

# VR BASE PACK

2021.4

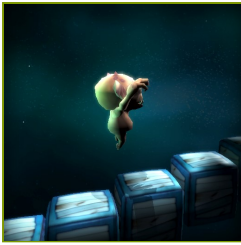
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Functional movements	17
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# WHAT IS NEEDED?

## HARDWARE REQUIREMENTS

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:

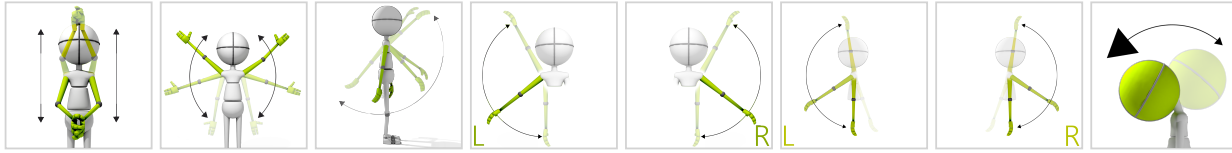
- Oculus Quest 2



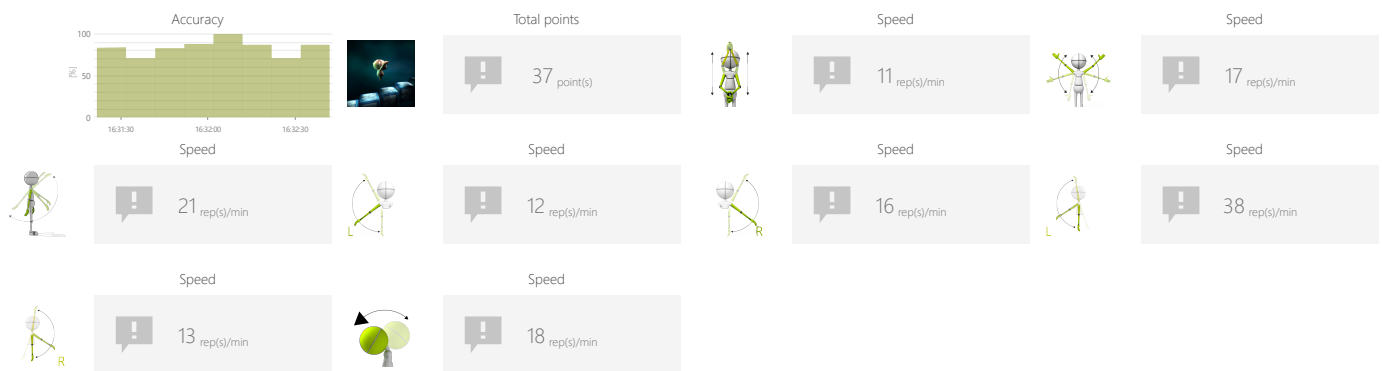
# SPEED STAIRS

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

## CONTROL MODES



## RESULTS



## ADJUSTMENTS

- Task duration
- Range
- Max time per floor
- Number of stairs
- Pause length

## OBJECTIVES

- Jumping
- Knees lifting
- Dynamics of planned movements

## INSTRUCTION FOR PATIENT

Climb the stairs before they disappear





## SAMPLE SETTINGS



Difficulty <b>Custom</b>	
Duration 90s	Range 20% ↑ 80% ↓ 
Max time per floor 15s	Number of stairs 5
Pause length 3	

