ASSISTIVE TECHNOLOGY

Lecture#3

ASSISTIVE TECHNOLOGY

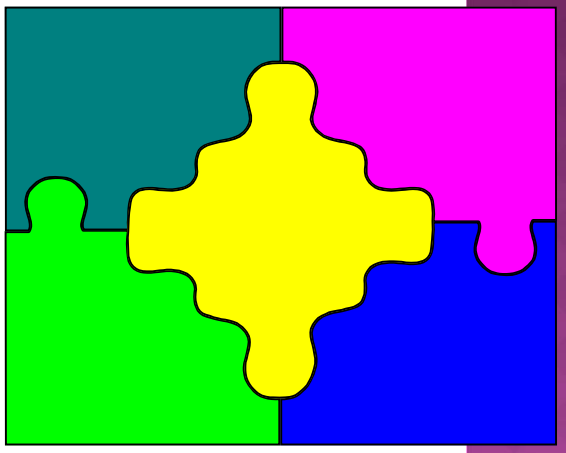
is an umbrella term that includes

- assistive,
- adaptive,
- and rehabilitative devices
- for people with disabilities and also includes the process used in selecting, locating, and using them.

WHO CAN PROVIDE AT RECOMMENDATIONS?

Rehabilitation Engineer or Assistive Technology Specialist

- A professional who is specifically trained in assistive technology and who is able to determine appropriate modifications to make tasks at home, school, and/or work accessible to an individual with a disability.



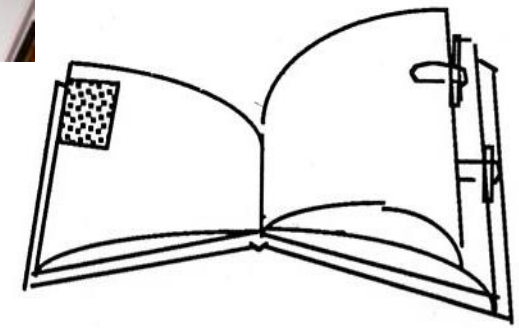
DEFINITIONS

- Low Technology –
- “Generally refers to simpler interventions, such as custom-designed hand tools; workstations modifications; and simple, easy to use, inexpensive devices” (Galvin &Scherer, 1996).

