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Respawn: Optimizing Therapeutic Potential Through the Healing Power of Video Games

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Learning Objectives

- Describe the different video game systems available for use in therapeutic settings
- List a benefit and barrier to using video game systems in different therapeutic settings.
- Identify new and emerging gaming avenues and how they have the potential to be greatly impactful in a rehab environment.

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A BIT OF HISTORY

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Centennial Vision

"We envision that occupational therapy is a powerful, widely recognized, science-driven, and evidence-based profession with a globally connected and diverse workforce meeting society's occupational needs."

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continued™

THE INITIAL INTERVIEW

&
Appropriate Goal Setting

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Approaching a Problem

- “As human beings, we are geared to do”
- Stuart Gibbs OTR/L
- External Compromise = Our Internal Compromise
- Natural Ortho Mindset = Physical Rehab
- Patient Mindset = As soon as I have my hand/mind back, I can do _____ again.
- OT Mindset = By treating this external compromise, I will have in fact addressed his internal compromise that tells him that he is no longer geared to do.

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THE ARMY'S CENTER FOR ENHANCED PERFORMANCE



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MISSION

To develop the full potential of Warriors and Families using a systematic educational and developmental process grounded in cutting edge performance psychology and learning strategies in order to enhance adaptive thinking, mental agility, and self-regulation skills essential to the pursuit of overall personal strength, professional excellence, and the Warrior Ethos across the Army.

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ATTENTION CONTROL



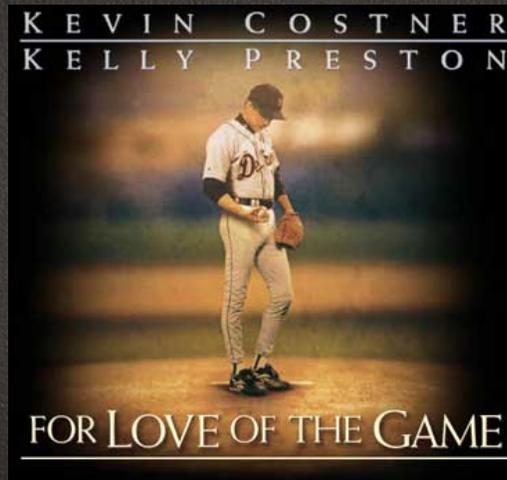
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Attention Control

- Find “One Thing” that you can center your attention on
 - “What is important now/today?”
 - “What about leading do I enjoy the most?”
- To make it work - practice this mentally and physically
- Use a cue word to help you

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“CLEAR THE MECHANISM”



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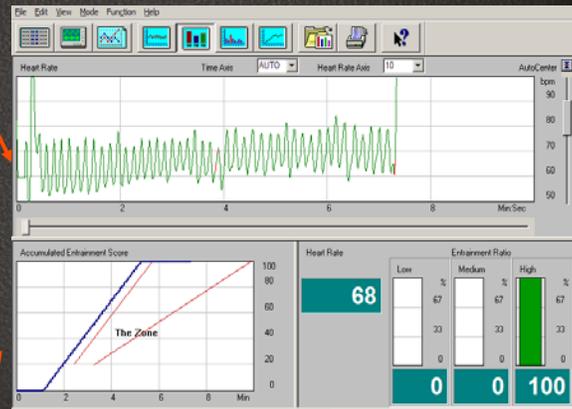
Freeze Framer

- Freeze Framer provides a glimpse into a patient's in-the-moment physiological, mental, and emotional state.
- Freeze Framer teaches patients to concentrate on appropriate cues that enhance their motivation, persistence, and mood (also applies to stress management, which will be discussed later).

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Concentration Profile

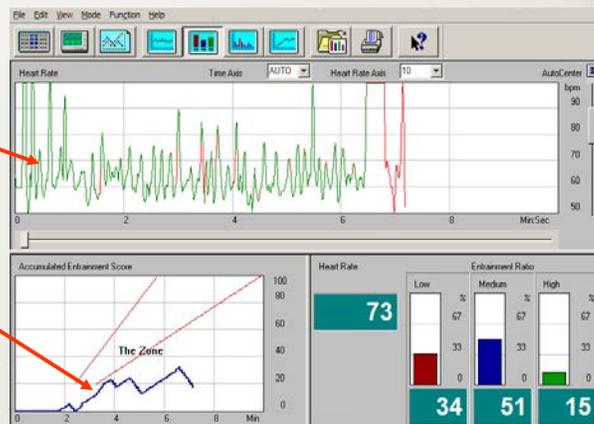
- Consistent waves reflect consistent concentration
- Steadily climbing blue line indicates no distractions
- Ideal profile. Rare without continued training and practice



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CONCENTRATION PROFILE

- Inconsistent waves reflect wandering thoughts
- Peaks and valleys indicate inconsistent concentration



(CEP)

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THE BIOMETRICS E-LINK SYSTEM

