

Bridging the Gap between Consumers and Products in Rehabilitation Medicine

Deborah E. Kenney, MS OTR/L

Department of Orthopaedic Surgery - Stanford University
Department of Plastic Surgery - Veterans Affairs Palo Alto HCS



How is assistive technology used?

- Mental and / or Physical Activities
 - Improve functioning
 - Overcome disorder or impairment
 - Prevent worsening of a condition
 - Strengthen a weakness

❖ Goal: Increased Independence

ADLs

- Self Care
 - Mobility



ADLs

- Self Care
 - Dressing



ADLs

- Self Care
 - Eating and Meal Preparation



*



*



ADLs

- Self Care
 - Eating



ADLs

- Self Care
 - Hygiene



*

ADLs

- Communication



ADLs

- Leisure
 - Hobbies, sports, travel, etc.



ADLs

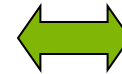
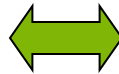
- Vocational and Educational



The Transdisciplinary Rehabilitation Team

Physiatrist

Computer Engineer
Family / Tutor / Caregiver
Rehabilitation Counselor
Assistive Technology Specialist
Service Coordinator
Fabrication / Adaptation Tech
Training Coordinator
Audiologists
Nurse Practitioners
Psychologist



Social Workers
Occupational Therapist
Speech-Language Pathologist
Prosthetists
Medical Consultants
Teachers / Special Educators
AT Equipment Vendors
Hearing Device Specialists
Physical Therapists

Patient

Steps to Successfully Issue an Assistive Device

- Patient evaluation
 - Home Evaluation
- Introduction of device
 - In Patient / Out Patient
- Site and method of instruction / training
- Written justification to insurance company

Steps to Successfully Issue an Assistive Device

Home and Patient evaluation:

- Health Status
- Economic
- Physical Environment
- Social Aspects
- Personal

Different Levels of Assistive Technology Require Different Amounts of Training

Low Technology Adaptation

- Easy to use and does not require electrical power. May require a short training period.

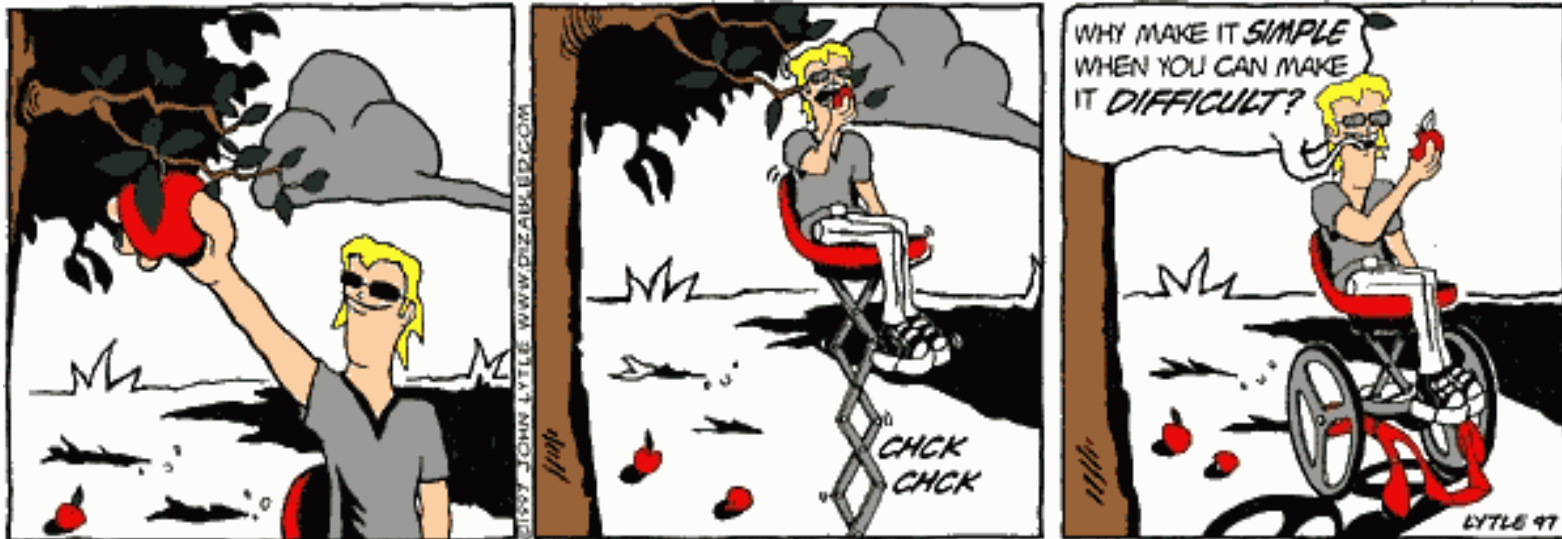
Elementary Technology Devices

- Includes most battery-operated devices. User requires a moderate training period. Usually off-the-shelf or inexpensive.