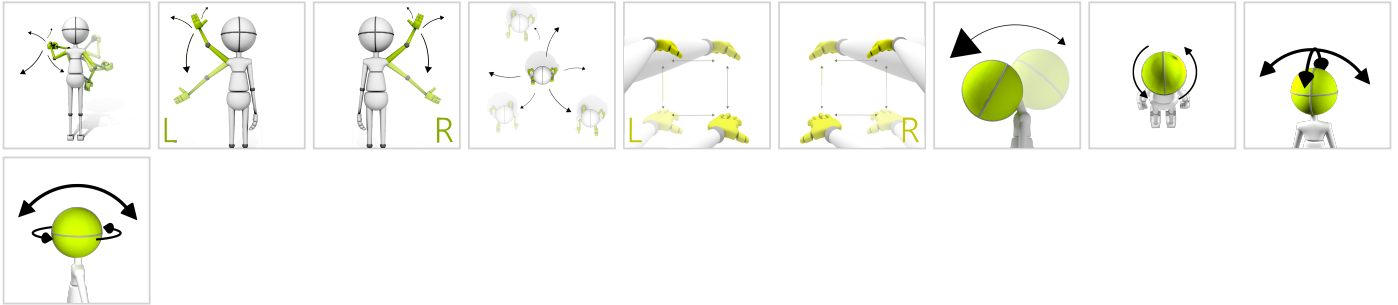


# MOVEMENT PRECISION

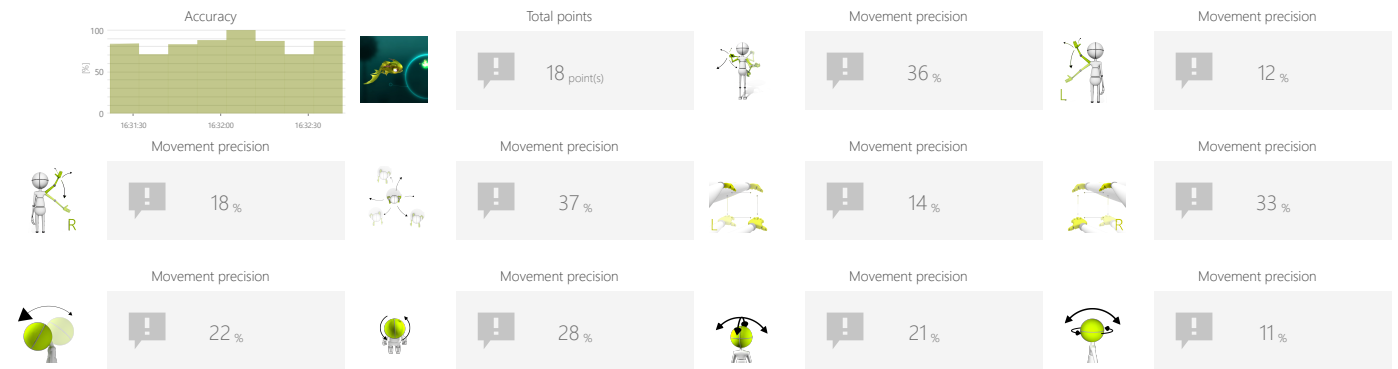
## FISH

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

### CONTROL MODES



### RESULTS



### ADJUSTMENTS

- Task duration
- Movement mode
- Range
- Route shape
- Speed of objects

### OBJECTIVES

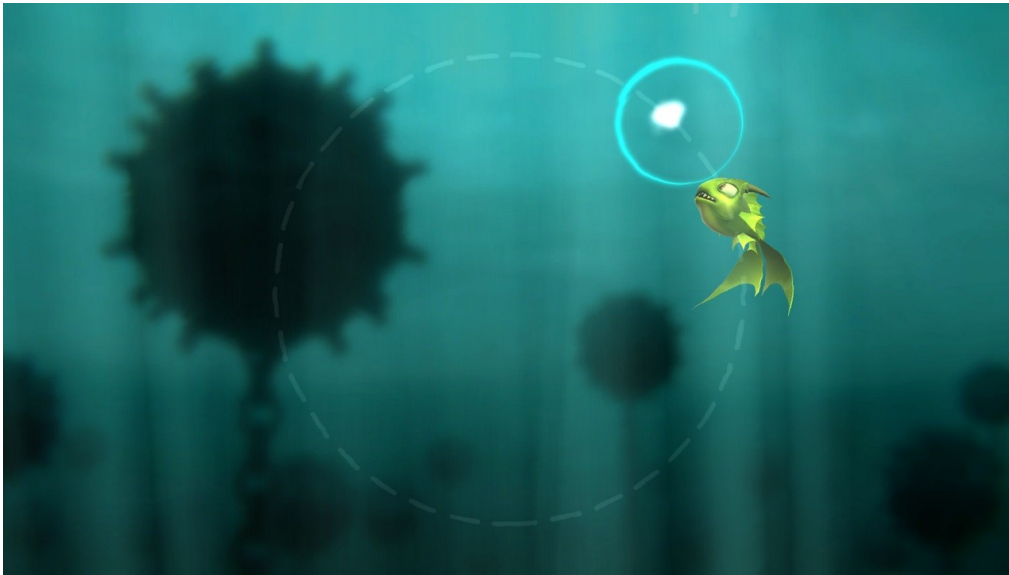
- 3D space movements reproduction
- Planned movements
- Muscle strengthening
- Movement precision
- Visual motor coordination


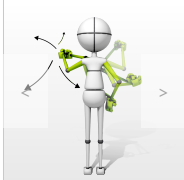

### INSTRUCTION FOR PATIENT

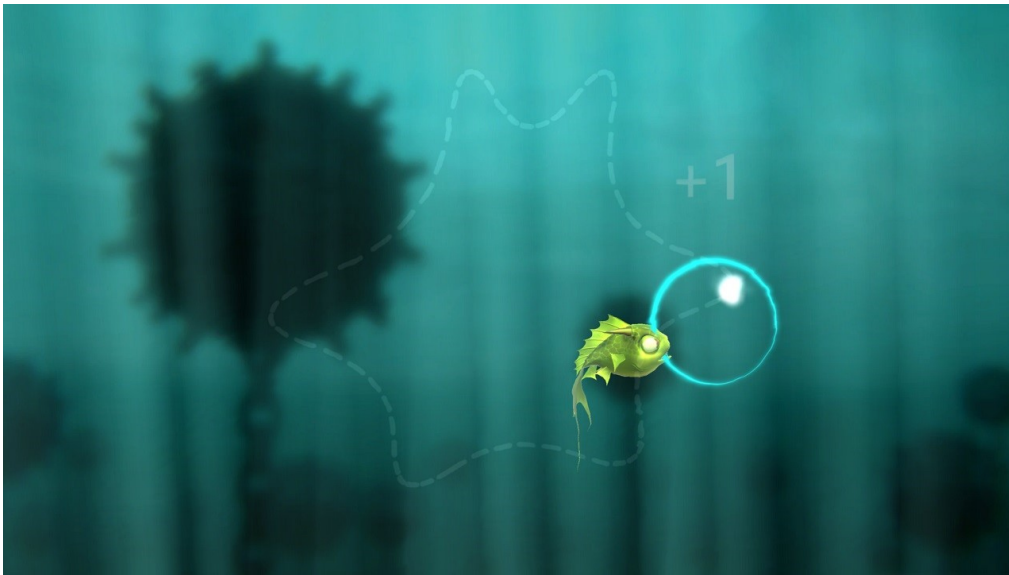
Move the blue circle to protect the sparks source from the fish.  
When the sparks source is inside the circle it is safe






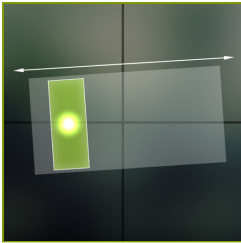
## SAMPLE SETTINGS



	
Difficulty	
Custom	
Duration	Movement mode
90s	Left
Range	Route shape
20% ↔ 80%	
Speed of objects	
100%	



	
Difficulty	
1/3	
Duration	Movement mode
90s	Left
Range	Route shape
20% ↔ 80%	
Speed of objects	
100%	

