VAST. Rehab

BASE PACK FOR VECTIS MINI

2025.1

WHAT IS NEEDED?

Please make sure the PC where you want this module to be active have VAST.Rehab Patient Panel installed and that the following hardware requirements are met:

- Windows 10/11
- Intel Core i5 (8th gen or newer). Important: Avoid ultra-low-power versions (e.g., i5-8250U), as they may not meet performance requirements. Prefer standard or high-performance CPUs.
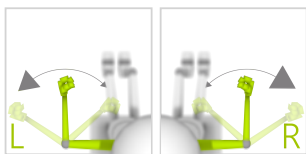- Minimum: 8 GB RAM (16 GB or more recommended for optimal performance).

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

RANGE OF MOTION
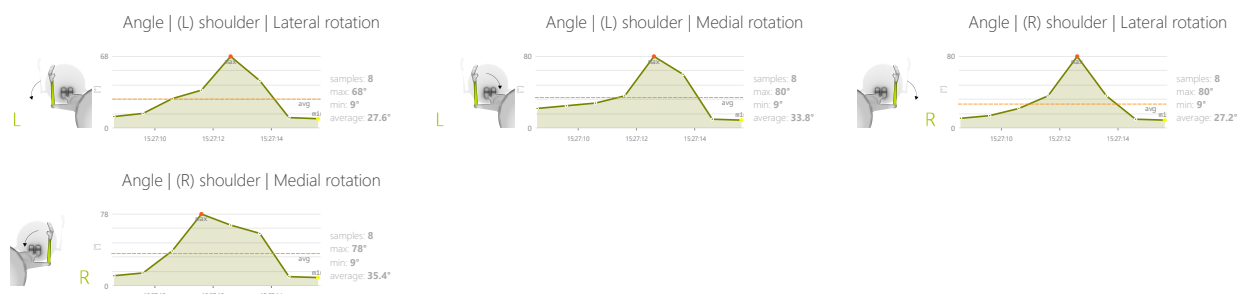## ANGLES EVALUATION

Measure and gently motivate to increase individual's range of motion in predefined movement patterns.

CONTROL MODES

RESULTS

Angle | (L) shoulder | Lateral rotation

samples: **8**
max: **68°**
min: **9°**
average: **27.6°**

Angle | (L) shoulder | Medial rotation

samples: **8**
max: **80°**
min: **9°**
average: **33.8°**

Angle | (R) shoulder | Lateral rotation

samples: **8**
max: **80°**
min: **9°**
average: **27.2°**

Angle | (R) shoulder | Medial rotation

samples: **8**
max: **78°**
min: **9°**
average: **35.4°**

OBJECTIVES

• Range of motion examination

INSTRUCTION FOR PATIENT

Try to achieve best result

5

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

RANGE OF MOTION
ANGLES EVALUATION

SAMPLE SETTINGS

Reset
When data is corrupted

Finish
Mark as completed

0:30

Angular range

start 0°   end 80°

Minitask duration

30s

Resistance rubber

1

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY
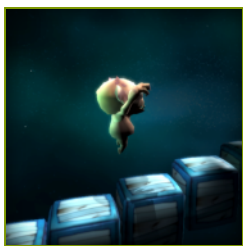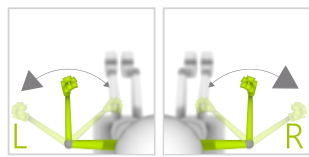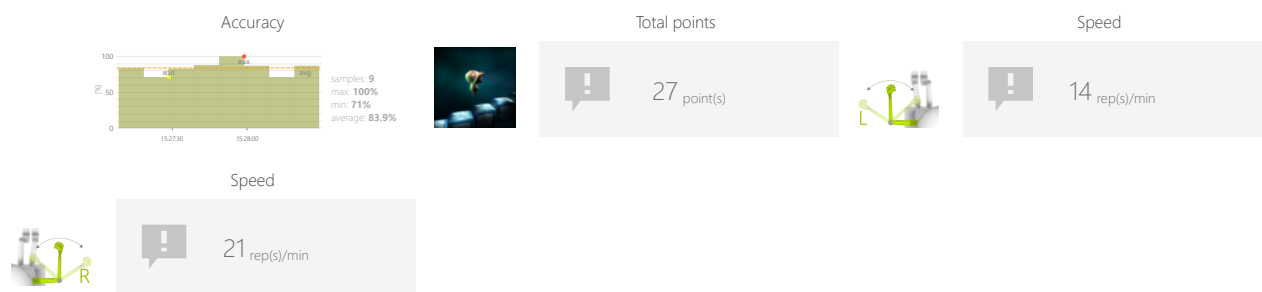
SPEED
STAIRS

Measure number of repetitions of specific movement pattern an individual is able to perform within predefined time interval.

CONTROL MODES

RESULTS

Accuracy

samples: **9**
max: **100%**
min: **71%**
average: **83.9%**

Total points

27 point(s)

Speed

14 rep(s)/min

Speed

21 rep(s)/min

ADJUSTMENTS

• Direction
• Task duration
• Start angle
• Shoulder angle
• Max time per floor
• Number of stairs
• Pause length

OBJECTIVES

• Dynamics of planned movements

INSTRUCTION FOR PATIENT

Climb the stairs before they disappear.