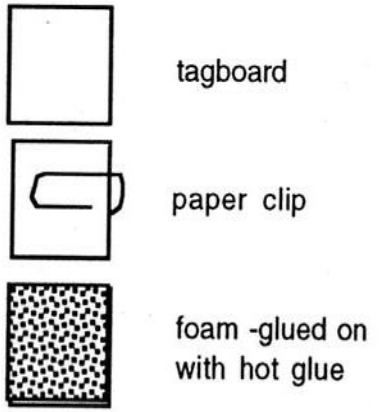
LOW TECH EXAMPLE

- Adapted Page Turners

- Clothespins
- Hair Ties
- Page Fluffers



"page fluffers" mounted in book



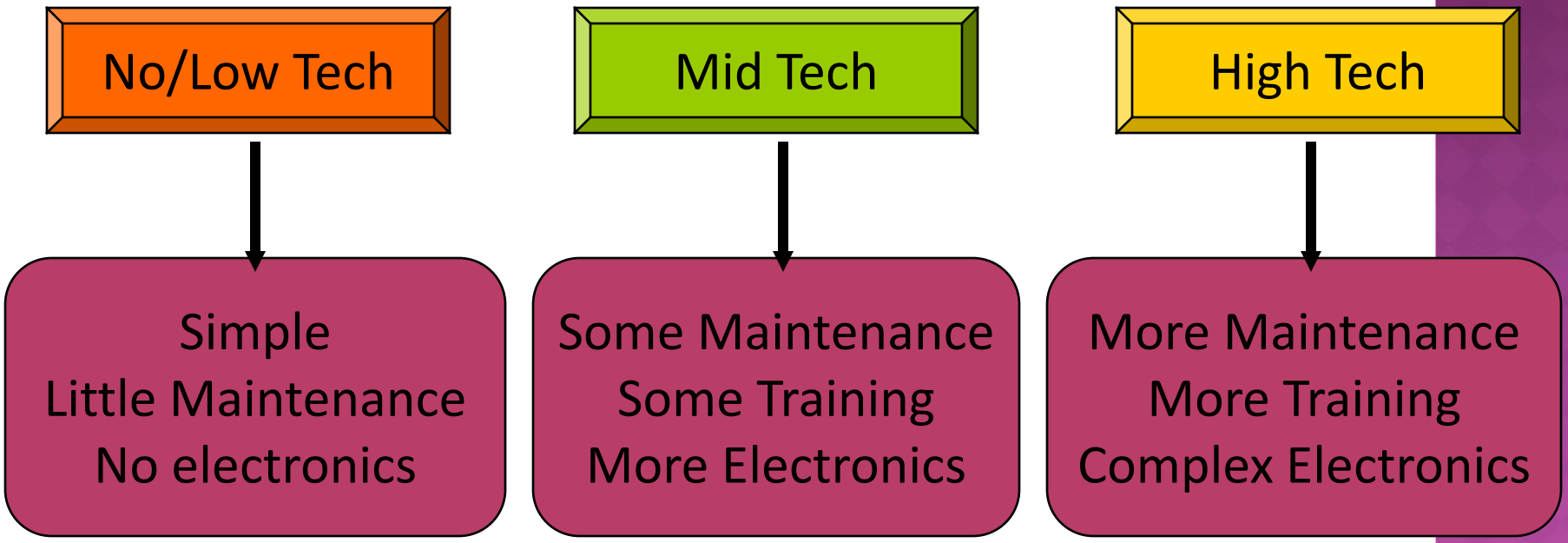
DEFINITIONS

- High technology –
- “usually refers to complex electrical and electronic devices, such as computers, augmentative-alternative communication boards, and environmental control systems” (Galvin & Scherer, 1996).

HIGH TECH EXAMPLES

Augmentative-Alternative Communication (AAC) Devices

CONTINUUM FROM NO/LOW TECH TO HIGH TECH



EXAMPLES OF LOW TECH FOR READING

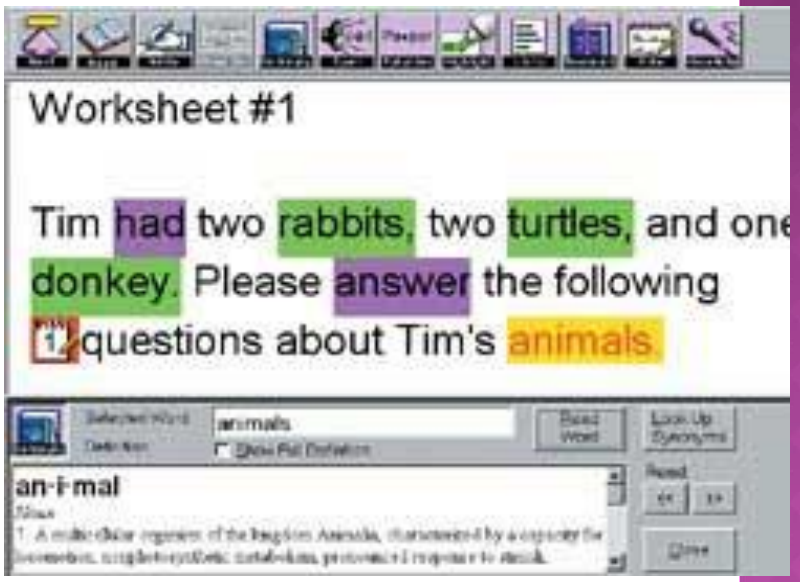
- Book holder
- Color filters
- Highlighters, markers

