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How Virtual Reality is Revolutionizing Rehabilitation

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HOW TO RECEIVE COURSE CREDIT

View the entire course including any applicable handouts/resources. Complete a post-test assessment. You must score 80% or better on the post-test and complete the course evaluation to earn a certificate of completion for this activity. If required, Select Rehabilitation will report attendance to CE Broker.

ABOUT THE COURSE AUTHOR

Dr. Kathleen Weissberg, (MS in OT, 1993; Doctoral 2014) in her 30 years of practice, has worked in rehabilitation and long-term care as an executive, researcher and educator. She has established numerous programs in nursing facilities; authored peer-reviewed publications on topics such as low vision, dementia quality care, and wellness; has spoken at numerous conferences both nationally and internationally, for 20+ State Health Care Associations, and for 25+ state LeadingAge affiliates. She provides continuing education support to over 30,000 therapists, nurses, and administrators nationwide as National Director of Education for Select Rehabilitation. She is a Certified Dementia Care Practitioner, Certified Montessori Dementia Care Practitioner, Certified Fall Prevention Specialist, and a Certified Geriatric Care Practitioner. She serves as the Region 1 Director for the American Occupational Therapy Association Political Action Committee and is an adjunct professor at Gannon University in Erie, PA.

POST-TEST

1. Which of the following is true regard VR's impact on function?
 - a) Effective for a variety of conditions to improve balance, coordination, acute and chronic pain
 - b) Practice activities within enriched, secure and challenging environments
 - c) Multisensory stimulation is greater and can enable better sensory motor integration of performed tasks
 - d) All of the above

2. Which of the following statements is true regarding motivation and engagement using VR?
 - a) Virtual reality does not impact motivation and enjoyment
 - b) Typically, individuals focus on their pain instead of the VR stimulus
 - c) Engaging in a virtual environment during treatment can distract from pain and discomfort while motivating the user to achieve their therapy goals
 - d) Virtual reality creates more tedious, repetitive activities than traditional interventions
3. Which of these is considered a drawback to using VR in a therapeutic setting?
 - a) The device is generally very lightweight
 - b) Unwanted effects, including visual disturbances, disorientation, postural instability, nausea, headache, and postural discomfort, among others
 - c) The device will typically contain a fan and feel very cool to wear
 - d) Individuals have been known to break out in a rash from wearing the headset
4. Which of these is/are a reason to utilize VR in a therapeutic setting?
 - a) Through virtual reality, clients are able to elicit rehabilitative responses similar to traditional therapy, remain engaged, recover more quickly, improve function – and maintain gains long after therapy has ended
 - b) Interventions are personalized to each participant to increase satisfaction and quality of life
 - c) VR technologies, when used appropriately, demonstrate significantly more improvement than routine therapy alone and have the potential to solve some of the challenges currently seen in traditional therapy
 - d) All of the above
5. Which of the following deficits would NOT be addressed appropriately through use of VR?
 - a) Low Vision
 - b) Cognition
 - c) Balance/gait
 - d) ADL/IADL

The post-test and corresponding course evaluation can be accessed at:
https://www.surveymonkey.com/r/VR_Rehab_On_Demand

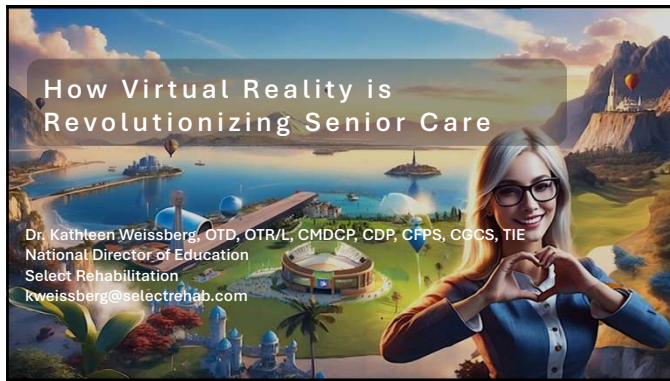
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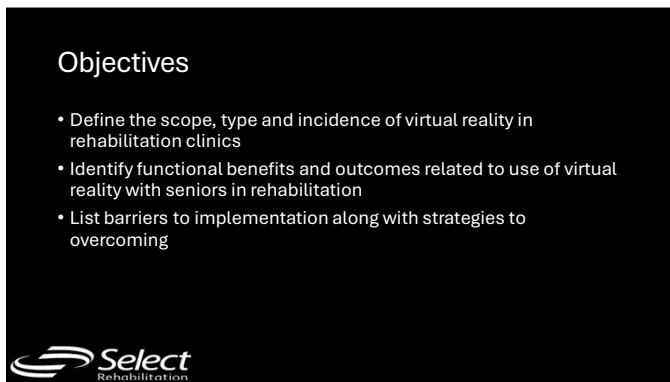
If all course requirements have been met, a certificate will be emailed from Select Rehabilitation to the email address reported in the course follow-up survey.