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY
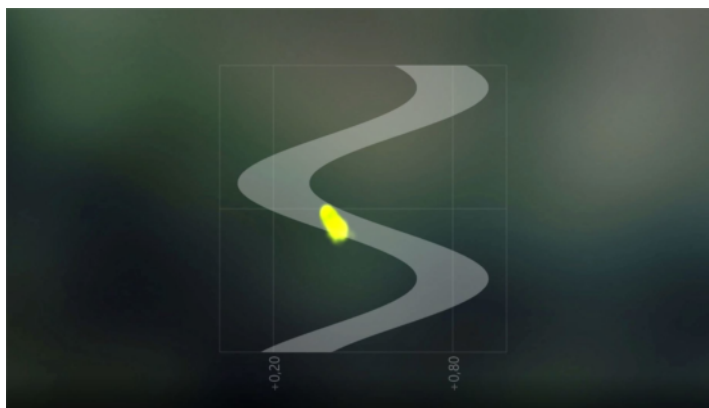
SPEED
STAIRS

SAMPLE SETTINGS

Difficulty
custom

Duration
90s

Angular range
start ? end ?

Range adjustment
0% ⟷ 100%
? ⟷ ?

Max time per floor
15 s

Number of stairs
5

Pause length
3

Resistance rubber
1

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

MOVEMENT PRECISION
GRAPH

Measure and train individual's skills to perform specific movement patterns with predefined speed and range.

CONTROL MODES

RESULTS

Accuracy

samples: **9**
max: **100%**
min: **71%**
average: **83.9%**

Total points

28 point(s)

Movement precision

36 %

Movement precision

23 %

ADJUSTMENTS

- Graph shape (sinus or square, amplitude, border, etc.)
- Direction
- Task duration
- Start angle
- Shoulder angle

OBJECTIVES

- Movement precision
- Activity in a given rhythm
- Repetitive movements

INSTRUCTION FOR PATIENT

Try to stay within the borders.

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

MOVEMENT PRECISION
GRAPH

SAMPLE SETTINGS

Difficulty **3/3**

Graph configuration
⟳ : 4.0s ↤⊢→ : 20%

Duration **30s**

Angular range
start ? end ?

Range adjustment
0% ⟷ 100%
? ↔ ?

Resistance rubber **1**
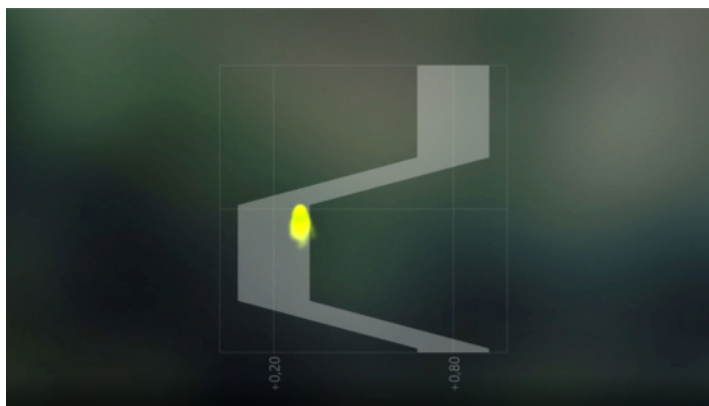
Difficulty **1/3**

Graph configuration
⟳ : 4.0s ↤⊢→ : 40%

Duration **90s**

Angular range
start ? end ?

Range adjustment
0% ⟷ 100%
? ↔ ?

Resistance rubber **1**
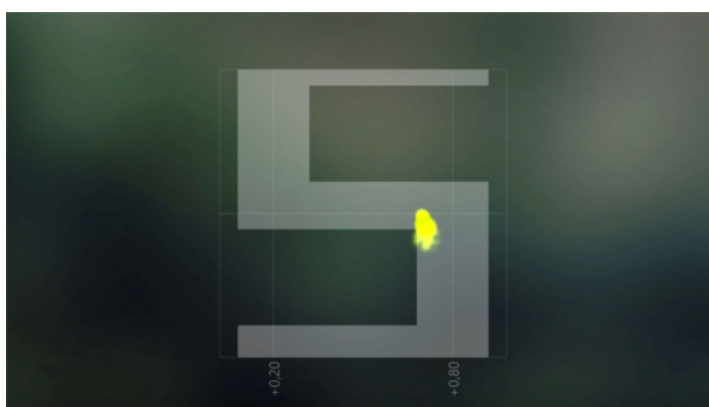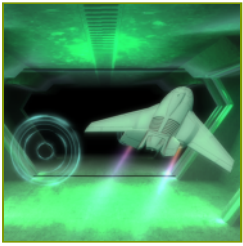

Difficulty **custom**

Graph configuration
↤⊢→ : 20% ↑ : 2.0s ↓ : 2.0s ↗ : 1.0s ↘ : 1.0s

Duration **30s**

Angular range
start ? end ?

Range adjustment
0% ⟷ 100%
? ↔ ?