EXAMPLES OF MID TECH FOR READING

- Books on tape/CD
- Talking dictionary
- Handheld scanner

EXAMPLES OF HIGH TECH FOR READING

- Talking word processor
- Scanner
- Picture-supported text

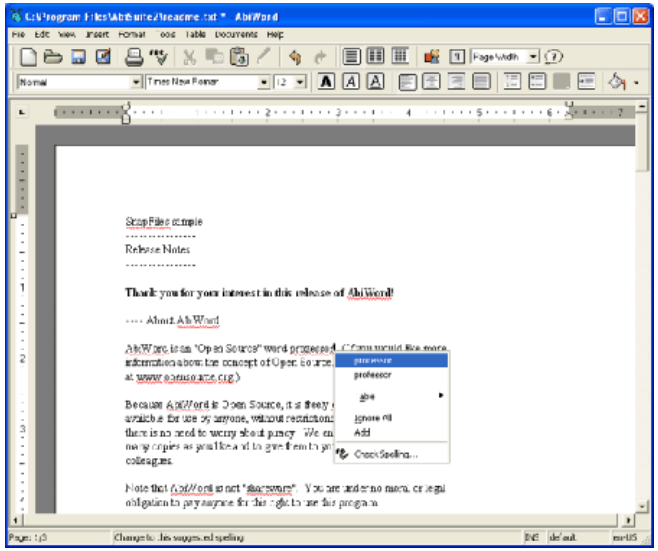


EXAMPLES OF LOW TECH FOR WRITING

- Pencil grip; weighted pens
- Markers and white board
- Reference material

EXAMPLES OF MID TECH FOR WRITING

- Electronic spell checker
- Word processor

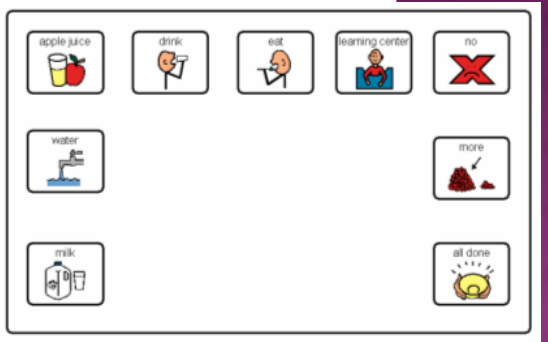


EXAMPLES OF HIGH TECH FOR WRITING

- Word prediction
- Text-to-speech feedback
- Speech recognition

EXAMPLES OF LOW TECH FOR COMMUNICATION

- Aided Language Stimulation for comprehension
- Eye-gaze frames
- Communication boards, books or other formats



EXAMPLES OF MID TECH FOR COMMUNICATION

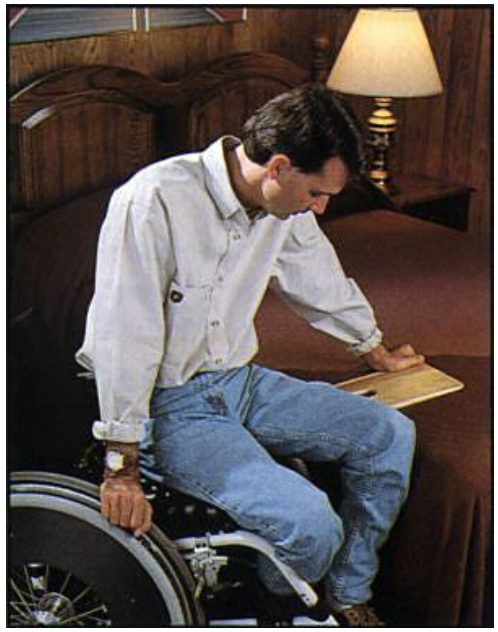
- Single and multiple message devices
- Sequenced message device
- TDD (telephone devices)