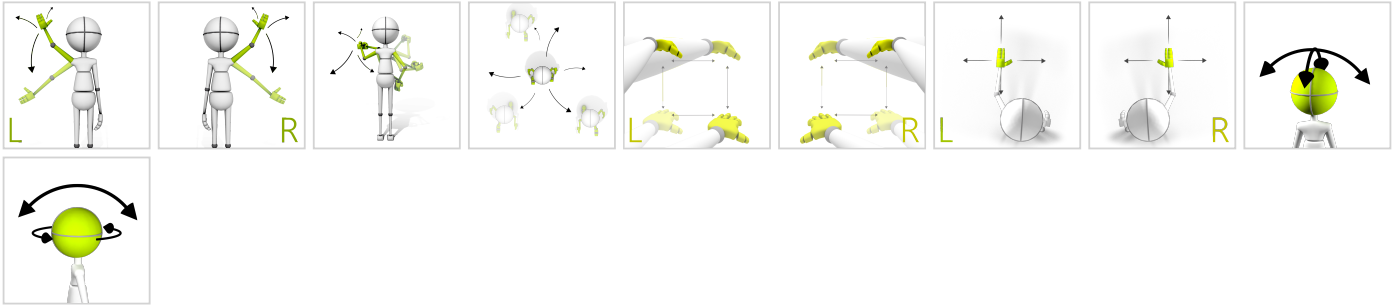


# MOVEMENT PRECISION

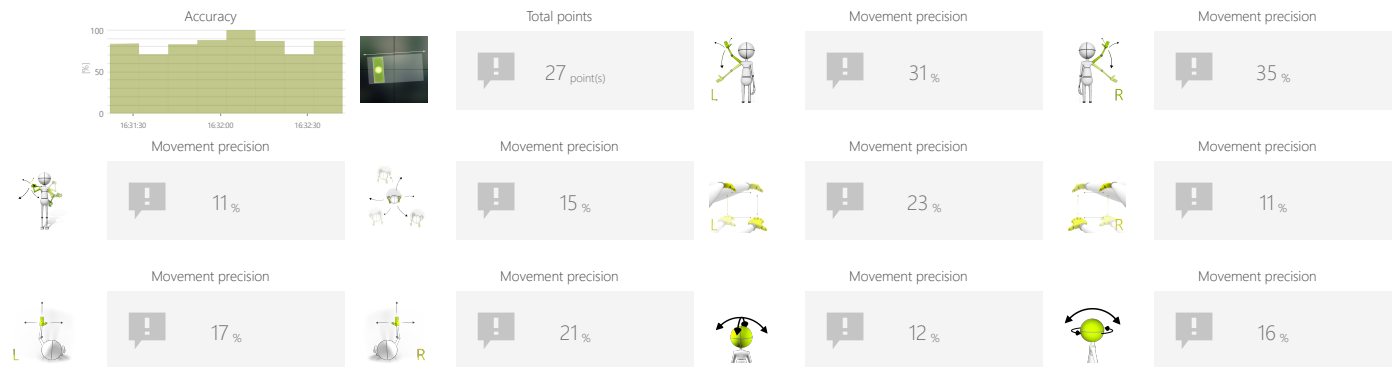
## PENDULUM

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

### CONTROL MODES



### RESULTS



### ADJUSTMENTS

- Task duration
- Range
- Show path
- Period
- Rotation
- Pendulum height
- Pendulum width

### OBJECTIVES

- 3D space movements reproduction
- Balance and equilibrium training
- Rhythmicity
- Activity in a given rhythm
- Movement precision

### INSTRUCTION FOR PATIENT

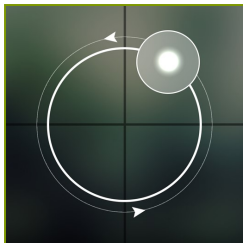
Try to synchronize yourself with the rectangle movements. Do your best to stay within the rectangle



## SAMPLE SETTINGS



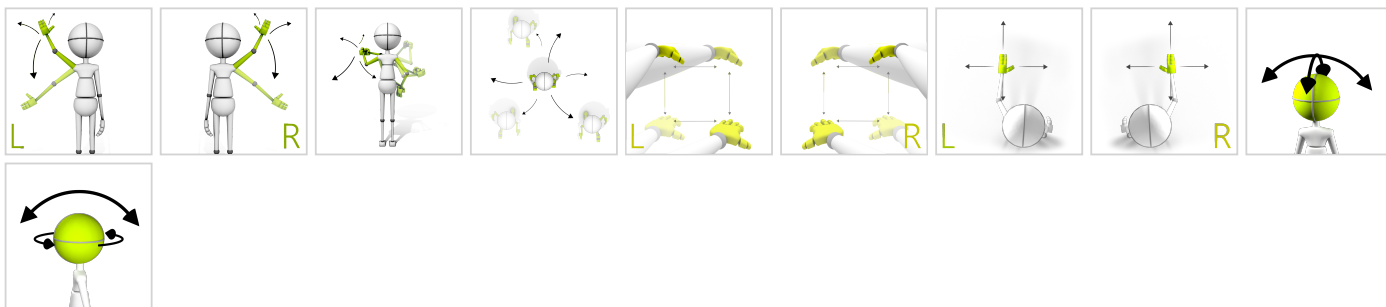
Difficulty	1/2
Duration	90s
Range	80% 20% ↔ 80%
Show path	No
Period	5s
Rotation	0
Pendulum height	50%
Pendulum width	100%



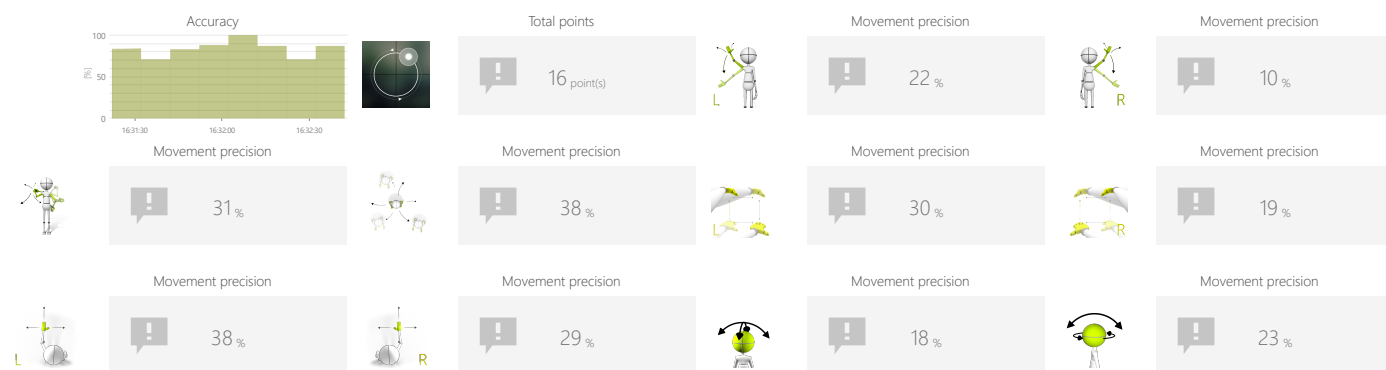
# MOVEMENT PRECISION TRACKING

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

## CONTROL MODES



## RESULTS



## ADJUSTMENTS

- Task duration
- Range
- Inverse direction
- Show path
- Period
- Radius
- Target radius