Resistance rubber **1**

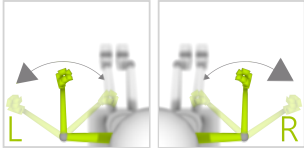**VAST.Rehab**
REHABILITATION IN VIRTUAL REALITY
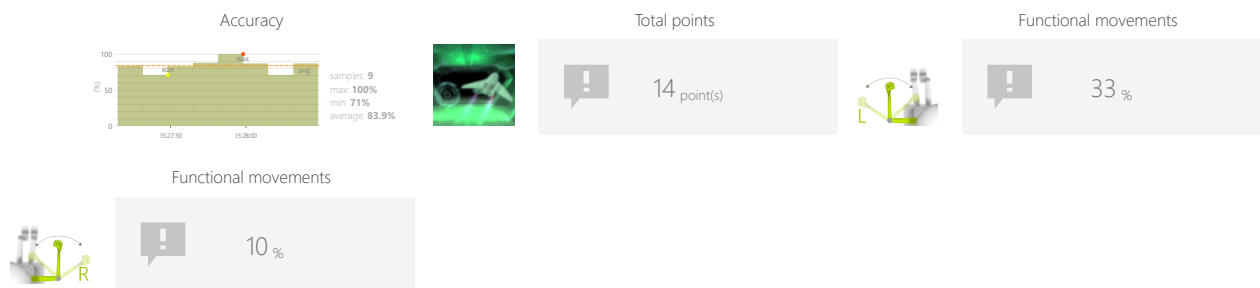
FUNCTIONAL MOVEMENTS
AIRPLANE

Measure and train individual's skills to perform movements based on real-world situational biomechanics. They usually involve multi-planar, multi-joint movements which place demand on the body's core musculature and innervation.

CONTROL MODES

RESULTS

Accuracy

samples: **9**
max: **100%**
min: **71%**
average: **83.9%**

Total points

14 point(s)

Functional movements

33 %

Functional movements

10 %

ADJUSTMENTS

• Speed
• Direction
• Task duration
• Start angle
• Shoulder angle

OBJECTIVES

• Focusing
• Perceptivity
• Movement precision
• Predicting the trajectory of objects in 3D space
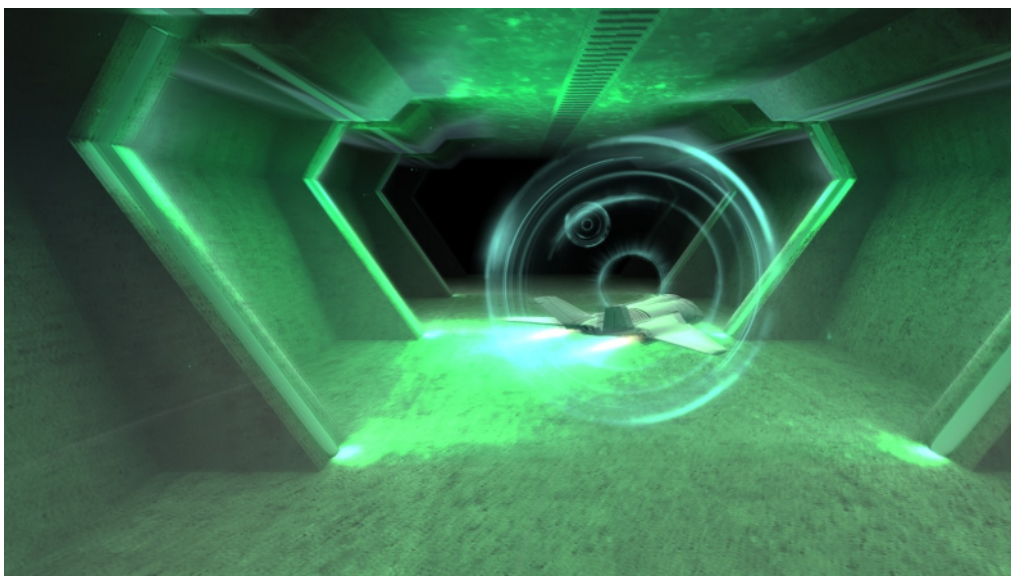
INSTRUCTION FOR PATIENT

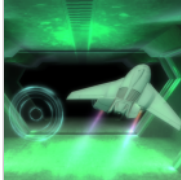Make the airplane fly through the circles. The closer to the center it flies the more points you get.

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

FUNCTIONAL MOVEMENTS
AIRPLANE

SAMPLE SETTINGS

Difficulty
2/4

Speed
100%
speed set automatically

Duration
90s

Angular range
start ? end ?

Range adjustment
0% ⟷ 100%
? ⟷ ?

Resistance rubber
1

VAST.Rehab
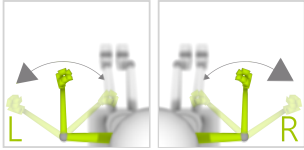REHABILITATION IN VIRTUAL REALITY
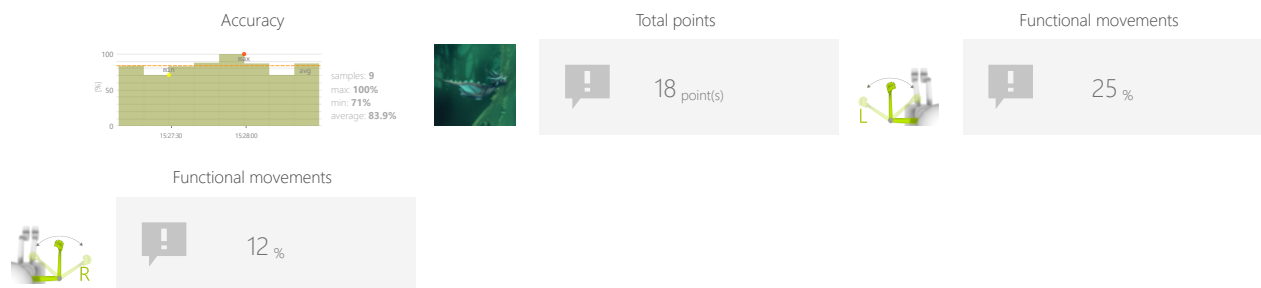
FUNCTIONAL MOVEMENTS
DRAGON

Measure and train individual's skills to perform movements based on real-world situational biomechanics. They usually involve multi-planar, multi-joint movements which place demand on the body's core musculature and innervation.