Any questions or issues related to this course should be directed to Dr. Kathleen Weissberg, National Director of Education for Select Rehabilitation at kweissberg@selectrehab.com

If accessibility of learning is required, please contact Kathleen Weissberg at kweissberg@selectrehab.com for appropriate accommodations.



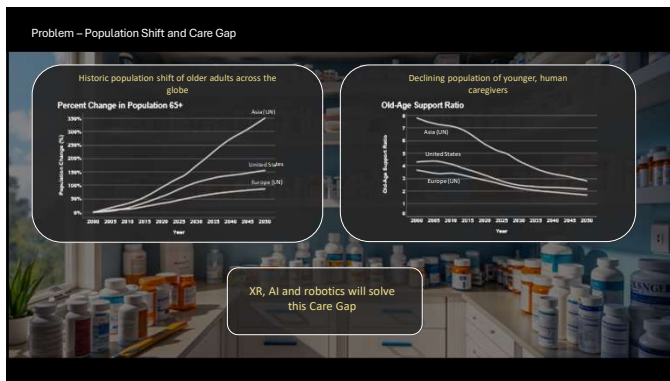
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Scope of the Problem – Balance and Gait

- By 2050 the world population is projected to reach 9.7 billion people, with older adults older than age 65 accounting for approximately 16% of the total population
- Around 13% of adults aged 65 to 69 experience issues with balance, a number that increases to 46% for those over 85 years old
- Estimated that 35% of non-institutionalized adults over 70 years of age have gait disorders, which increases their risk of institutionalization and death by 2.2 times compared to those without these disorders
- Balance and gait disturbances are associated with a higher risk of falls

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Scope of the Problem -- Cognition

- Of the general population, approximately 600,000 Americans suffer a new or recurrent stroke and 1.5 million experience a head injury each year
- Cognitive decline in the elderly is prevalent, with about two-thirds of Americans experiencing some level of impairment by age 70
- 10% of US adults over 65 have dementia, and 22% have mild cognitive impairment

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Impact on Function

- Virtual reality can help individuals with stroke, traumatic brain injury, and cerebral palsy improve their functional ability as they recover
- Effective for a variety of conditions to improve balance, coordination, acute and chronic pain
- Practice activities within enriched, secure and challenging environments
- Multisensory stimulation is greater and can enable better sensory motor integration of performed tasks
- VR has a positive effect on components of older adults' motor ability through sensory motor learning and cortical plasticity
- VR can lead to improvements in strength, gait, range of motion, and balance

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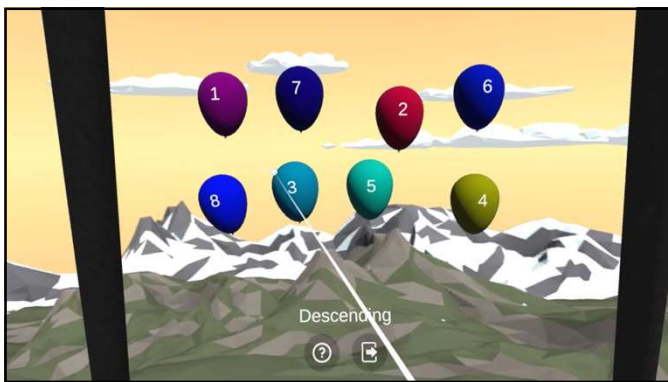
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Cognition

- Cognitive intervention for those with mild cognitive impairment and various types of dementia
- Valid demands to stimulate neuroplasticity and enhance regenerative processes
- Consistent improvements in attention, executive function, visual and verbal memory, and memory strategy
- Promote language, executive function, short term and working memory
- Reduction in depressive symptoms and anxiety