EXAMPLES OF HIGH TECH FOR COMMUNICATION

- Dynamic screen devices
- Symbol sequencing
- Text-to-speech

EXAMPLES OF LOW TECH FOR MOBILITY AND SEATING

- Cane, crutches, walker
- Ramp
- Transfer board
- Seating adaptations



EXAMPLES OF MID TECH FOR MOBILITY AND SEATING

- Specialized seating
- Rollator

EXAMPLES OF HIGH TECH FOR MOBILITY AND SEATING

- Wheelchair
- Elevator/Chair Lift
- Hand Controls

EXAMPLES OF LOW TECH FOR ENVIRONMENTAL CONTROL AND DAILY LIVING SKILLS

- Adapted eating and cooking utensils
- Universal cuff
- Adapted tools

EXAMPLES OF MID TECH FOR ENVIRONMENTAL CONTROL AND DAILY LIVING SKILLS

- Talking devices
- Special lighting
- Appliance controller

EXAMPLES OF HIGH TECH FOR ENVIRONMENTAL CONTROL AND DAILY LIVING SKILLS

- ECU for controlling many devices

AT IN THE SERVICE LEARNING CLASSROOM

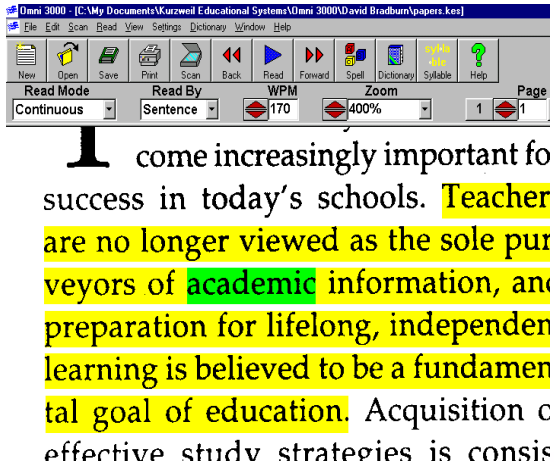
Low-Tech

- Hard copies of notes provided by the instructor or other student
- Outlines, double spaced, with key words provided by the teacher or note taker
- Printed materials double-spaced and with larger print
- tape recorders
- Calculators
- Books on tape

High-Tech

- Lap top computer for note taking
- Electronic spelling masters or dictionary with voice output
- Word prediction software
- Outline software
- Reading and scanning software
- Voice recognition software

AT IN THE SERVICE LEARNING CLASSROOM



Reading and Scanning Software

AT IN THE SERVICE ENVIRONMENT

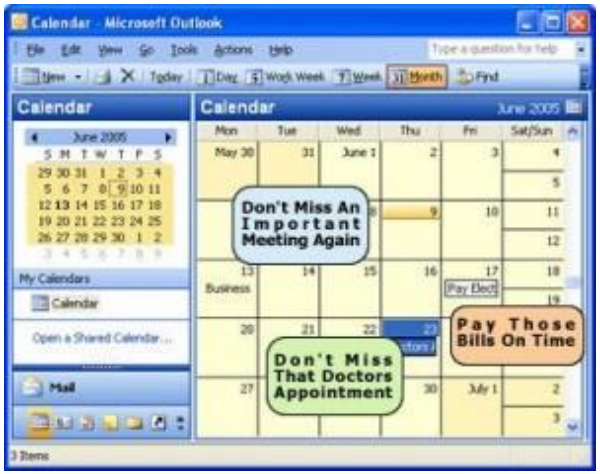
Low-Tech

- To-do lists
- Date planner (electronic or paper and pencil) and electronic reminders
- Color post-it notes
- Telephone with headset
- Organized filing system
- Clip board

High-Tech

- Alternative keyboards and mice
- Digital recorder
- Ergonomic desk, height adjustable tables
- Reading and scanning software
- Voice recognition software

AT IN THE SERVICE ENVIRONMENTS



AT IN THE SERVICE ENVIRONMENTS

AT FOR DAILY ACTIVITIES – SENIORS AND INDEPENDENT LIVING

Low-tech

- Reacher
- Non-slip material
- Lever handles
- Slide or toggle switches
- Utensils with easy-grip handles
- Mirror mounted over the range

High-tech

- Clapper
- Universal remote control
- Home automation systems
- Environmental control systems
- Screen magnification software

AT TOOLS

High-Tech Team

- Electronic dictionary
- Alpha Smart keyboard
- Word prediction software
- Voice recognition software
- Digital recorder
- Robotic arms
- Electronic reminders
- Automatic adjustable desks and tables
- Voice control telephones
- Reading and scanning software
- Augmentative communication device
- Noise cancelling headset

Low- Tech Team

- Reacher
- Non-slip material
- Lever handles
- Mirrors
- To-do lists
- Date planner
- Color post-it notes
- Quiet space
- Telephone with headset
- Organized filing system
- Clip board
- Large print

ASSISTIVE TECHNOLOGY AND ADAPTIVE TECHNOLOGY

- adaptive technology is often used as the synonym for assistive technology
- Assistive technology refers to "any item, piece of equipment, or product system,
- while adaptive technology covers items that are specifically designed for persons with disabilities

DEFINATION

- "assistive technology is any object or system that increases or maintains the capabilities of people with disabilities," while adaptive technology is "any object or system that is specifically designed for the purpose of increasing or maintaining the capabilities of people with disabilities."

