



# REAL<sup>®</sup> Immersive System

EMPOWER POSSIBILITIES<sup>™</sup>



# REAL System

REAL System is an advanced technology platform using virtual reality (VR) to deliver engaging therapeutic and wellness experiences.

- 1 TherapyView™ on tablet allows therapist to guide and customize individual patient sessions
- 2 Sensors capture patient ROM
- 3 Headset transports patient to a virtual world
- 4 Portable, Easy Setup





# REAL Activities

Therapeutic and wellness activities address needs of high-acuity to high-functioning patients.

## ● Upper Extremity (UE)

- ROM
- Endurance
- Strengthening
- Coordination

## ● Core and Balance

- Cervical ROM, visual scanning
- Postural control and stability
- Core strengthening and balance

## ● Cognition

- Visuospatial awareness
- Decision making
- Attention, processing, sequencing, and memory
- Command response, reactive movement

## ● Functional Uses - ADL Training

- Item placement/retrieval
- Overhead movement
- Weight shifting for ADLs
- Environmental awareness/scanning

## ● Distraction

- (Now Available!)*
- Pain, stress
  - Activity tolerance

## ● Low Stimulation Environments

- (Now Available!)*
- Gaze stability training
  - Training of oculomotor and visual control
  - Relaxation and stress management to aid general wellness



### Mad Tavern

Exercise cervical ROM to look around a tavern and trigger amusing stories.



### Sunrise

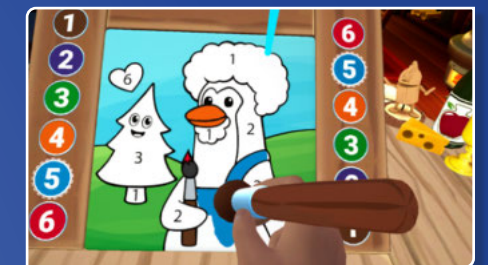
Sunrise, Harvest, Ice Cave

Engage shoulder flexion and make the sun smile each time both arms are raised symmetrically.



### Catch & Glow

Control a small penguin with cervical ROM to collect fireflies in various formations.



### Creative Canvas

Paint By Numbers, Free Paint, Free Stamp

Engage functional reach and trunk control to create artistic compositions.



### Sports Park

Chuckleball™, Chuckleball Arena, Flying Fish

Test reaction time and reflexive movement! Score points or block and dodge flying fish!



### Bird Forest

Free Birds, Bird Match, Nest Hop

Work on preparation for ADLs! Place colorful birds in their nests.



### Hide and Seek

Exercise cervical ROM, using visual scanning to find a small penguin!



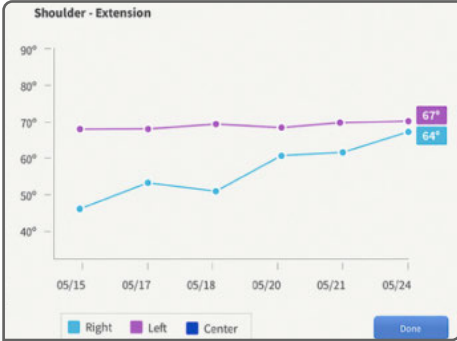
### Hot Air Balloon

Balloon Pilot, Bumper Band, Summit Rescue

Build core strength and stability. Exercise trunk control to steer a hot air balloon.



# Purpose-Built for Rehabilitation



## Objective Progress Tracking

- Tracks patient ROM and time spent per activity to support documentation



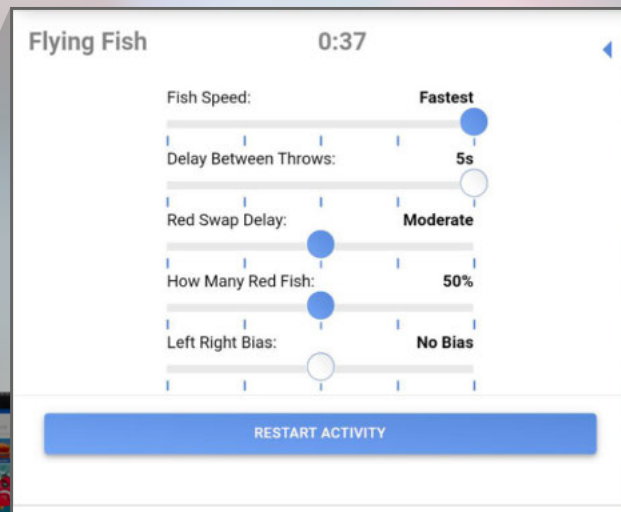
## Rewards-based Feedback

- Provides intrinsic motivation with progression through multiple environments
- Builds upon prior session's progress to encourage patients

## Customizable Sessions

Adjustable settings to customize intensity and frequency of sessions

- ROM
- Mirror therapy options
- Left/Right handedness
- Bimanual coordination (*Now Available!*)
- Gravity neutral options (*Now Available!*)
- Multiple speed settings to test reaction time
- Options to expand reach distance
- Settings to increase endurance





# VR is Supportive in Rehabilitation



Virtual reality therapy is supportive as an adjunct to conventional therapy<sup>1,2,3</sup>



Systems that are customized for healthcare are more effective than off-the-shelf systems<sup>4</sup>