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CONTINUED™

Clinical Applications

- Physical Therapy
- Upper Extremity Rehabilitation
- Lower Extremity Rehabilitation
- Pediatrics
- Hand Clinics
- Spinal Cord Injury Units
- Geriatrics
- Hospitals
- Occupational Therapy
- Neuro Rehabilitation
- Orthopedics
- Research
- Stroke Rehab Units
- General Rehabilitation
- Educational Facilities
- Burns & Plastics
- Independent Medical Evaluations
- Sports Medicine

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Evaluation and Exercise



Orthopedics

Pediatrics
to
Geriatrics



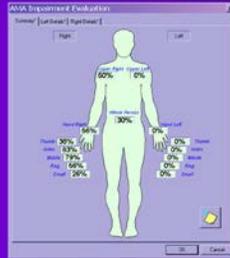
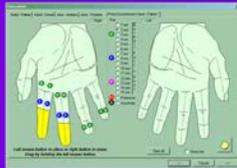
Neurology

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CONTINUED™

Evaluation

- Upper Extremity and Lower Extremity tests and calculation of impairment percentage.



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Balance Evaluation

- The **E-LINK Dual Axis ForcePlate System** is an accurate, portable system for objective measure of symmetrical weight distribution in two axes simultaneously
- Measures Mediolateral (right/left) and Anterior-Posterior (front/back) balance



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The Good

- Gives you the ability to evaluate and exercise all in one unit.
- Very compact. Portable and essentially could be used in any setting.
- Able to grade any exercise to the specific user and their deficits.
- Able to detect trace movement.

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The Bad

- Much more expensive than the any type of console system.
- The games aren't designed to go anywhere (ie. There's no specific goal in place for each). Would be more effective (in my opinion) if the product had finish lines, achievement stakes, etc.
- Patient must come to clinic for treatment. Not a "take home" use type product.

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CONSOLES

Xbox, Nintendo, Playstation

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Active Participation

- Should getting older mean that we begin to limit the things we're able to participate in?
- Active participation in life contributes to health because it "enables individuals to utilize their biological capacities and potential" (Wilcock, 1993)
- The gift of technology is that it "keeps us in the game."

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Wilcock, A. (1993). A theory of the human need for occupation. *Journal of Occupational Science Australia*, 1, 17-24.

Active Participation



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THE NINTENDO WII



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continued™

What is it and what does it do?

- The Wii is a home video game console released by Nintendo.
- A distinguishing feature of the console is its wireless controller.
- No bigger than a small traditional remote control, the wireless Wii Remote is a truly multi functional device.
 - accelerometers inside the controller measure movement in all directions and at all speeds.
 - In a tennis game, it serves as your racket as you swing away.
 - In driving games it serves as a steering wheel.
 - In first-person shooters, it acts as a firearm that you can point directly at an on-screen enemy.



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Potential Application

- Upper Extremity Orthopedics
- Traumatic Brain Injury
- CVA
- Amputees
- Any type of age in place population
 - Leisure Exploration
 - Change of hand dominance
 - Standing tolerance
 - Endurance
- Pediatrics

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Wii Treatment Area



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Upper Extremity Orthopedics



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Upper Extremity Orthopedics

- Focuses on the mechanical principles of movement as they are applied to the human body
- Goal to improve:
 - ROM
 - Muscle strength
 - Sensory awareness
 - Endurance
- The more functional mindset
- Treatment to include
 - Functional goals of the patient
 - Enabling activities for all populations
 - Leisure Exploration

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Traumatic Brain Injury



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Traumatic Brain Injury

- Goal to improve:
 - Balance
 - Problem Solving
 - Coordination
 - Memory
- Treatment May include:
 - Balance Activities
 - Problem Solving specific treatment
 - Focused coordination activities
 - Compensatory teaching for short term memory issues

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Wii Fit Plus



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Big Brain Academy: Wii Degree



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The Good

- The Wii has unlimited potential for application for patient populations across the OT spectrum.
- There are third party manufacturers that are constantly adding to the tools that the OT can use for treatment.
- It's incredibly fun.
- It uses real time movements to simulate life and activity with less demand on the patient.
- It is extremely cheap as compared to other medical tools and equipment.
- Patients can get their own unit with ease.

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The Bad

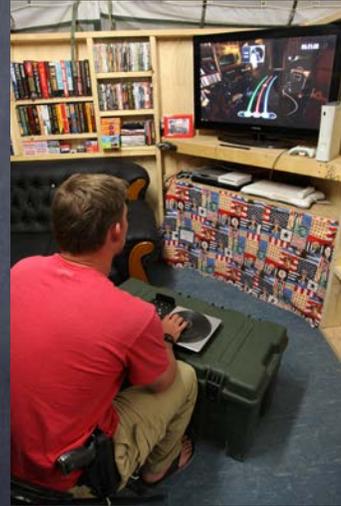
- The Wii wasn't built for a medical treatment unit.
- The therapist doesn't have the ability grade an activity for extremely low functioning patients.
- There are no specific evaluation tools on the system to back up.

