
  - Scanning speed
    - For auto scan
  - Select on activation
    - Hold time
  - Select on release (sometimes called Inverse scan)
  - Scanning strategies
    - prediction

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Switch Access

- Power Wheelchairs
- Basically, using 1-5 switches to control the direction of the chair





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Conclusion

- Selecting the most appropriate access method is critical to meeting an individual's motor, sensory and cognitive abilities
- The access method provides independent control of the AT device
- Facilitators and programming optimize access to an AT device

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Thank you!

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