## Ordering Information

Catalog Number	Description
REAL1	REAL® Immersive System
REALA1	REAL Activities
REALP1	REAL Professional Suite
BND	Sensor Bands (one (1) pack of six adjustable bands per patient)
BNDPK10	Auto-shipment of Sensor Bands (one (1) pack of six adjustable bands per patient), Pack of Ten (10)
BNDPK20	Auto-shipment of Sensor Bands (one (1) pack of six adjustable bands per patient), Pack of Ten (20)
BNDPK30	Auto-shipment of Sensor Bands (one (1) pack of six adjustable bands per patient), Pack of Ten (30)
BNDPK40	Auto-shipment of Sensor Bands (one (1) pack of six adjustable bands per patient), Pack of Ten (40)
BNDPK50	Auto-shipment of Sensor Bands (one (1) pack of six adjustable bands per patient), Pack of Ten (50)



Scan QR code to learn more



The purchase of the REAL Immersive System may be eligible for IRS Section 179 deduction\*

\* This statement is for informational purposes only and is not intended to provide, and should not be relied on for, tax, legal or accounting advice. You should consult your own tax, legal and accounting advisors before engaging in any transaction.

1. Turolla A, Dam M, Ventura L, et al. Virtual reality for the rehabilitation of the upper limb motor function after stroke: a prospective controlled trial. *J NeuroEng Rehabil.* 2013;10(85). doi:10.1186/1743-0003-10-85
2. Laver KE, Lange B, George S, Deutsch JE, Saposnik G, Crotty M. Virtual reality for stroke rehabilitation. *Cochrane Database Syst Rev.* 2017 Nov 20;11:CD008349. doi:10.1002/14651858.CD008349.pub4
3. Aminov A, Rogers JM, Middleton S, Caeyenberghs K, Wilson PH. What do randomized controlled trials say about virtual rehabilitation in stroke? A systematic literature review and meta-analysis of upper-limb and cognitive outcomes. *J NeuroEng Rehabil.* 2018;15(1):29. doi:10.1186/s12984-018-0370-2
4. Maier M, Ballester BR, Duff A, Oller ED, Verschure P. Effect of specific over nonspecific VR-based rehabilitation on poststroke motor recovery: a systematic meta-analysis. *Neurorehabil Neural Repair.* 2019;33(2): 112-129. doi:10.1177/1545968318820169

### Indication for Use

The REAL Immersive System is an immersive virtual reality and display system that interactively displays and tracks upper-extremity rehabilitation exercises for adult patients using a combination of virtual environments and full presence tracked avatars for visual feedback. These rehabilitation exercises are intended to be conducted in a seated position in a clinical environment and prescribed and supervised by a medical professional trained in rehabilitation therapy.

### Contraindications

There are no known contraindications.

### Warnings

- If a patient complains of motion sickness, dizziness, headache, eye strain, or fatigue when using the device, stop use of device immediately.
- Use caution when using this device if a patient has a history of vestibular issues or motion sickness.

### Precautions

- Ensure a safe environment for the patient while performing activities with the device (e.g., remove any surrounding obstacles and ensure that the patient is unlikely to trip or fall). As this device is to be used for upper body rehabilitation, we recommend that the patient remain seated to avoid a fall.
- Be aware of the patient's limitations in range of motion and avoid device or program use that could lead to excessive gestures that could injure a patient.
- Extended use of a head-mounted display can cause discomfort or eye strain.
- Incorrect placement of the sensors on the patient may result in the avatar appearing incorrectly or distorted on the headset and tablet.
- Damage (mechanical and electrical) may result if the tablet, headset, sensors, router, router battery, and/or

- sensor charger are dropped or struck against another object.
- Device is not intended for continued use if dropped from higher than 1 meter.
- Do not touch the router and patient at the same time. Patients are not allowed to touch the router at any time.
- During use, the surface of the equipment will not exceed 41°C.
- Sensors will transmit inaccurate position data if used near metal including, but not limited to, wheelchairs, walkers, utility carts, smart watches, and mobile devices.
- Headset tracking can be lost or compromised if large objects obscure the headset.
- To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth.
- At no time should liquid products be allowed near any device component.
- No modification of this equipment is allowed.
- Use of accessories, transducers, and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.
- Portable RF communications equipment (including peripherals such as antenna cables and external antennas, smart watches, and mobile devices) should be used no closer than 30 cm (12 inches) to any part of the REAL Immersive System, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.
- Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.
- Accessories such as power adapters and cords should not be replaced by the end user and should only be replaced by Penumbra. Any changes or replacements of accessories will likely impact compliance of REAL Immersive System.
- Use of this device should be in a secure information technology environment. Outbound https communication channels must be open.

### Potential Adverse Effects/Events

Visual stimulation through head-mounted displays have a small possibility of provoking an epileptic seizure. Should this occur, stop using the device immediately.

Other possible complications include, but are not limited to, the following: claustrophobia, discomfort or pain in the head or eyes, disorientation/vertigo/dizziness, drowsiness, eye strain, falls or fractures, headache/migraine, insomnia, light-headedness, motion sickness, nausea, pain, seizure, repetitive strain injury, vision problems, skin irritation.

Should any of the above occur, stop using the device immediately.

Caution: Federal (USA) law restricts this device to sale by or on the order of a healthcare provider. Prior to use, please refer to the Instructions for Use for complete product indications, contraindications, warnings, precautions, potential adverse events, and detailed instructions for use. Please contact your local REAL Care Specialist for more information.

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