## OBJECTIVES

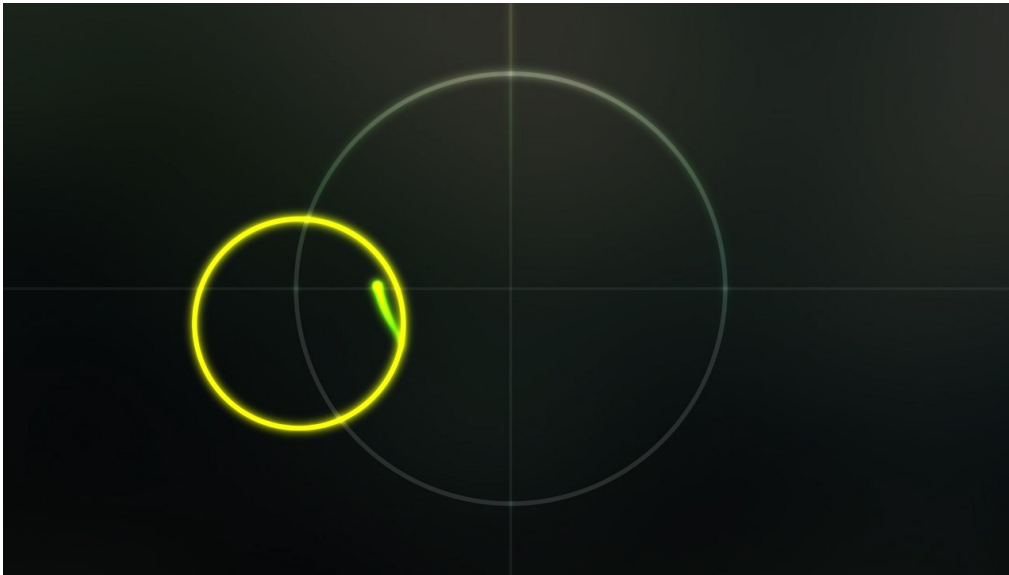
- 3D space movements reproduction
- Balance and equilibrium training
- Test the limits of balance and equilibrium

## INSTRUCTION FOR PATIENT

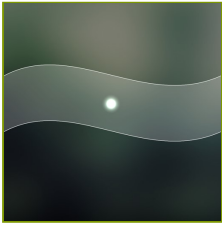
Try to synchronize yourself with the circle movements. Do your best to stay within the circle



## SAMPLE SETTINGS



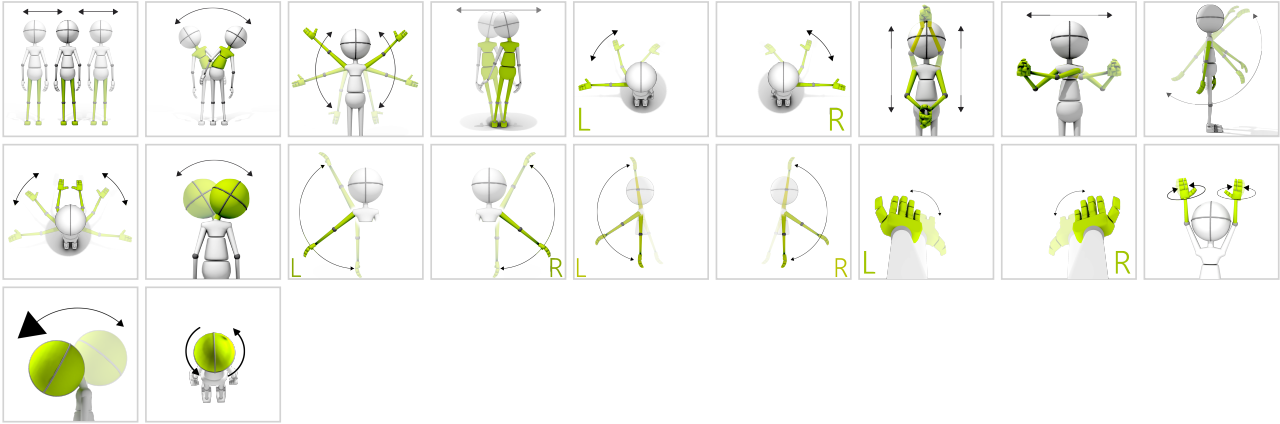
Duration < 90s >	Range 20% ↑ 80% ↓ 80% ← 20% →
Inverse direction < No >	Show path < No >
Period < 10s >	Radius < 75% >
Target radius < 75% >	