CONTROL MODES

RESULTS

Accuracy

samples: **9**
max: **100%**
min: **71%**
average: **83.9%**

Total points

18 point(s)

Functional movements

25 %

Functional movements

12 %

ADJUSTMENTS

• Direction
• Task duration
• Start angle
• Shoulder angle
• Coins group size
• Distance between coins
• Gravity force

OBJECTIVES

• Predicting the trajectory of objects
• Improve range of motion
• Visual motor coordination
• Muscle strengthening
• Planning and Strategy

INSTRUCTION FOR PATIENT

Fly and collect the coins.

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

FUNCTIONAL MOVEMENTS
DRAGON

SAMPLE SETTINGS

Difficulty custom

Duration **90s**	Angular range start ? end ?
Range adjustment 0% ⟷ 100% ? ⟷ ?	Coins group size **3**
	Distance between coins **250%**
Gravity force **100%**	Resistance rubber **1**

Difficulty 1/3

Duration **90s**	Angular range start ? end ?
Range adjustment 0% ⟷ 100% ? ⟷ ?	Coins group size **5**
	Distance between coins **250%**
Gravity force **100%**	Resistance rubber **1**

VAST.Rehab
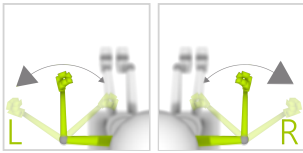REHABILITATION IN VIRTUAL REALITY
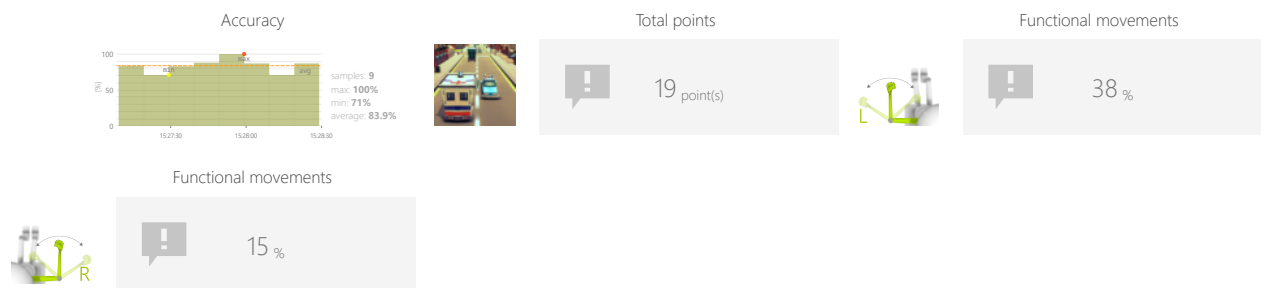
FUNCTIONAL MOVEMENTS
AMBULANCE

Measure and train individual's skills to perform movements based on real-world situational biomechanics. They usually involve multi-planar, multi-joint movements which place demand on the body's core musculature and innervation.

CONTROL MODES

RESULTS

Accuracy

samples: **9**
max: **100%**
min: **71%**
average: **83.9%**

Total points

19 point(s)

Functional movements

38 %

Functional movements

15 %

ADJUSTMENTS

• Speed
• Direction
• Task duration
• Start angle
• Shoulder angle
• Distance between cars

OBJECTIVES

• Dynamics of planned movements
• Focusing
• Speed of decision making
• Visual motor coordination

INSTRUCTION FOR PATIENT

Go as fast as you can and avoid hitting other cars.

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

FUNCTIONAL MOVEMENTS
AMBULANCE

SAMPLE SETTINGS

Difficulty
2/3

Speed
50%
speed set automatically

Duration
90s

Angular range
start ? end ?

Range adjustment
0% ↔ 100%
? ↔ ?

Distance between cars
50%

Resistance rubber
1

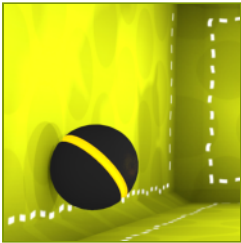**Difficulty**
custom

Speed
50%
speed set automatically

Duration
90s

Angular range
start ? end ?

Range adjustment
0% ↔ 100%
? ↔ ?

