Bridging the Gap between Consumers and Products in Rehabilitation Medicine

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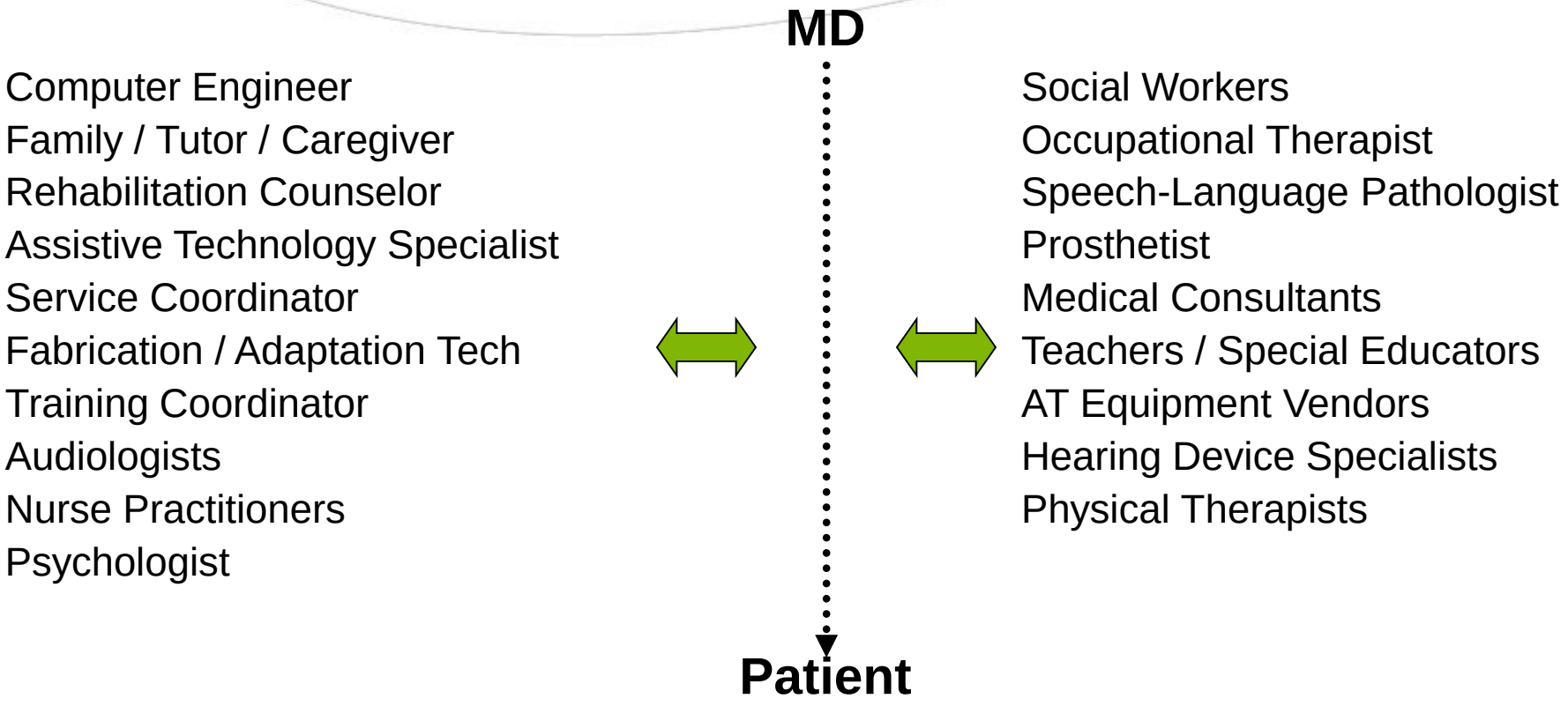
How is assistive technology used?

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

❖ Goal: Increased Independence

The Transdisciplinary Rehabilitation Team



What is Occupational Therapy?

Occupational therapists and **occupational therapy assistants** help people of all ages do the things they want and need to do through the use of everyday activities (occupations).