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THE FORCE MTBI AND THE XBOX 360

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Function Oriented Rehabilitation for Combat Exposed mTBI



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Xbox 360 and the Kinect



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CONTINUED™

VIRTUAL ENVIRONMENTS

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THE CAREN

Computer Assisted Rehabilitation 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?"



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Second Life

- Virtual World
- Over 10 years old
- Over 1 Million regular participants
- Similar to other video games, however, there's no written in conflict or set objective



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AVESS

Advanced Virtual Support Space

- Similar to the virtual environment that is shown in Second Life
- Designed help treat Soldiers remotely
- Unlimited potential for application
 - mTBI
 - BH
 - Ortho
 - Group Treatment Sessions
- Very easy to grade the activity



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Virtual Reality



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Virtual Reality

- New initiative for immersive environments
- Includes biofeedback
- Gradable
- Uses goal setting and visualization



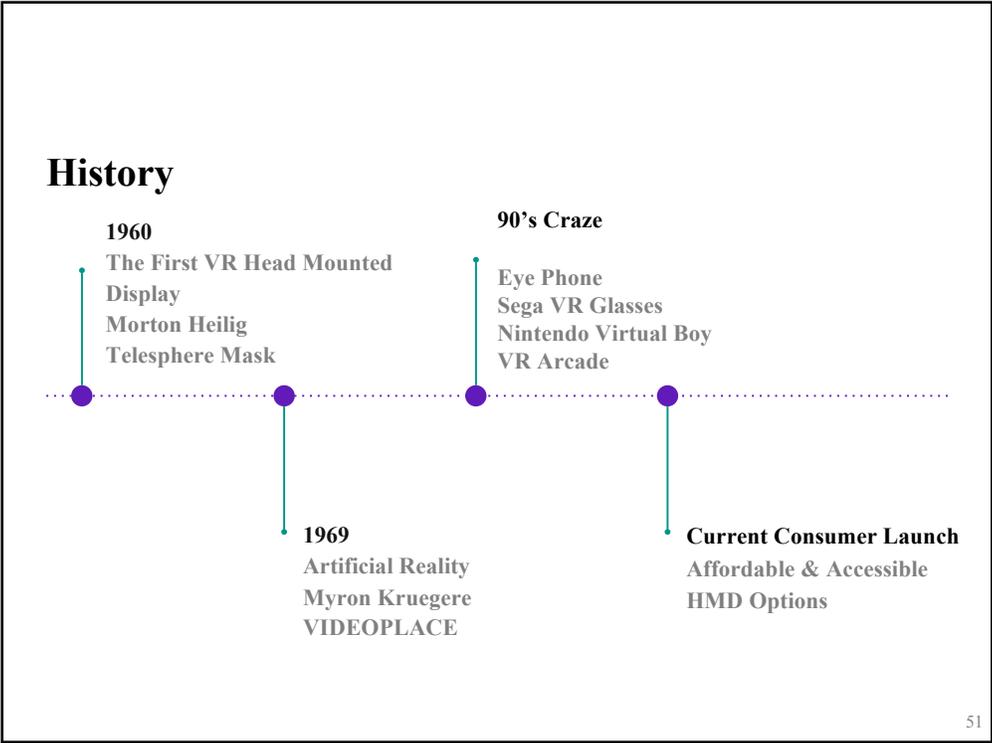
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What is Virtual Reality?

Virtual reality (VR) typically refers to [computer](#) technologies that use [software](#) to generate realistic images, sounds and other sensations that replicate a real environment (or create an imaginary setting), and simulate a user's physical presence in this environment, by enabling the user to interact with this space and any objects depicted therein using specialized [display screens](#) or projectors and other devices. VR has been defined as "...a realistic and immersive simulation of a [three-dimensional](#) environment, created using interactive software and [hardware](#), and experienced or controlled by movement of the body"

-Wikipedia

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Accessible & affordable

- SAMSUNG GEAR
- GOOGLE CARDBOARD
- GOOGLE DAYDREAM
- SONY PSVR
- HTC VIVE
- OCULUS RIFT

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CONFRONTING FEARS THROUGH VIRTUAL REALITY

4 Levels of Immersion

Calming worlds at a click

Using D.I.G.I.T. methodology

Deferred
Individualized
Gradated
Immersion
Therapy



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**This style of treatment was first
documented in the early 1990s
having several studies showing a
success rate of 70-90%**

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Initiatives

Overcome Stigma

Affordable

Accessible

Ease of Use

Personal and Professional applications

Outreach to at Risk Populations

Ongoing content creation

Treatment for A-Z mental health issues

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GAMING
ADAPTATIONS
Endless Possibilities

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SPLINTING



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ADAPTIVE VIDEO GAMES



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Video Games



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Radio Controls

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Questions?



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