Distance between cars
200%

Resistance rubber
1

VAST.Rehab
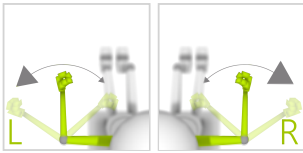REHABILITATION IN VIRTUAL REALITY
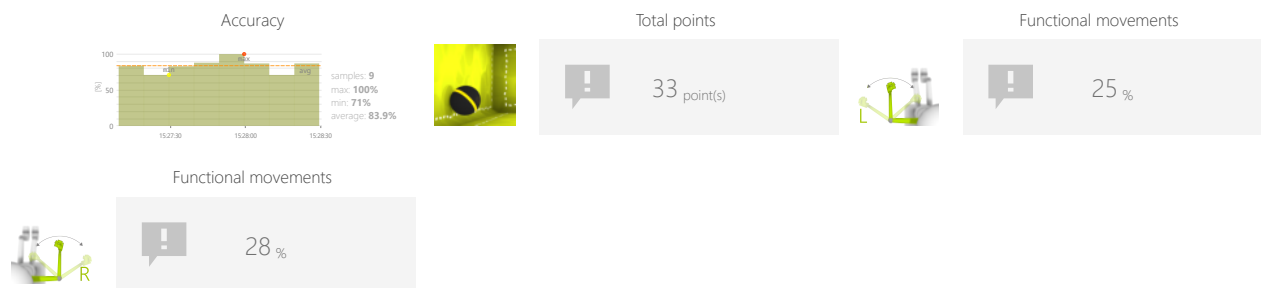
FUNCTIONAL MOVEMENTS
ARCANOID

Measure and train individual's skills to perform movements based on real-world situational biomechanics. They usually involve multi-planar, multi-joint movements which place demand on the body's core musculature and innervation.

CONTROL MODES

RESULTS

Accuracy

samples: **9**
max: **100%**
min: **71%**
average: **83.9%**

Total points

33 point(s)

Functional movements

25 %

Functional movements

28 %

ADJUSTMENTS

• Direction
• Task duration
• Start angle
• Shoulder angle
• Reticle size
• Speed of objects

OBJECTIVES

• Dynamics of planned movements
• Predicting the trajectory of objects in 3D space
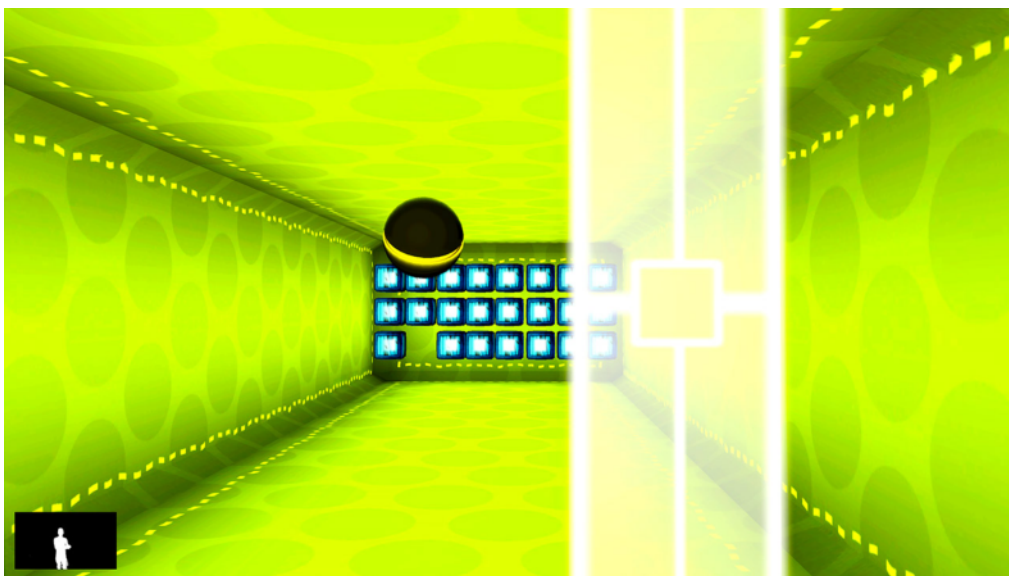• Visual motor coordination

INSTRUCTION FOR PATIENT

Destroy as many boxes as you can.

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

FUNCTIONAL MOVEMENTS
ARCANOID

SAMPLE SETTINGS

Difficulty **custom**

Duration	Angular range
90s	start ? end ?

Range adjustment	Reticle size
0% ⟷ 100%	100%
	Speed of objects
	70%
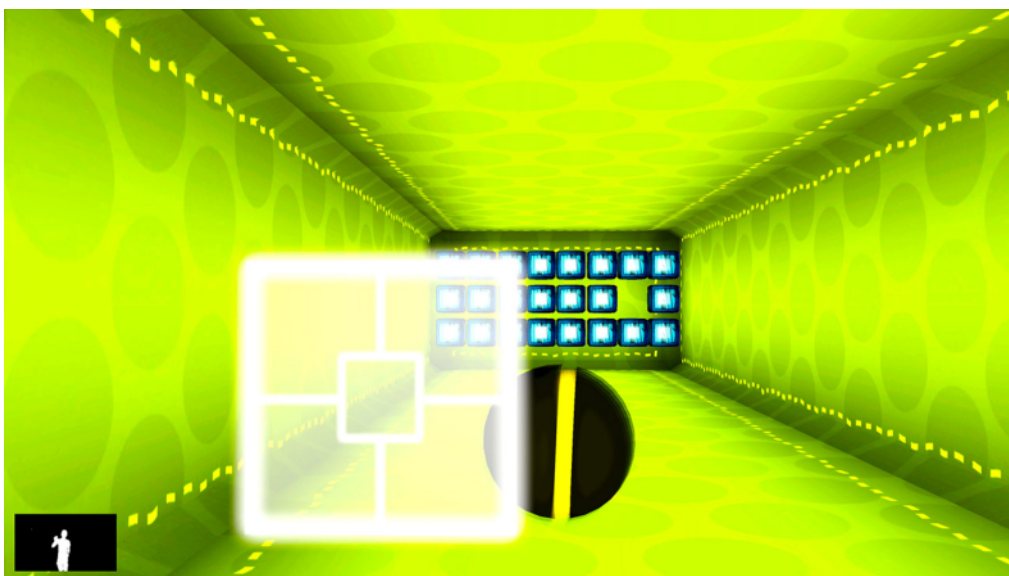
Resistance rubber 1

Difficulty **custom**

Duration	Angular range
90s	start ? end ?