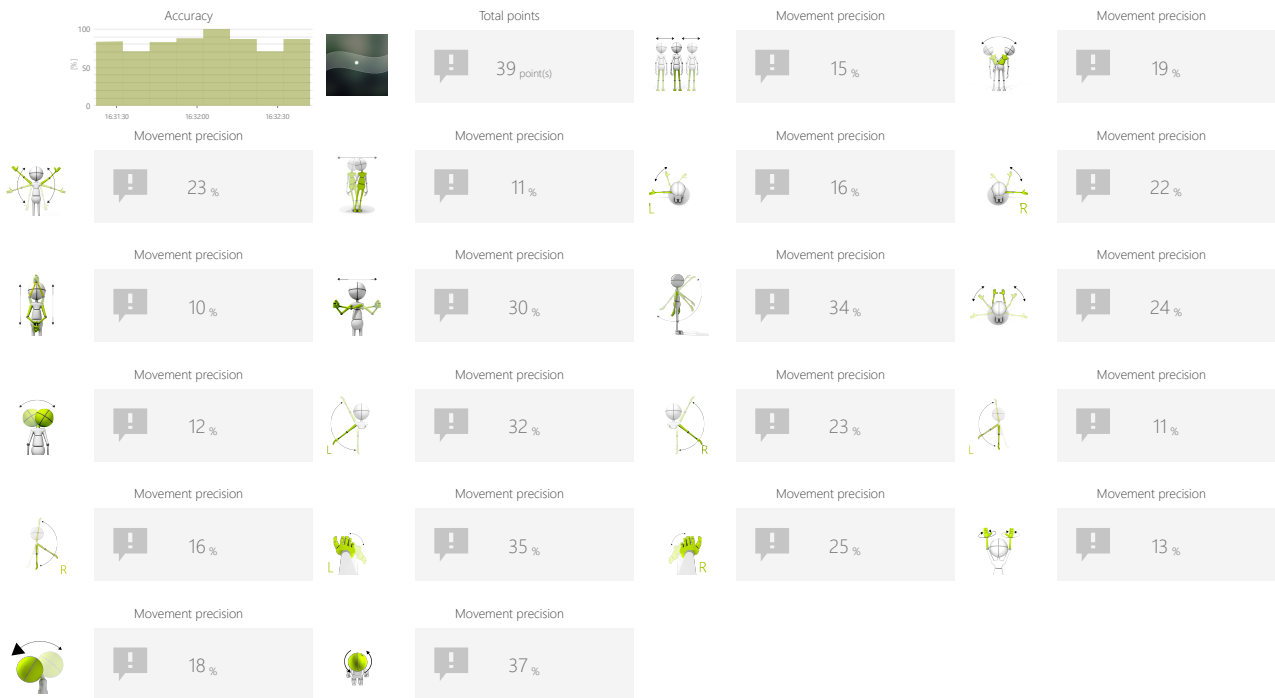
# MOVEMENT PRECISION GRAPH

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

## CONTROL MODES



## RESULTS



## ADJUSTMENTS

- Graph shape (sinus or square, amplitude, border, etc.)
- Task duration
- Range

## OBJECTIVES

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

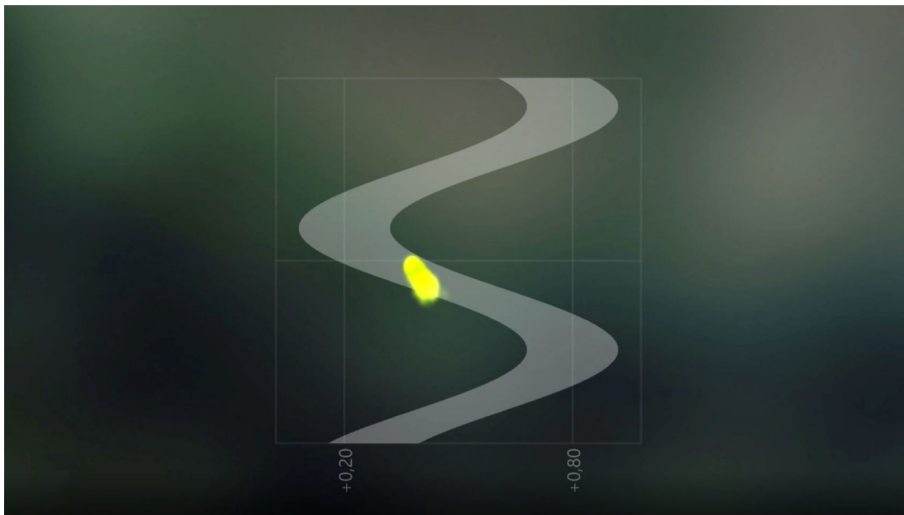
## INSTRUCTION FOR PATIENT

Try to stay within the borders





## SAMPLE SETTINGS

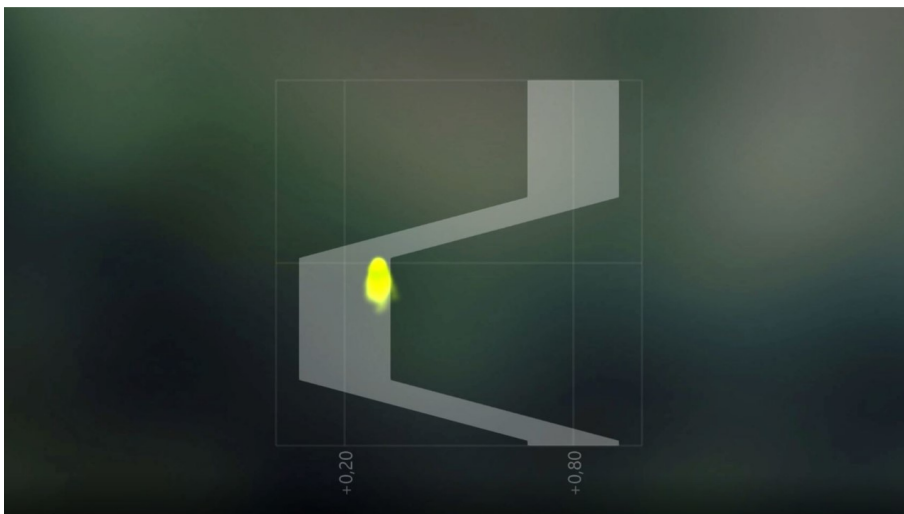


Difficulty: **3/3**

Graph configuration: 4.0s +/-: 20%

Duration: **30s**

Range: 20% ↔ 80%

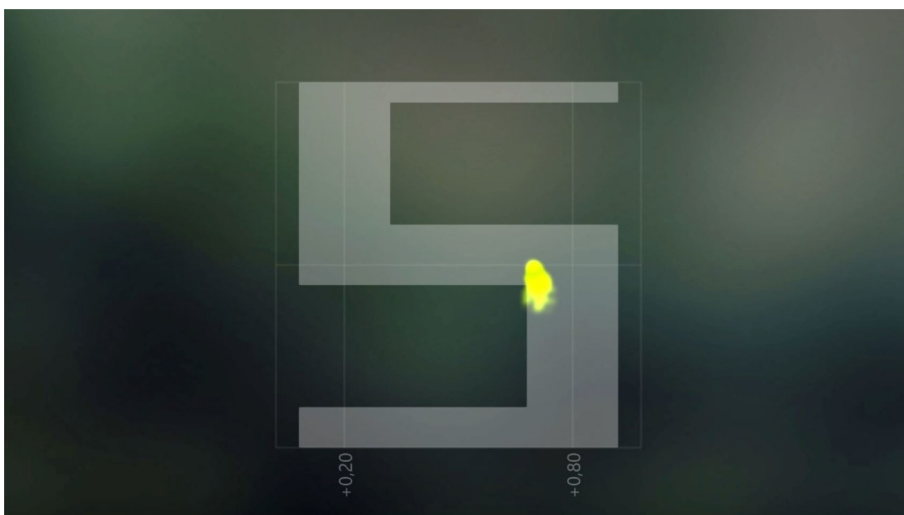