HEARING AID

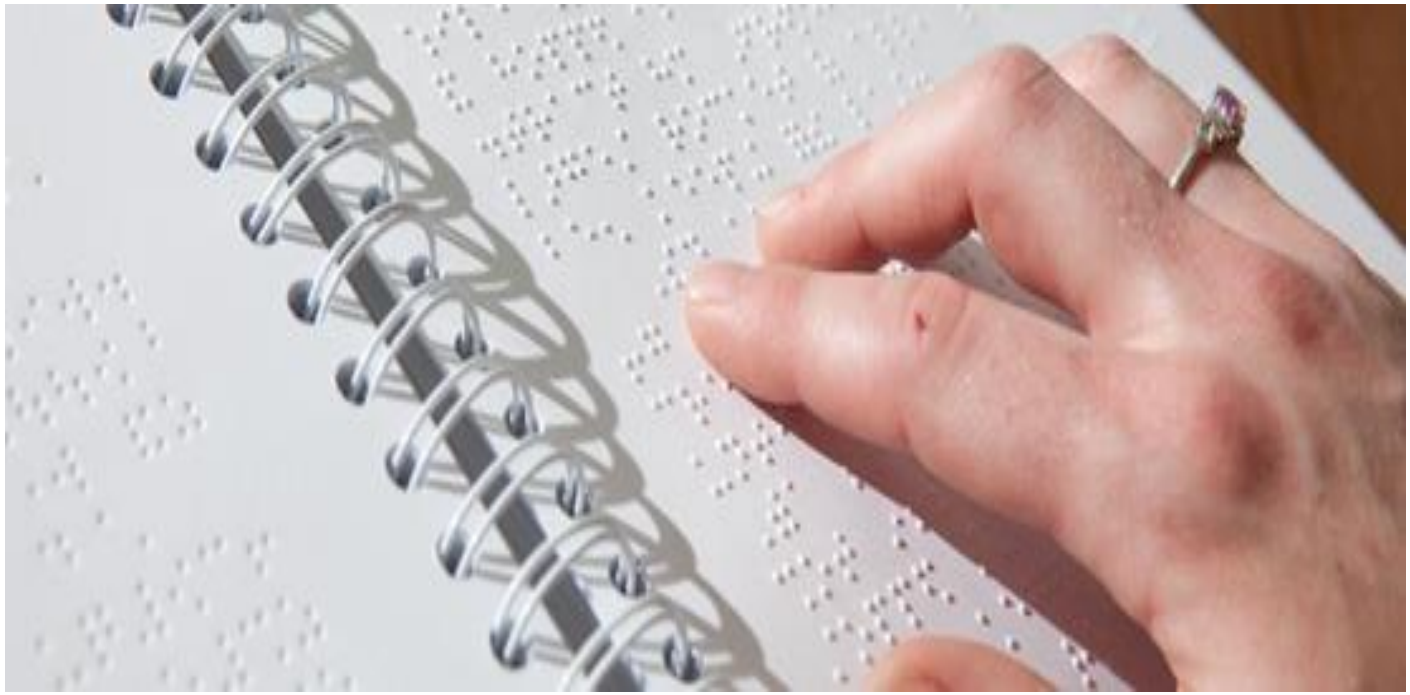
MOBILITY IMPAIRMENT AND WHEELCHAIRS

WALKERS

PERSONAL EMERGENCY RESPONSE SYSTEMS

- (PERS), or Telecare (UK term),
- are a sort of assistive technology
- use electronic sensors connected to an alarm system
- help caregivers manage risk
- help vulnerable people stay independent at home longer.