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Exercise

- Exercise using VR promotes improvements in mobility, muscular strength of the lower limbs, imbalance control, and reaction time
- Exergaming shown to reduce falls
- Motivates players to focus on the outcome of the game instead of the movements themselves
- Superior outcomes for static and dynamic balance, gait disorders, low back pain, posture, range of motion, and lower limb strength in this population
 - Increase adherence to an exercise program by over 30% compared to conventional exercise therapies



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ADL and IADL

- High potential to help individuals improve ADL and IADL
 - Care of pets, meal prep, grocery shopping, etc.
 - Paper and pencil therapy traditionally utilized but lack motivation
- IADL tasks are more complex and require participants to plan, organize, problem solve, and multitask in a spatial and visual context
- VR offers distraction free environment
- Simulation of real-world environments in which one can safely interact in real time, providing an environment for patients to practice therapeutic tasks that would otherwise not be feasible in the real world due to resource limitations or safety concerns



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Benefit of VR for IADL

- Virtual reality immersion offers therapists and clients the ability to engage in higher level activities such as grocery shopping, safety awareness in a home environment, meal preparation and others, all without leaving the therapy clinic.
- The ecological component of these tasks makes them suitable for transferring what has been learned to the real world.



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Motivation/Enjoyment

- “Can an immersive virtual reality experience maintain engagement beyond the novelty? And show continued rehabilitative improvement when used in conjunction with traditional therapy?” The answer is, “Yes!!”
- Virtual reality has the power to transform tedious, repetitive activities into more enjoyable, meaningful and engaging ones – all which can lead to improvement in patient satisfaction, involvement, realism, and attention during therapeutic sessions without regard to geography or time constraints.



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Motivation/Enjoyment

- Virtual reality positively affects participants' motivation and enjoyment, ultimately leading to increased engagement with the therapy.
- Patients focus on the game during treatment, forgetting physical deficits and creating a pleasant experience.
- Engaging in a virtual environment during treatment can distract from pain and discomfort while motivating the user to achieve their therapy goals.



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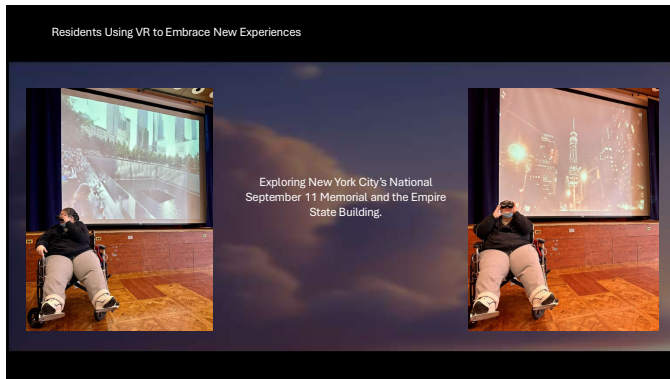
Residents Using VR to Embrace New Experiences



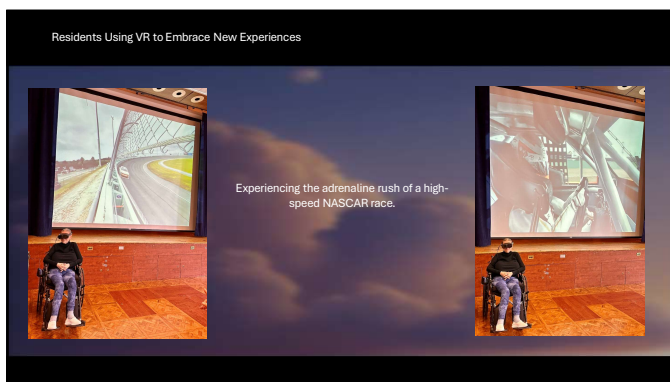
Climbing to the top of Portland, Oregon's tallest tree, a 246-ft Douglas Fir in Forest Park.