Difficulty: **1/3**

Graph configuration: 4.0s +/-: 40%

Duration: **90s**

Range: 20% ↔ 80%



Difficulty: **Custom**

Graph configuration: +/-: 20% ↑: 2.0s ↓: 2.0s ↗: 1.0s ↘: 1.0s

Duration: **30s**

Range: 0% ↔ 100%

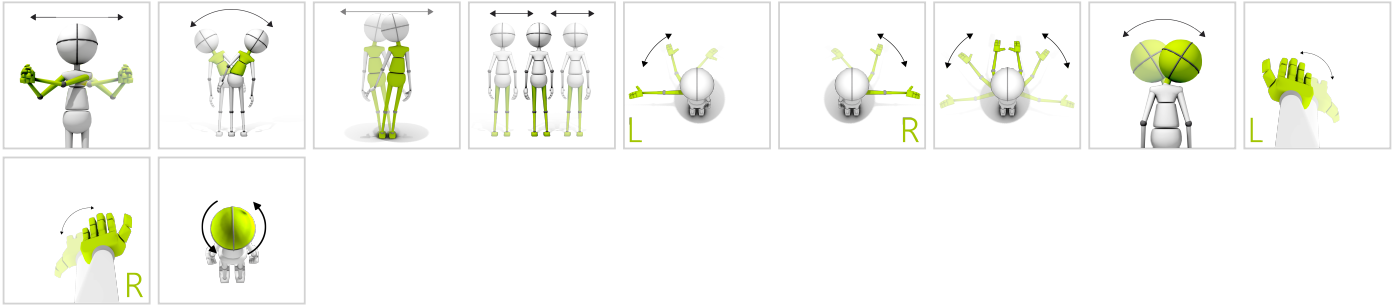


# MOVEMENT PRECISION

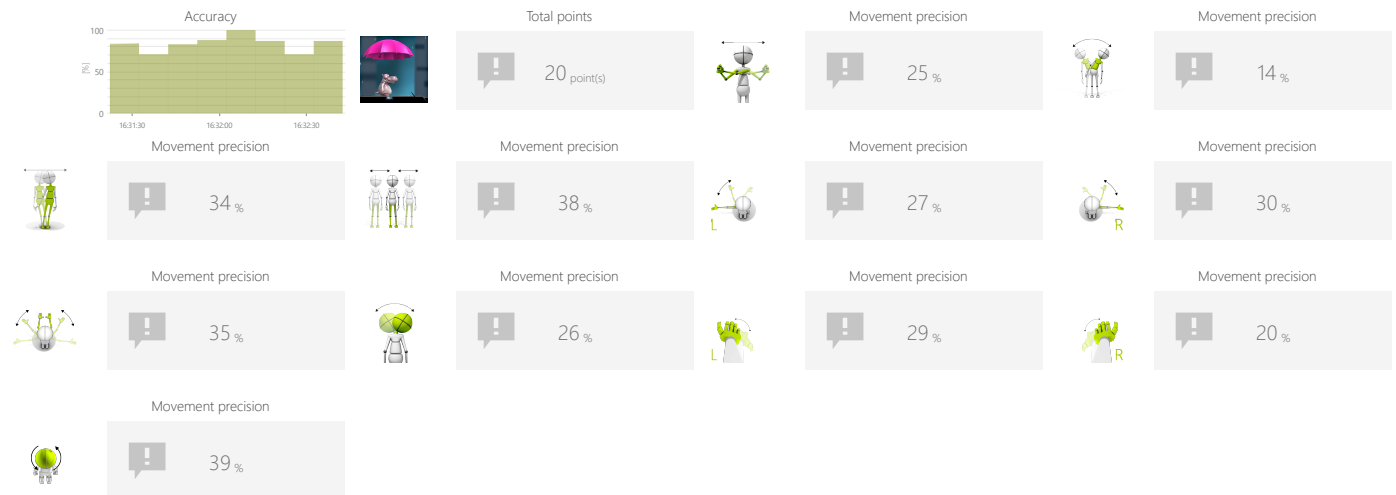
## UMBRELLA

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

### CONTROL MODES



### RESULTS



### ADJUSTMENTS

- Task duration
- Path
- Range
- Umbrella size

### OBJECTIVES

- Movement precision
- Visual motor coordination

### INSTRUCTION FOR PATIENT

Don't let the hippo get wet - keep the umbrella above him!