Range adjustment	Reticle size
0% ⟷ 100%	75%
	Speed of objects
	70%

Resistance rubber 1

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

STRENGTH
STRENGTH TEST

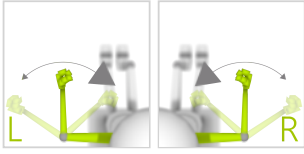Measure and gently motivate to increase individual's force while performing predefined movement patterns.

CONTROL MODES

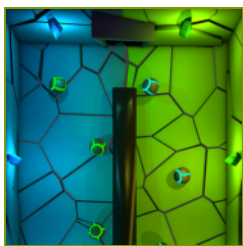## ADJUSTMENTS

• Direction

• Time to complete action

• Start angle

• Shoulder angle

OBJECTIVES

• Strength examination
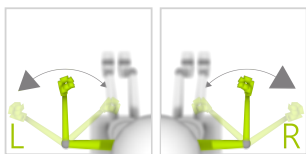
• Muscle strengthening

INSTRUCTION FOR PATIENT

Try to achieve best result

VAST.Rehab
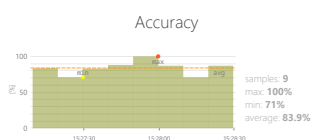REHABILITATION IN VIRTUAL REALITY

DIVIDED ATTENTION
SORTER

Measure and train individual's skills to successfully execute more than one action at a time, while paying attention to two or more channels of information.

CONTROL MODES

RESULTS

Accuracy	Total points	Divided attention
samples: **9** max: **100%** min: **71%** average: **83.9%**	32 point(s)	35 %

ADJUSTMENTS

- Direction
- Task duration
- Start angle
- Shoulder angle
- Number of objects
- Gap size
- Speed of objects

OBJECTIVES

- Predicting the trajectory of objects
- Focusing
- Perceptivity
- Movement precision
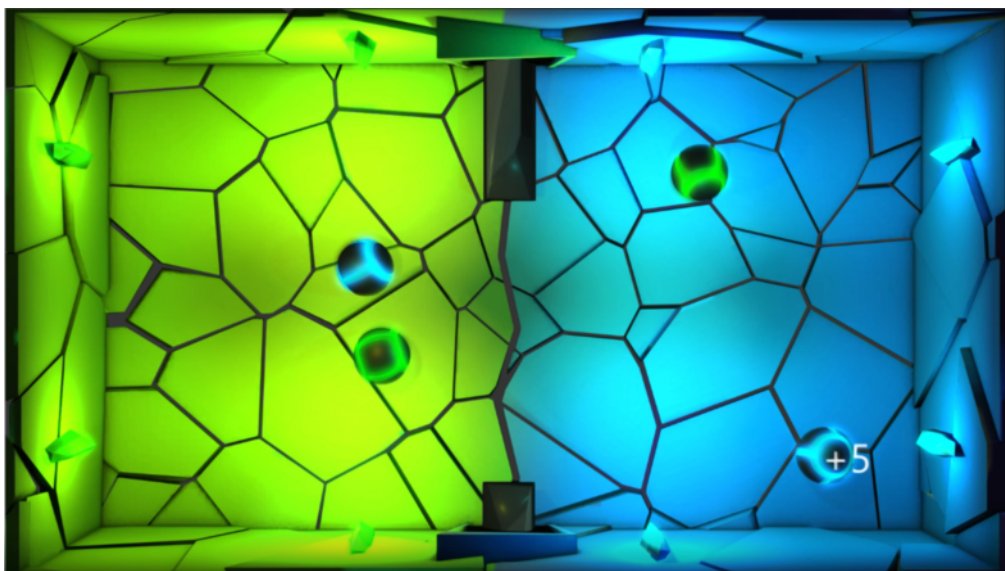- Exercise with or without support from healthy limb

INSTRUCTION FOR PATIENT

Pass or block the balls so that the blue balls are on the blue side and the green balls are on the green side of the screen.
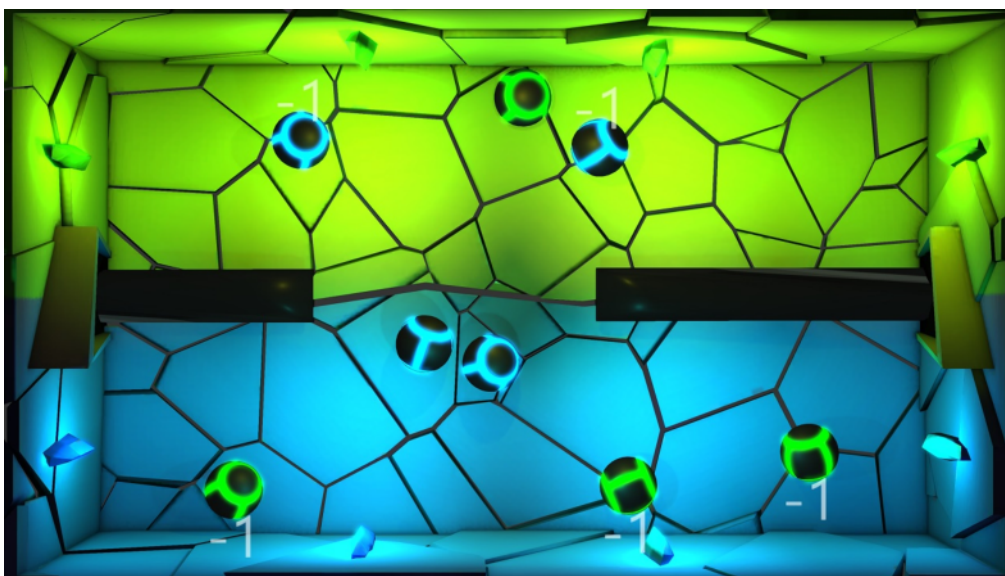
VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

