Assistant Technology for Sports & Recreation

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Acknowledgments

With many thanks to the athletes for serving as "roll" models, sharing their experiences, and teaching me most of what I know.

Several photos were provided by:
- The athletes pictured
- The Challenged Athletes Foundation
- US Paralympics
- Manufacturers

Learning Objectives

Following this session, participants will be able to:
- Identify at least 5 new sports and recreation opportunities available to participants with disabilities.
- Discuss 3 components of the interdisciplinary client evaluation necessary to determine adaptive sports equipment needs.
- Highlight 2 aspects of their everyday work that contribute toward positive outcomes associated with adaptive sports and recreation participation.
- Locate at least 3 additional resources for adaptive sports equipment support.
With adaptive sports, there’s something for everyone.

So many choices . . .
How does someone in a wheelchair Cross-Country Ski?

PARALYMPICS clarified

- PARA = “parallel” or “alongside” the Olympics
- Same venues as Olympics Games
- International Paralympic Committee (IPC) is governing body [www.paralympic.org](http://www.paralympic.org)
- US Paralympics is division of USOC [www.uparalympics.org](http://www.uparalympics.org)
- 2014 in Sochi for Winter Paralympics
- 2016 in Rio for Summer Paralympics

Summer Paralympic Sports

- Archery
- Basketball
- Boccia
- Cycling
- Equestrian
- Fencing
- Goalball
- Judo
- Power Lifting
- Rugby
- Sailing
- Shooting
- Soccer
- Swimming
- Table Tennis
- Track & Field
- Volleyball
Boccia

Visual Impairment

Winter Paralympic Sports
- Alpine Skiing
- Curling
- Nordic Skiing
- Biathlon
- Sled Hockey
- Snowboarding*
In addition to “Paralympic” events . . .

. . . endless options exist.

SkateBoarding
Power Soccer

Adaptive sports equipment is Assistive Technology.

What is Assistive Technology (AT)?

Assistive Technology is any item, piece of equipment or product system whether acquired commercially off the shelf, modified, or customized that is used to increase or improve functional capabilities of individuals with disabilities.

(Assistive Technology Act, 1998, PL 105-394, S.2432)

- Supports function in a varied of environments (home, work, school, community,)
- Engage in meaningful activities (ADLs, play, learn, communicate, work, travel...)
- Optimize independence
Where to start?

- HAAT Model
  - Human
  - Activity
  - Assistive technology
  - Context
- Functional task analysis
  - i.e. the SPORT
- Hierarchy of AT
  - No tech → low tech → high tech
  - Commercially available → custom medical devices

Understand the “human” participant

*In this case, the athlete.*

Complete a comprehensive interdisciplinary evaluation, assessment & treatment plan.

EVALUATION
- Interview
- Medical background
- Physical assessment
- Social profile
- Functional evaluation
- Environmental profile
- Client goals

Perform a Clinical Evaluation
AT and Clinical Care

The assessment & treatment plan . . .

- Both are based on an interdisciplinary evaluation
- Client centered goals are identified
  - Long term for end result
  - Short term for interim progress measures
- Assessment requires awareness of options
- Plan is individualized to the person
- Outcome measures must be incorporated

Understand activity requirements

In this case, the “sport” or recreation activity.

- Client considerations
  - Diagnosis & prognosis
  - Functional capabilities
  - Interests & preferences (theirs, not yours 😊)

- Equipment specific considerations
  - Options available
    - For the individual
    - For the specific sport
    - For the level of participation

Sport Specific Considerations

Include athlete classification for team & individual competitive sports

- Classification varies for each sport
  - Tests based on sport specific demands
  - Class descriptions specific to each sport
- Clinical bench testing
- Functional evaluation during activity
Client Specific Consideration

CLASSIFICATION

- Comprehensive evaluation
  - BENCH TESTING
  - OBSERVATION

- “levels the playing field”

- Impacts technology

Functional Observation

Be Aware of the Options
Be Aware of the Trends

2002

2012

Incorporate Participation Goals

Recreation

Competition

Options: AT for Hand Function
Callahan spent the next five years traveling to rehabilitation centers across the United States in search of a way to walk again. When a doctor finally suggested it was time to concentrate on living instead of walking, Paul did exactly that.
Hierarchy of AT Applied to Sports

- No tech, low tech, high tech

Sit Down Volleyball

You can apply what you already know about AT to adaptive sports equipment.
It Starts with a Disability . . .

- Rehabilitation Skills
  - Self Care / ADLs
  - Bed Mobility
  - Transfers
  - Wheeled Mobility Skills
    - Power
    - Manual
  - Gait Training *
  - Environmental Management
  - Driving / Transportation

Rehabilitation Professionals

- Education / Training / Support
  - Self management
  - Mobility skills training
  - Assistive technologies
  - Psychosocial adjustment
  - Community reintegration
  - COLLABORATION
Education & Training

Associated Mobility Skills

- Transfers
- Wheelchair skills
- Sport specific techniques and skills
- Equipment management
- Training techniques / cross training
- Realistic Expectations

Mobility Skills: Transfers

Wheelchair Skills
Travel

Education for Realistic Expectations

Recreation vs. Competition
- Commitment
- Time
- Equipment
- Expense
- Sacrifice
- BALANCE

Seating for Sports

Provide clinical expertise for athlete support . . .

- Comfort
- Postural stability
- Skin Protection
- Injury Prevention
- Performance
GOT RANGE?

Why Seating for Sports?
Photos coming
Sitting Surface
Trunk & Extremities

Do NOT try this at home . . .
Handcycle Custom Seat

Positioned for stability, mobility, action, performance

Seating for Sports

Positioned for stability
Does one of these people have a disability?

With an appropriate seating system, you just may not be able to tell the difference.

Seating for Kayak / Canoe

Prosthetic Limbs & Sports

PROSTHESIS OR NOT?
Depends on
- Nature of amputation(s)
- Health of residual limb(s)
- Co-morbidities
- Athlete’s age
- Time with amputation
- Functional abilities/skills
- Sport specific requirements
- Participation goals
- Personal preferences
Prosthetic Limbs & Sports

“It’s Just Like Riding a Bike . . .”

Snowboarding

The Power of “AND” . . .

1) Handcycling 2) track 3) swimming, 4) skiing 5) tennis 6) basketball . . .

Right above knee prosthetic limb, left ankle foot orthosis, custom wheelchair AND sports equipment.
It’s impossible to learn adaptive sports in the clinic or from a desk.

GET OUT THERE!

Recreation & Sports

Never too old . . .

Nor too young
“Rehab allows you to exist.
Sports allow you to live.”

Sean Halsted
Air Force Veteran with L1 Paraplegia
March 2007

“I was 7 years old before I realized I was disabled”

Sled hockey
Sled hockey

USA GOLD

Resources

- Challenged Athletes Foundation
- Operation Rebound for Veterans, Active Duty Service Members and First Responders
- Military Support Organizations
- Such as Team Semper Fi Fund for injured Marines
- Veterans Service Organizations
  - i.e. PVA, Wounded Warriors, BVA, DAV, VFW, etc.
- Disability Specific and Regional Support Programs
  - i.e. Christopher Reeves Foundation, MS Society, ALS Foundation, Operation Comfort, High Fives
To love what you do and feel that it matters, how could anything be more fun?
~ Catherine Graham

Thank You!

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