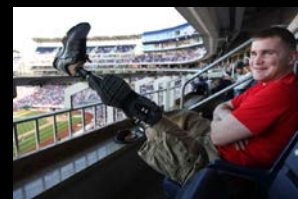


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## The Wounded Warrior and the Art of Independence

Major Erik S. Johnson, OTR/L, JK, CM



## Learning Objectives

**ARMY**

Occupational Therapy

- By the end of this course, the participant will be able to identify and discuss occupation based treatment strategies and interventions for amputee care and complex polytrauma.
- By the end of this course, the participant will be able to recognize current case studies from Service Members who have suffered limb loss secondary to combat operations while deployed to Iraq and Afghanistan.
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2



**Caitlin  
Dennison**



**Annemarie  
Orr**



**Erin Spaniol**



**1LT Josh  
Springer**



3

# The Wounded Warrior

4

# Their Journey Begins

**ARMY**  
Occupational Therapy



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# Travis: A Soldier's Story

**ARMY**  
Occupational Therapy

TRAVIS  
a soldier's story

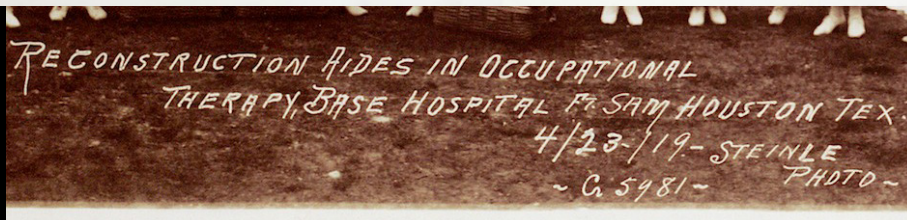
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## OT Origins and Behavioral Health



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Polytrauma is like a snowflake



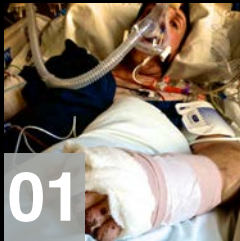
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## Upper Limb Amputee Protocol

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# Four Phases

**ARMY**  
Occupational Therapy



**01**  
Initial Management and  
Protective Healing



**02**  
Pre-prosthetic Training



**03**  
Basic Prosthetic Training



**04**  
Advanced Functional  
Prosthetic Training

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# Complexity of Rehab

The Big 3

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Occupational Therapy

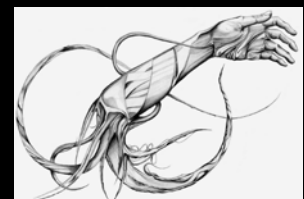


## BRAIN

*Flexible, dynamic system is great at adapting*

## INTRICACY

*The upper extremity is comprised of "a crap ton" of intricate pieces*



## TRANSITION

*Prosthetics tend to be heavy and require unfamiliar motions*

continued™

# Phase I

Initial Management and Protective Healing

**ARMY**

Occupational Therapy



- Initial Evaluation
- Basic Activities of Daily Living (ADLs)
- Wound Healing / Desensitizing
- Upper Extremity Range of Motion (ROM)
- Pain and Psychological Management

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## Phase II

Pre-prosthetic Training

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Occupational Therapy



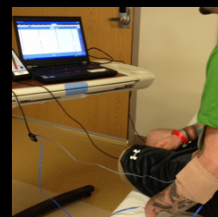
### ADL's

Adaptive Equipment  
Increase Progression  
Change of Dominance



### Postural Exercises

Early Mobilization  
Progressive Strengthening  
Prosthetic Preparation



### Myosite Initiation

Golden Window  
Sensor Placement  
Sense of Autonomy

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# ADL's

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- Adaptive Equipment
- Progression to higher level ADL's
- One-handed techniques
- Change of dominance

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# Postural Exercises

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- Early Mobilization
- Progressive Strengthening
- Preparation for Prosthetic Devices



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# Myosite Initiation

The Big Three

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Occupational Therapy

## The “Golden Window”

30 days = 93% rehabilitative success  
>30 days = 42% rehabilitative success

## Placement / Training

*Independent and effective use of residual limb*

## Autonomy

*Keep the motivation going*



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continued™



# Phase III

Intermediate Prosthetic Training

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Occupational Therapy

Prosthetic Knowledge  
Operation of Prosthesis  
Tolerance to Socket  
Don/Doff Prosthesis  
Functional Training