DIVIDED ATTENTION
SORTER

SAMPLE SETTINGS

Difficulty		
◄	**1/3**	►

Duration	Angular range
90s	start ? end ?

Range adjustment	Number of objects
0% ↔ 100%	**4**
? ↔ ?	
	Gap size
	150%

Speed of objects	Resistance rubber
100%	**1**

Difficulty		
◄	**custom**	►

Duration	Angular range
90s	start ? end ?

Range adjustment	Number of objects
0% ↔ 100%	**8**
? ↔ ?	
	Gap size
	150%

Speed of objects	Resistance rubber
100%	**1**

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

MEMORY
TRUCKS

Measure and train individual's skills to memorize information.

CONTROL MODES

RESULTS

Number of repetitions

samples: **4**
max: **9 rep(s)**
min: **7 rep(s)**
sum: **31 rep(s)**
average: **7.67 rep(s)**

Accuracy

samples: **9**
max: **100%**
min: **71%**
average: **83.9%**

Total points

34 point(s)

Memory

11 %
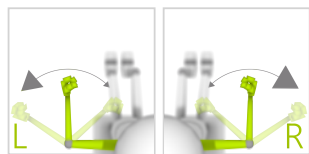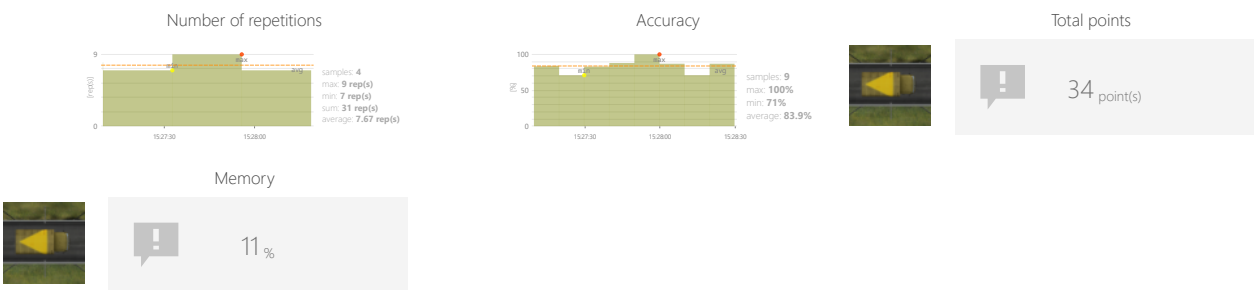
ADJUSTMENTS

• Direction
• Task duration
• Start angle
• Shoulder angle
• Variations

OBJECTIVES

• Logical tasks
• Focusing
• Perceptivity

INSTRUCTION FOR PATIENT

Remember the shape and/or its color on the roof of the car you see. Decide with thumbs up or down whether the next car has the same shape and/or color on the roof as the previous one.

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REHABILITATION IN VIRTUAL REALITY

MEMORY
TRUCKS

SAMPLE SETTINGS

Difficulty
1/3

Duration
90s

Angular range
start ? end ?