# MOVEMENT PRECISION

## UMBRELLA

### SAMPLE SETTINGS



Difficulty	1/3
Duration	60s
Path	8.0s
Range	20% ↔ 80%
Umbrella size	150%

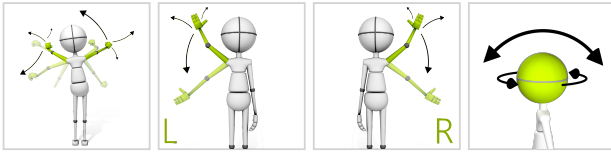


# FUNCTIONAL MOVEMENTS

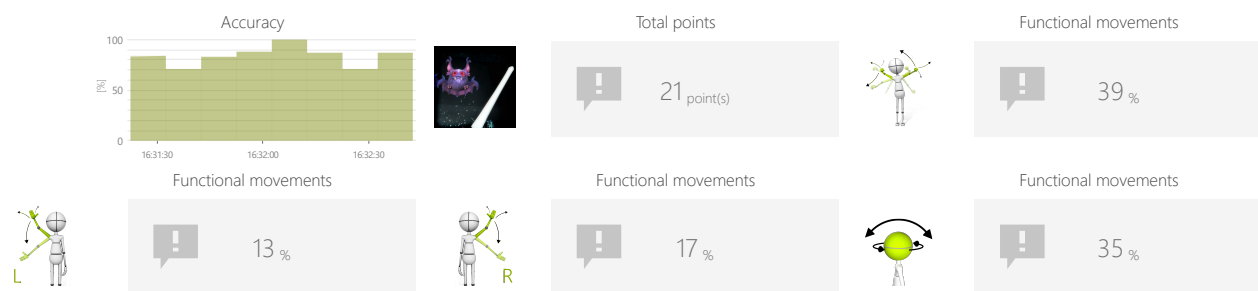
## VAMPIRES

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



## ADJUSTMENTS

- Positions to have targets on
- Task duration
- Time between objects
- Time to react

## OBJECTIVES

- Visual motor coordination
- Exercise with or without support from healthy limb
- Spontaneous movements in 3D space
- Speed of movement

## INSTRUCTION FOR PATIENT

Use your sword to knock down flying vampires who want to bite you!



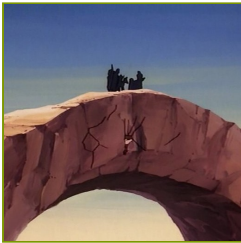
## SAMPLE SETTINGS



Difficulty <b>1/3</b>	
Active positions 	Duration 90s
Time between objects 2s	Time to react 2s



Difficulty <b>1/3</b>	
Active positions 	Duration 90s
Range 	Time between objects 2s
	Time to react 2s