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## Prosthetic Knowledge

**ARMY**

Occupational Therapy



- "The Basics"
- Components
- Body Motions
- Maintenance

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continued™

## Tolerance to Socket

- Limb Inspection
- Wear Progression
- Socket Fit



## Donn/Doffing Prosthetic

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Occupational Therapy



### The Process

- Residual limb sock
- Prosthetic donning liner
- Prosthetic socket
- Harnessing

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# Donn/Doffing Prosthetic

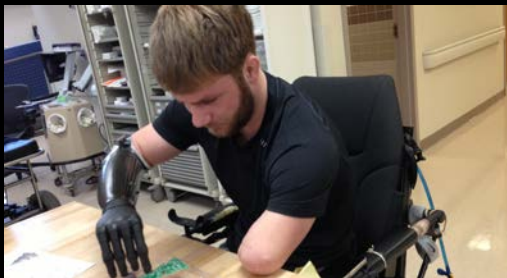
**ARMY**  
Occupational Therapy



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## Prosthetic Operation

Let the fun begin!



### Intro

- The Test Drive
- Basic Tasks
- Grading
- Functional

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# Functional Training

The Big Three

## Everyday ADLs

*Hit the basics and progress from there*

## One-Handed

*Ensure mastery for the "just in case"*

## Stretch & Strength

*Self - ROM and Strengthening are key*



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# Phase IV

Advanced Prosthetic Training



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# Upper Extremity Prosthetics

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Prosthetic Options

Casting / Fitting

Prosthetic Training

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## Prosthetic Options

"Time to go shopping"



Myo-Electric



Body-Powered



Hybrid



Cosmetic



Activity  
Specific

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# Myoelectric

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Occupational Therapy



- Utilize small motors to control terminal device, wrist, or elbow
- Voluntary control via surface electrodes
- Fit early, proportional control, increased functional capacity
- Weight, complex repair, susceptible

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# Body-Powered

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- Conventional / Cable-Driven
- Gross movement control
- Durable, low maintenance, feedback
- Restrictive, residual limb forces, difficult for high levels, overall appearance



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# Hybrid Prosthetics

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Occupational Therapy

"Two for the price of one"



- Combination of myoelectric and body-powered prosthetics.
  - BP = Elbow
  - Myo = Terminal Device
- Transhumeral and humeral head amputations
- Simultaneous control, comparably lighter, increased grip strength
- Harness for elbow control, requires more force

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# Cosmetic

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Occupational Therapy

- Often called "Static"
- No active gripping capacity
- Realistic capabilities, lightweight, positive body image
- Difficulty during grasping activities



continued™



# Activity Specific



- Designed for particular activities (recreational)

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# Terminal Devices

"Crim Della Crim"

**ARMY**  
Occupational Therapy



- iLimb (Ultra / Revolution)
- BeBionic
- Michelangelo
- DARPA

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# Partial Prosthetics

"Hey... I only lost one finger.... help!"

**ARMY**

Occupational Therapy



Myoelectric

Body-powered

Cosmetic

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# Let's Get Funky

Adaptations to Prosthetics



continued™



## Other Factors to consider

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### Wheelchair Management



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continued™

# Other Factors to consider

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Occupational Therapy

## Standardized Evaluations



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## Community Reintegration and Leisure Activities

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# Technology as Treatment

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Occupational Therapy

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## FUNCTIONAL MOBILITY IN YOUR ENVIRONMENT



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## FUNCTIONAL MOBILITY IN YOUR ENVIRONMENT

### Setting Goals For Community Reentry

"It's great that you want to walk, but what are you going to do once you get there?"