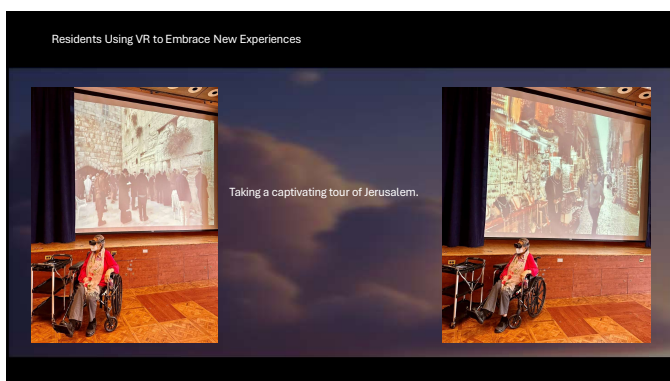
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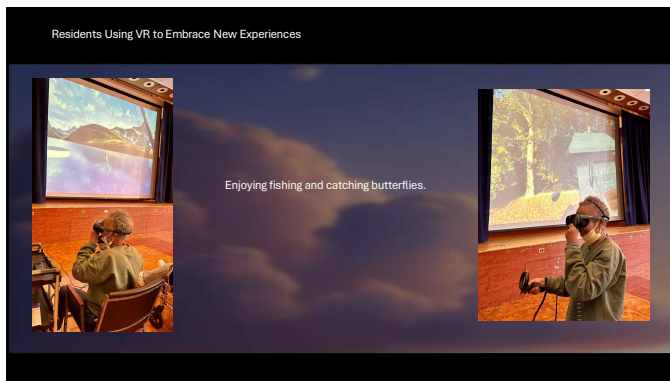
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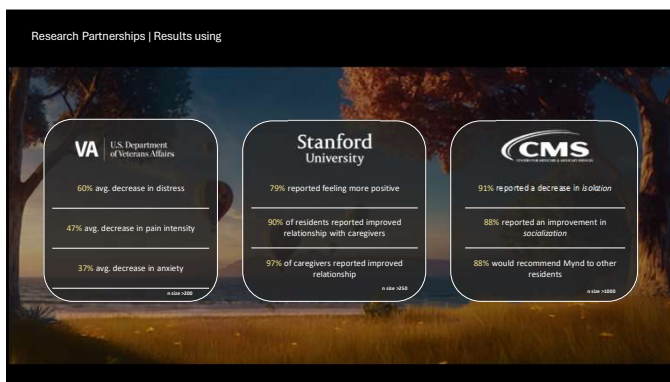
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Drawbacks

- Device may feel heavy, inconvenient, and it can be hot to wear.
- Unwanted effects, including visual disturbances, disorientation, postural instability, nausea, headache, and postural discomfort, among others.
- In most published studies, the typical duration is approximately 30 minutes.


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Why Virtual Reality?

- Through virtual reality, clients are able to elicit rehabilitative responses similar to traditional therapy, remain engaged, recover more quickly, improve function – and maintain gains long after therapy has ended.
- Interventions should be personalized to each participant to increase satisfaction and quality of life.
- Novel technologies, when used appropriately, demonstrate significantly more improvement than routine therapy alone and have the potential to solve some of the challenges currently seen in traditional therapy.



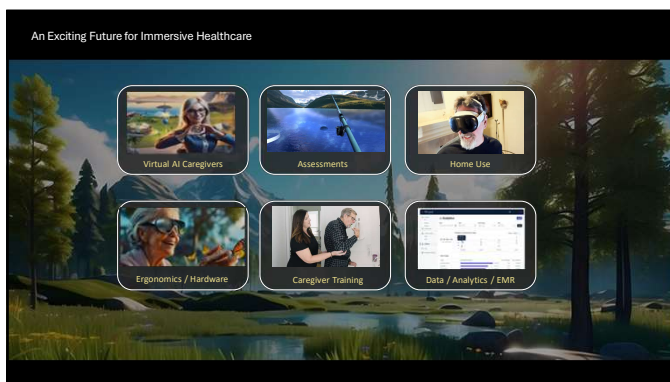
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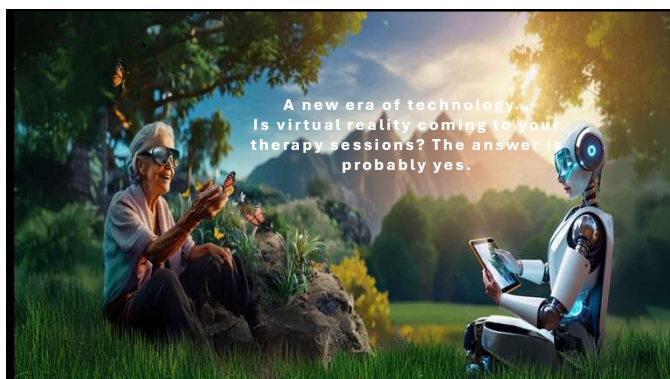
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Thank you

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