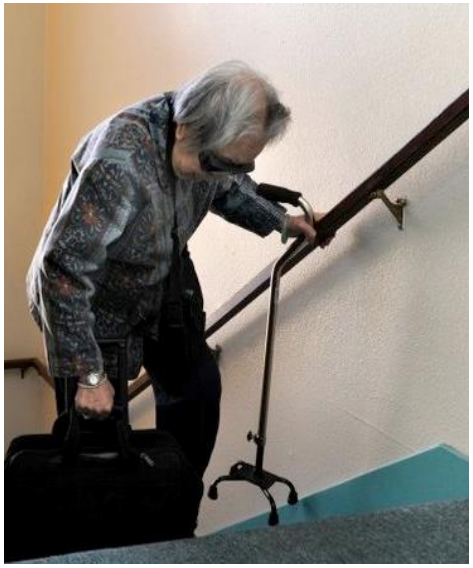
Occupational therapy practitioners ask:

"What matters to you?"

not, "What's the matter with you?"

ADLs

- Self Care
  - Mobility



ADLs

- Self Care
  - Dressing

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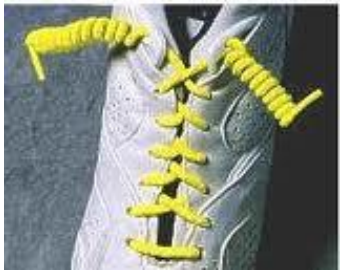

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ADLs

- Self Care
  - Eating and Meal Preparation

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ADLs

- Self Care
  - Eating

ADLs

- Self Care
  - Hygiene

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ADLs

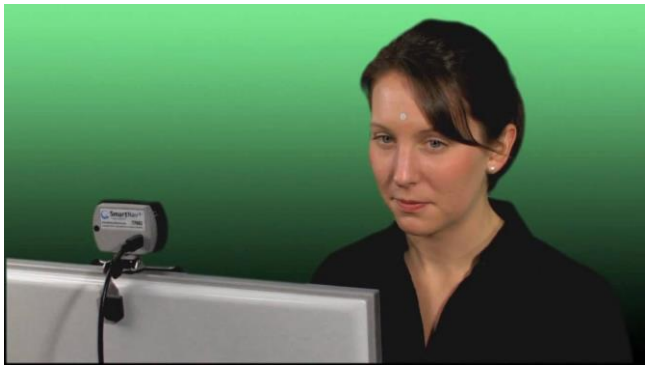
- Communication

ADLs

- Leisure
  - Hobbies, sports, travel, etc.

ADLs

- Vocational and Educational



Steps to Successfully Issue an Assistive Device

- Patient evaluation
  - Home Evaluation
  - Survey / Interview
  - Functional Evaluation

Steps to Successfully Issue an Assistive Device

Framework for Patient Evaluation:

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

Expectations!!!!

Disability ≠ Inability

Steps to Successfully Issue an Assistive Device

- Introduction of device
  - In-Patient / Out-Patient / Home
- Site and method of instruction / training

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**.

High Versus Low Tech Quadraplegic Feeding Aids

$149

$6000

Issuing Assistive Devices
The final step?

Write justification to insurance company

Ordering / Buying equipment

- High tech equipment (typically) – care team / insurance
- Low tech or not covered by insurance – patient / caregiver