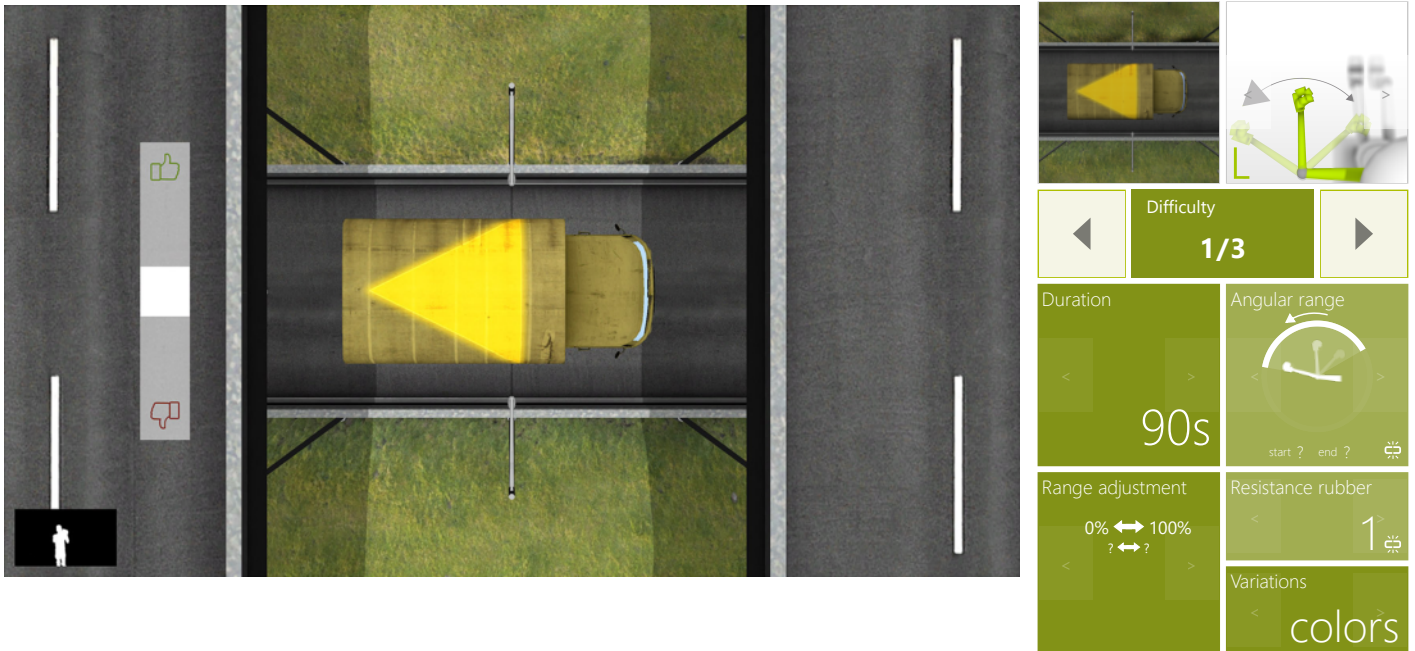**Range adjustment**
0% ⟷ 100%
? ⟷ ?

Resistance rubber
1

Variations
colors

VAST.Rehab
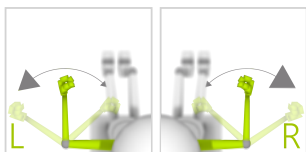REHABILITATION IN VIRTUAL REALITY
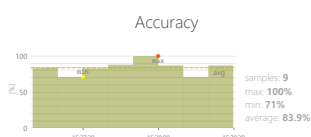
PROBLEM SOLVING
CLONES

Measure and train individual's skills to reach a solution of specific problems. Problem solving may include mathematical or systematic operations and can be a gauge of an individual's critical thinking skills.

CONTROL MODES

RESULTS

Accuracy	Total points	Problem solving
samples: **9** max: **100%** min: **71%** average: **83.9%**	31 point(s)	38 %

ADJUSTMENTS

• Direction

• Task duration

• Time to complete action

• Start angle

• Shoulder angle

• Number of pairs

OBJECTIVES

• Perceptivity

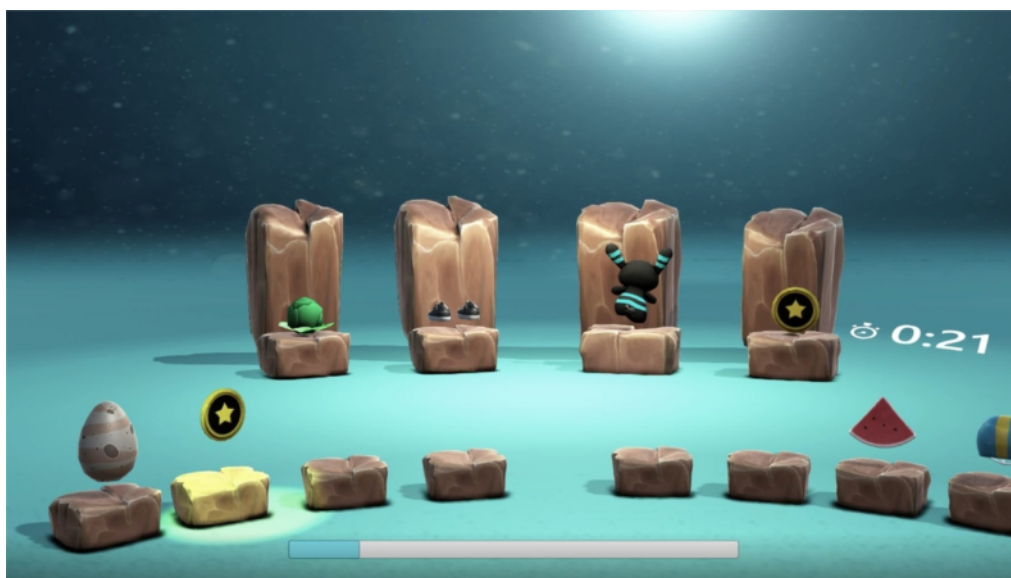• Visual motor coordination

• Logical tasks

INSTRUCTION FOR PATIENT

Select the item which has a pair on the screen.

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

PROBLEM SOLVING
CLONES

SAMPLE SETTINGS

	Difficulty **1/3**	

Duration	Angular range
90s	start ? end ?

Minitask duration	Range adjustment
30s	0% ⟷ 100% ? ⟷ ?

Number of pairs	Resistance rubber
4	**1**

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY

SPECIALIZED
BLOOD PRESSURE

Specialized tasks and evaluations that collect data from multiple categories or do have a unique objectives.

CONTROL MODES

ADJUSTMENTS

• Direction
• Start angle
• Shoulder angle

OBJECTIVES

• Monitor external parameters

INSTRUCTION FOR PATIENT

Measure yourself your blood pressure and type it in the result.

VAST.Rehab
REHABILITATION IN VIRTUAL REALITY