High Technology Devices

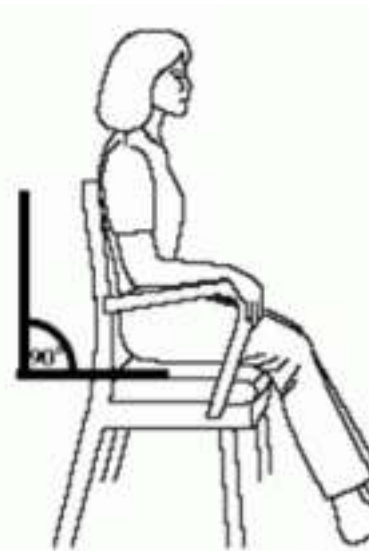
- Includes complex and programmable equipment. User requires specific training in order for the user to take full advantage of their capabilities. **Expensive.**

Whenever possible, keep it simple



Assistive Technology: One Size Doesn't Fit All

Total Hip
Replacement
- precautions



Long Handled Sponge

At 2 months, 30%
of patients aren't
using the device

How this all Relates to Product Development

- Involve all stakeholders early on and throughout the design process:
 - ❖ End users
 - ❖ Rehab team / therapist
 - ❖ Family members

Website Links

- ◆ [Allegro Medical](#)
- ◆ [Abledata](#)
- ◆ [North Coast Medical](#)
- ◆ [Sunrise Medical](#)

Disability ≠ Inability



Where to donate used medical equipment

- ◆ [ReCARES](#)
- ◆ Lions Club – [Hearing Aid Recycling Program](#)
- ◆ [Silicon Valley Independent Living Center](#)
(wheelchairs <5 years old)
- ◆ [Centers for Independence of Individuals with Disabilities](#)
- ◆ Ability Tools – [Reuse Programs](#)

Other Resources

- Shah et al (2009) **Developing medical device technologies from users' perspectives**. Int J Technol Assess Health Care. 25(4):514-521. [link](#)
- Trish Wielandt et al., **Factors that predict the post-discharge use of recommended assistive technology**. Disability and Rehabilitation: Assistive Technology, January-June 2006; 1(1-2): 29-40. [link](#)

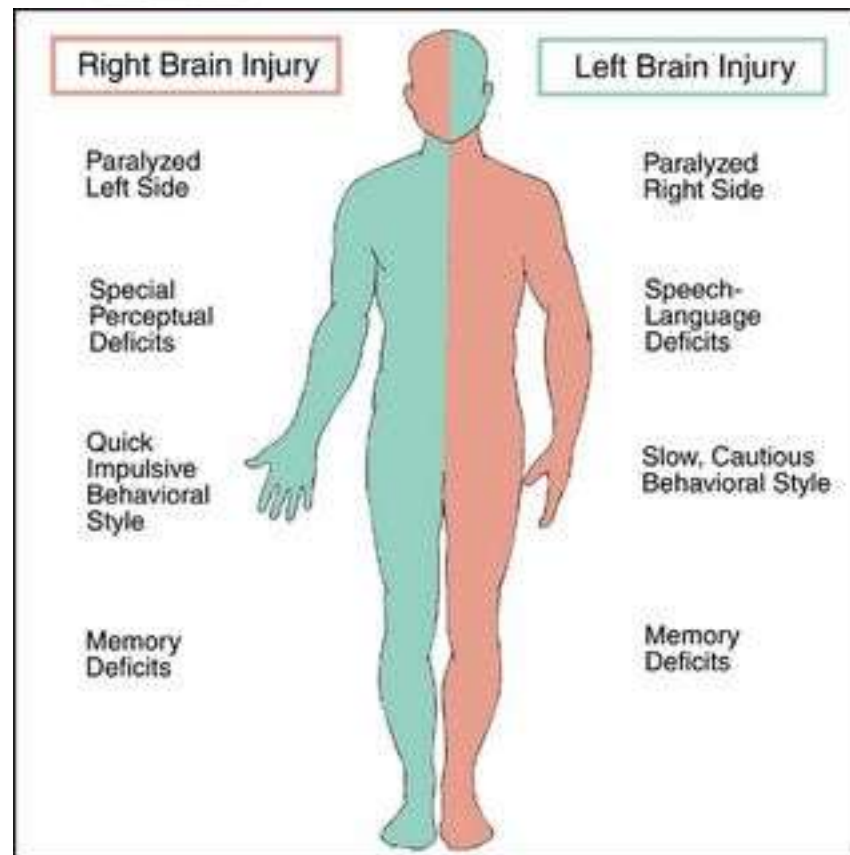
Other Resources

- **The Design and Evaluation of Assistive Technology Products and Devices Part 1: Design.** Marion A. Hersh. International Encyclopedia of Rehabilitation.
- [Christopher & Dana Reeve Foundation](#)
- [What are some types of rehabilitative technologies?](#)
- [Accessible Technology Coalition](#)

Practicing Subject and Caregiver Interviews

- ❖ Which of the following assistive technologies do our panelists use?
- ❖ Rules of the interview:
 - ❖ Explore social aspects, personal factors, economic and physical environments of the panelists
 - ❖ Find out what motivates these panelists
 - ❖ You may not ask directly if they use the AT in question or not

CVA



Example of a Low Tech Device: Rocker Knife



\$8.95

\$26.50



Example of a Low Tech Device: Octopus Stand

\$3 - \$15



Example of an Elementary & High Tech Device: Saebostretch & Saeboflex



\$349



\$1690

Example of High Tech Device Rewalk Exoskeleton



\$90,000 +

Example of a High Tech Device: Bioness Hand FES

\$6200