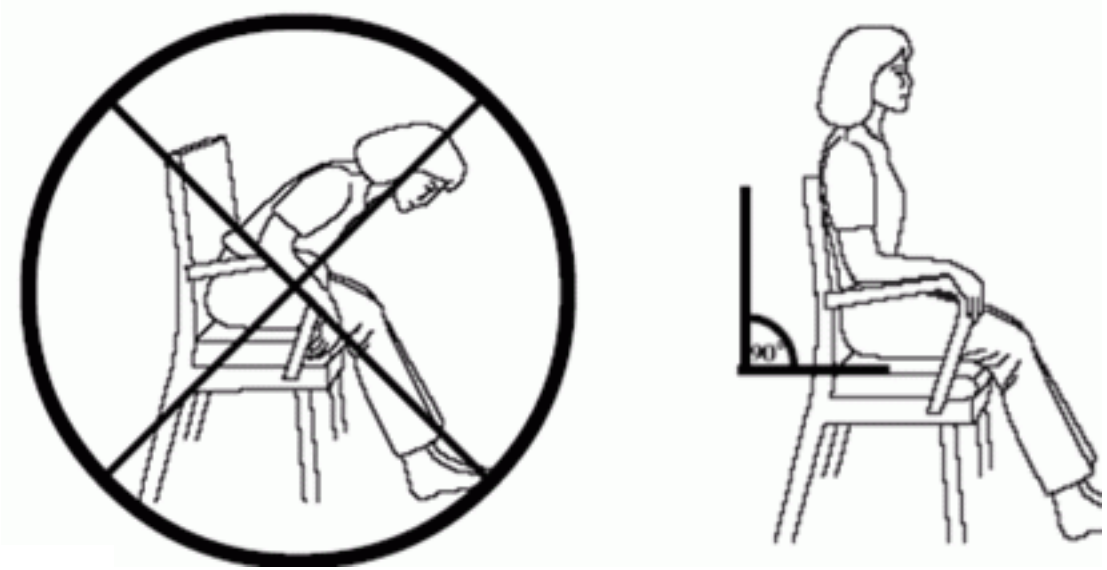
Steps to Successfully Issue an Assistive Device

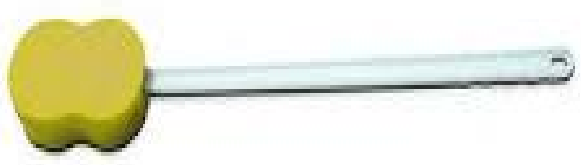
Assessing the Outcomes:

- Effectiveness
- Efficiency
- Device Satisfaction
- Psychological Functioning
- Subjective Well-Being

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

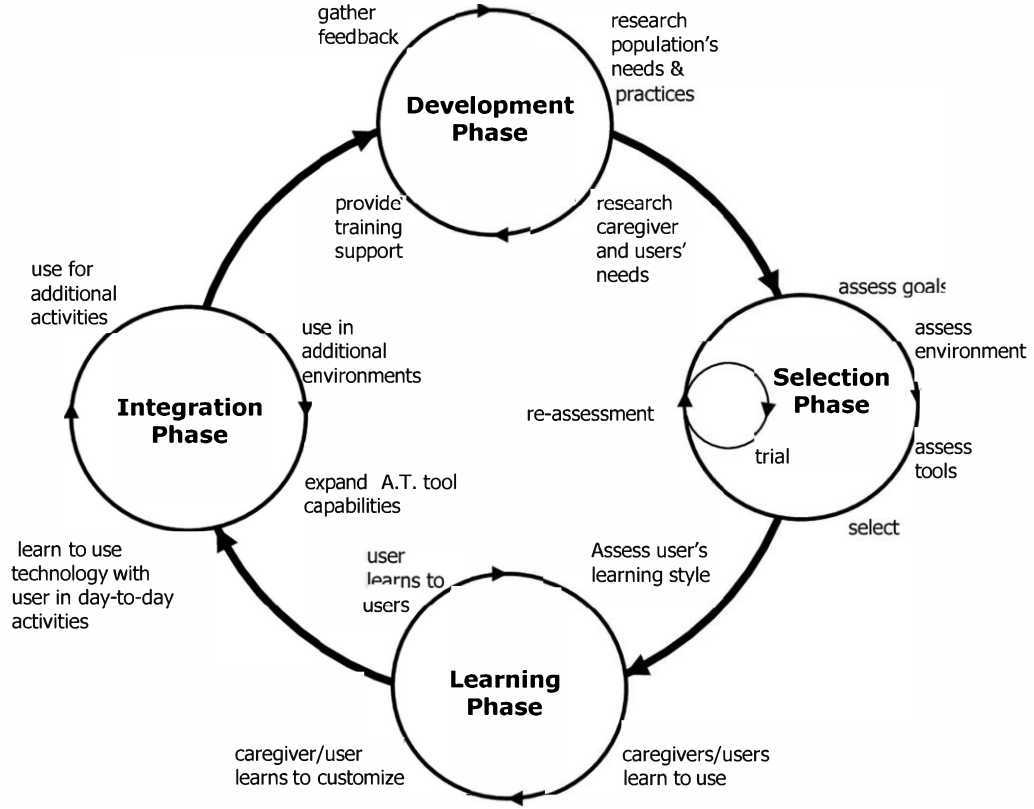
Why might this AT end up in the closet?