**ARMY**

Occupational Therapy

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## FUNCTIONAL MOBILITY IN YOUR ENVIRONMENT

C-omputer  
A-ssisted  
R-ehab  
EN-vironment



**ARMY**

Occupational Therapy

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## WE GET A LOT OF THINGS DONE IN THE CLINIC



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Occupational Therapy

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## Technology as Treatment

**ARMY**

Occupational Therapy



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continued™



# Technology as Treatment

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Occupational Therapy

- All-volunteer veteran support organization. Who's mission is to improve the lives of severely injured warfighters with custom adapted video game controllers, recreational items and other solutions to provide greater independence



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# Technology as Treatment

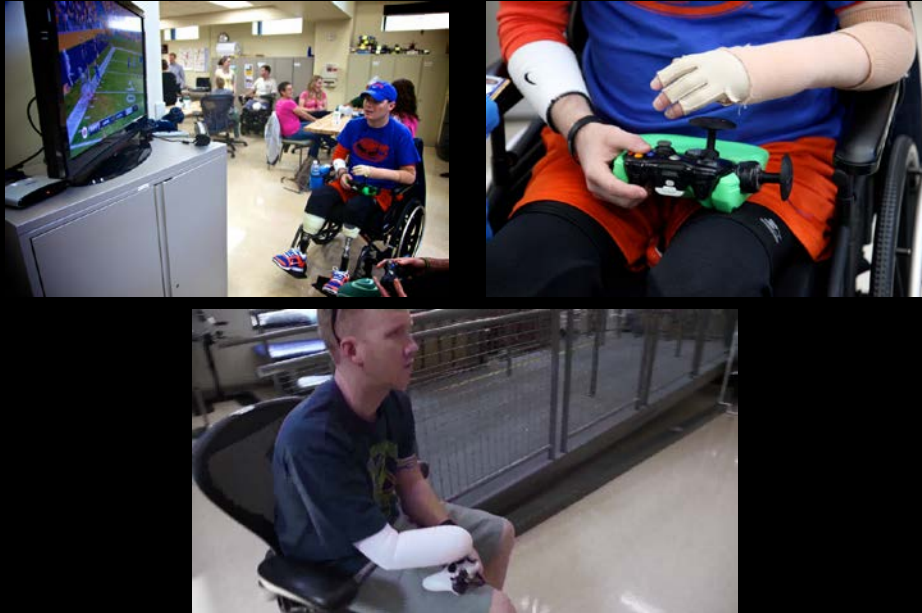
**ARMY**  
Occupational Therapy



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# Video Games



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BUT WE GET A LOT MORE DONE OUTSIDE OF IT



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## BUT WE GET A LOT MORE DONE OUTSIDE OF IT



- A start to finish rehab concept.
- Based on patient goals, roles, and injuries

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## COMMUNITY REINTEGRATION

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Occupational Therapy



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continued™



# COMMUNITY REINTEGRATION

**ARMY**

Occupational Therapy



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## ADAPTIVE SPORTS



-Goals include:

- Leisure Exploration
- Activity Tolerance
- Cardio
- Endurance


**ARMY**  
Occupational  
Therapy

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## ADAPTIVE SPORTS

**ARMY**

Occupational Therapy



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continued™





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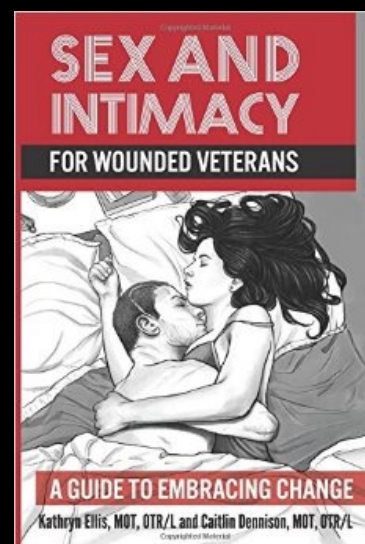
# All those things you're scared to talk about

**ARMY**  
Occupational Therapy

- Sex
- Poop
- Relationships
- Masturbation

Kathryn Ellis, MOT, OTR/L

Caitlin Dennison, MOT, OTR/L



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## The Creed of the Disabled Soldier

ONCE more to be useful—to see pity in the eyes of my friends replaced with commendation—to work, produce, provide, and to feel that I have a place in the world—seeking no favors and given none—a MAN among MEN in spite of this physical handicap.



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MAJ Erik S. Johnson, OTR/L  
e-mail: Erik.s.johnson.mil@mail.mil  
Twitter: @armyOTguy



Questions?

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