ASSISTIVE TECHNOLOGY FOR VISUAL IMPAIRMENT



ASSISTIVE TECHNOLOGY FOR COGNITION

- use of technology (usually high tech)
- to augment and assistive cognitive processes
- Such as attention,
- memory,
- self-regulation,
- navigation,
- emotion recognition

ASSISTIVE TECHNOLOGY IN SPORT

- is an area of technology design that is growing
- array of new devices created to enable sports enthusiasts who have disabilities to play
- an existing sport is modified to enable players with a disability to participate;
- or, assistive technology may be used to invent completely new sports with athletes with disabilities exclusively in mind

- increasing number of people with disabilities are participating in sports,
- leading to the development of new assistive technology.
- devices can be simple, or "low-tech",
- or they may use highly advanced technology,
- with some even using computers
- for sports it may also be simple, or advanced.

Eagle

ASSISTIVE TECHNOLOGY MISSION

- *The mission of AT is to enhance the ability of people*
- *to fulfill life goals through the coordination and provision of appropriate assistive technology services.*

ASSISTIVE TECHNOLOGY SERVICES

- wheelchair seating and positioning
- personal mobility systems
- augmentative communication devices (speech output devices)
- audiology services
- specialized computer equipment and software, such as adaptive keyboards, monitors, and voice programs

- ergonomic workstation design
- environmental control units for work, school, or home
- recreational devices, such as cycles and skis
- consultation on vehicle modifications and related adaptive equipment
- adaptive driving evaluation and training
- environmental accessibility and recommendations for home modifications

AT TEAM

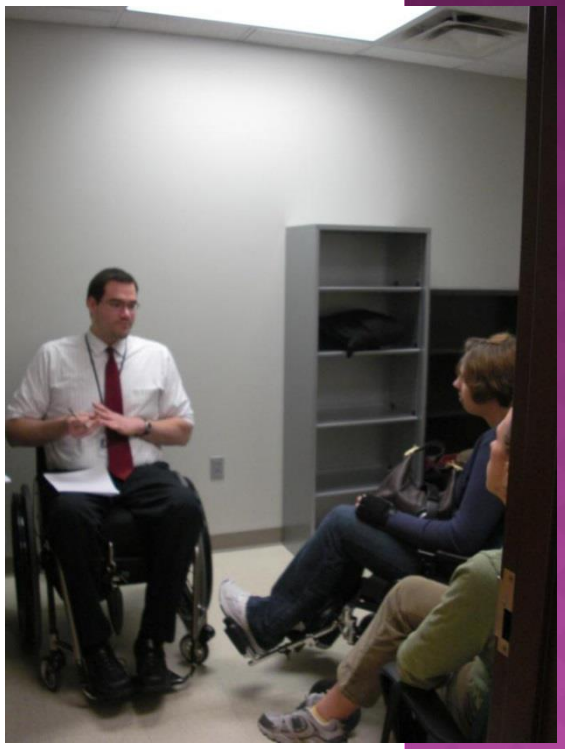
- **Physical therapists** provide services that *help restore function, improve mobility, relieve pain, and prevent or limit permanent physical disabilities of patients suffering from injuries or disease.*

- **Occupational therapists (OTs)** evaluate people's abilities to perform the everyday tasks they need to do (toileting, dressing).

- **Physiatrists** are the team leaders of care during rehabilitation, *directing a rehabilitation care plan that includes several other team members*.
- A physiatrist's treatment focuses on helping the patient become as functional and pain-free as possible in order to participate in and enjoy life as fully as possible.

- An audiologist deals primarily with receptive communication disorders, especially the prevention, identification, and measurement of hearing loss and the rehabilitation of individuals with hearing impairments, as well as the assessment of balance disorders.

- **Rehabilitation counseling** is a process whereby the counselor works collaboratively with an individual with a disability to understand existing problems, barriers, and potentials in order *to facilitate the client's effective use of personal and environmental resources for personal, social, career, and community adjustment.*



THE CHIEF TEAM MEMBER IS …. THE CLIENT

- The design and application of the AT Service Delivery starts out with the introduction of the client to the AT Assessment team and empowering the client to be an active decision-making member of that team.

BENEFITS OF AT

- Maintains or improves daily function
- Reduces stress-related injuries
- Eases integration into society (levels the “playing field”)
- Modifies the environment instead of the person

Thank you!