$599

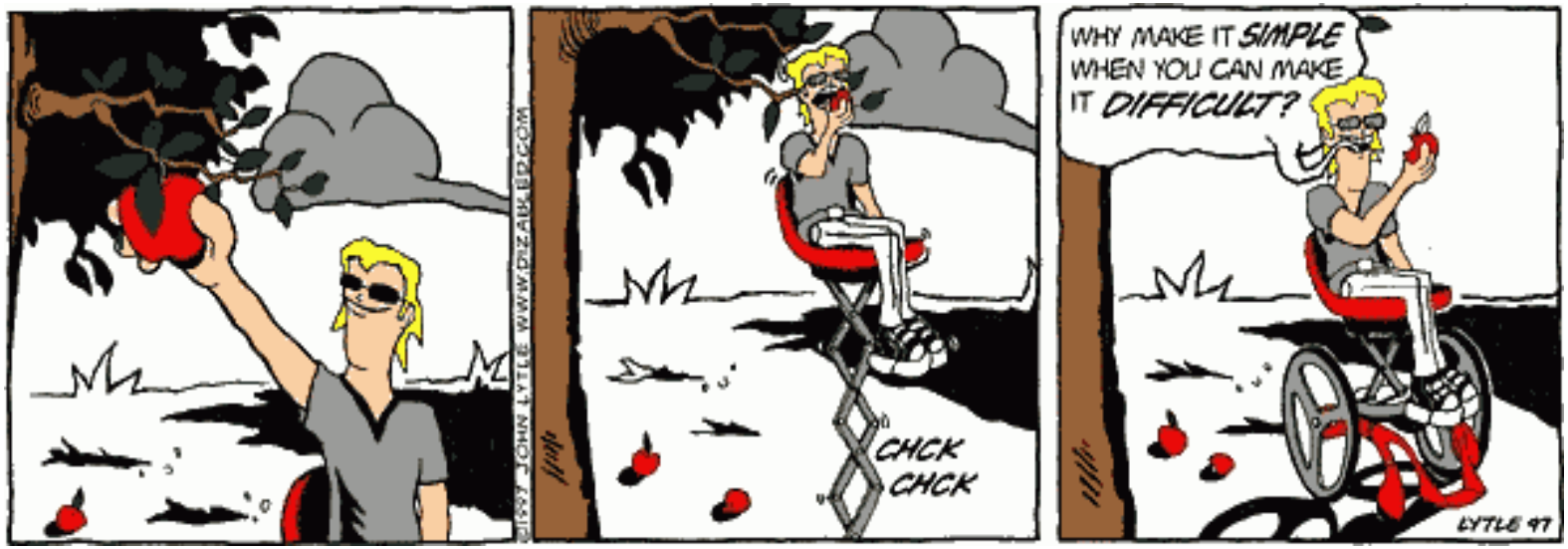
How this all Relates to Product Development

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

Successful Design and Implementation of Assistive Technology



Whenever possible, keep it simple



Where to donate used medical equipment

- ReCARES
- Lions Club – Hearing Aid and Eyeglass Recycling Program
- Silicon Valley Independent Living Center (wheelchairs <5 years old)
- Ability Tools – Reuse Programs

Other Resources

- **The Design and Evaluation of Assistive Technology Products and Devices Part 1: Design.** Marion A. Hersh. International Encyclopedia of Rehabilitation.
- RESNA
- Accessible Technology Coalition

ADT Website

- Allegro Medical
- North Coast Medical
- Sunrise Medical
- Rehab Mart
- Move United

Other Resources

- Gillham, M., Pepper, M., Kelly, S., & Howells, G. (2019). **Stakeholder views addressing the development and uptake of powered wheelchair assistive technology**. *Disability and Rehabilitation: Assistive Technology*, *14*(2), 146–160. https://doi.org/10.1080/17483107.2017.1416186

- 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)ß: 29-40. link

- Ripat, J., & Booth, A. (2005). Characteristics of assistive technology service delivery models: Stakeholder perspectives and preferences. *Disability and Rehabilitation*, *27*(24), 1461–1470. https://doi.org/10.1080/09638280500264535

Practicing Subject and Caregiver Interviews

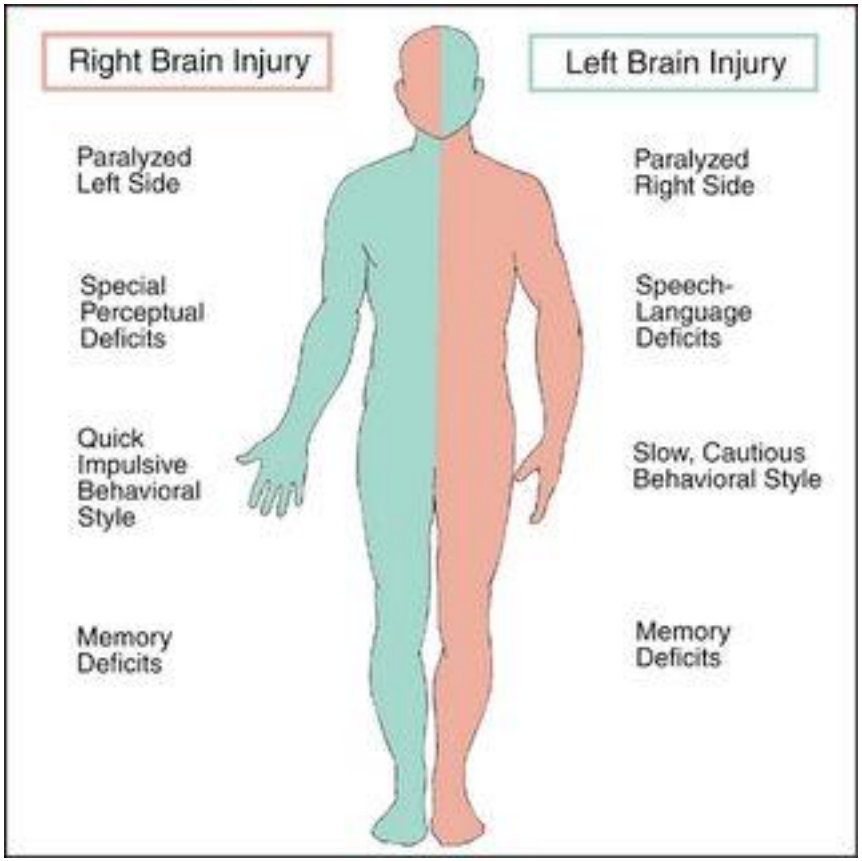
Which of the following assistive technologies do our panelists use?

- Do they use it
- Did the own it but no longer use it: Why?

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 directly ask which AT they use in your question

CVA


Right Brain Injury
Paralyzed Left Side
Special Perceptual Deficits
Quick Impulsive Behavioral Style
Memory Deficits
Left Brain Injury
Paralyzed Right Side
Speech-Language Deficits
Slow, Cautious Behavioral Style
Memory Deficits

Eating

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Example of a Low Tech Device: Rocker Knife

$8.95

$26.50

Leisure

Example of a Low Tech Device: Octopus Stand

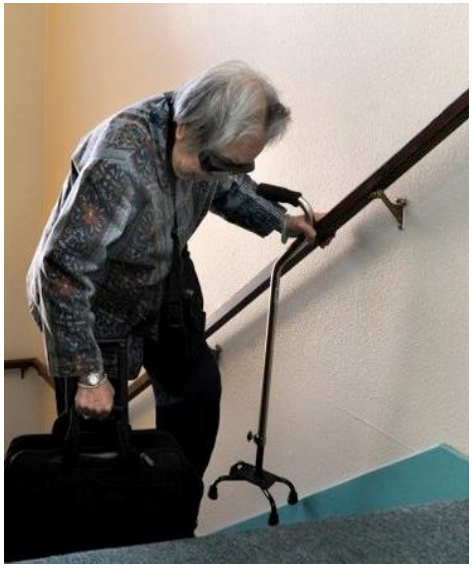
$3 - $15

Devices to Improve Hand Function

Example of an Elementary Device Saebostretch

$229

Mobility



Example of High Tech Device Rewalk Exoskeleton

$85,000 +