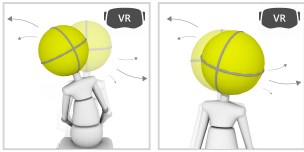


# FUNCTIONAL MOVEMENTS

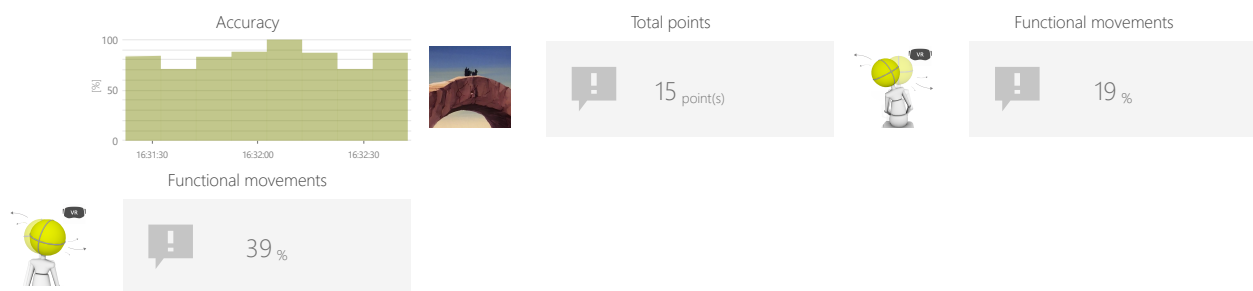
## CANYON

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



## ADJUSTMENTS

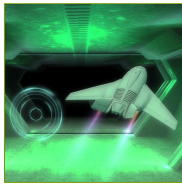
- Task duration
- Object size width

## OBJECTIVES

### INSTRUCTION FOR PATIENT

Collect as many flowers as you can. Look straight onto it to collect one



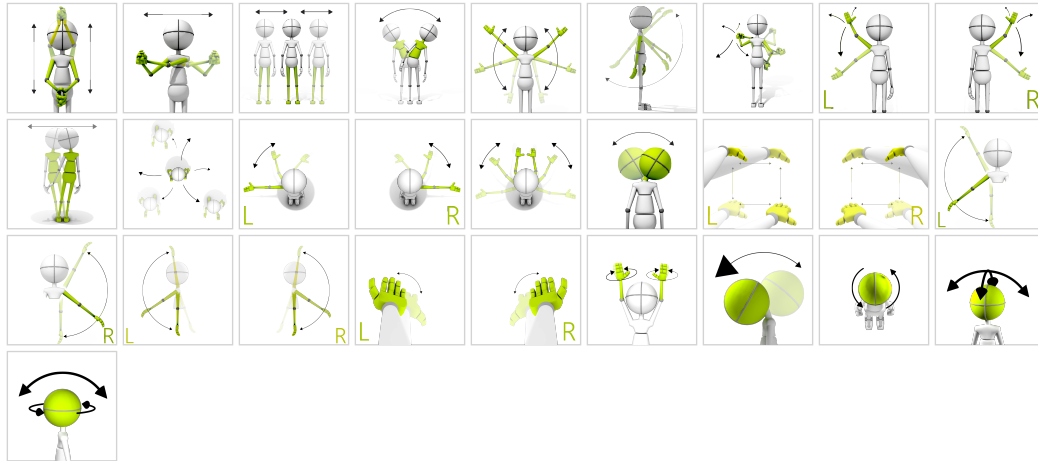


# FUNCTIONAL MOVEMENTS

## 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



### ADJUSTMENTS

- Task duration
- Range
- Player speed

### OBJECTIVES

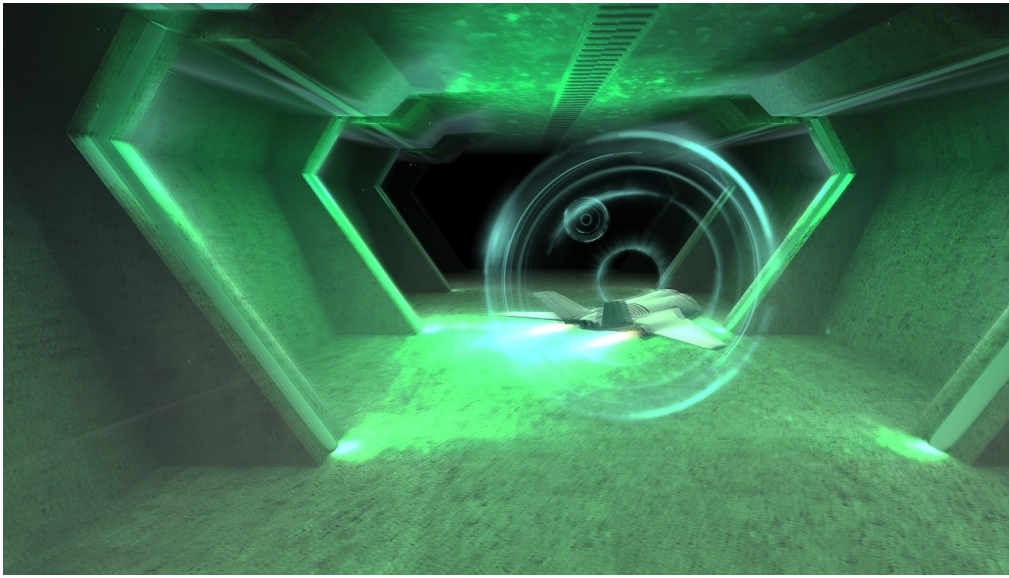
- Focusing
- Perceptivity
- Movement precision
- Predicting the trajectory of objects in 3D space
- Balance and equilibrium training

### INSTRUCTION FOR PATIENT

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

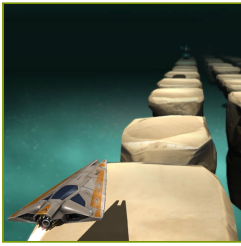


## SAMPLE SETTINGS



◀	Difficulty	▶
	<b>2/4</b>	
◀	Duration	>
	<b>90s</b>	
		<
		Range
		<
		20% ↔ 80%
	Player speed	>
	<b>100%</b>	



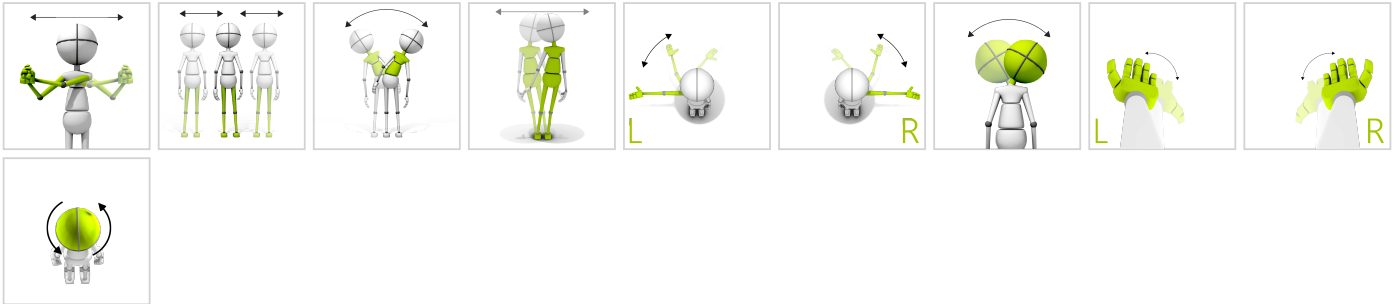


# FUNCTIONAL MOVEMENTS

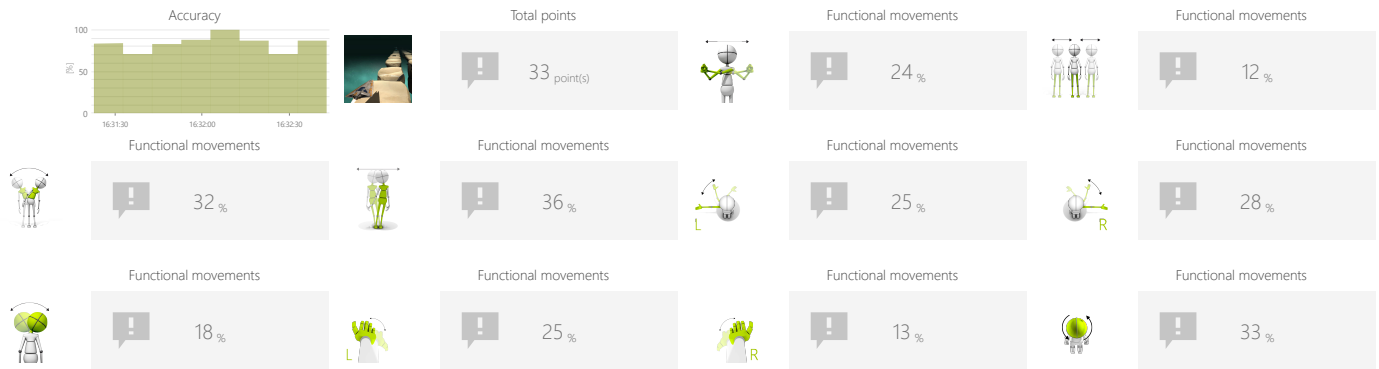
## STONES

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



## ADJUSTMENTS

- Task duration
- Range
- Player speed

## OBJECTIVES

- Perceptivity
- Dynamics of planned movements
- Reaction to the positive visual stimuli
- Response to negative visual stimuli

## INSTRUCTION FOR PATIENT

Make the the spaceship collect the colorful creatures and avoid the rocks



## SAMPLE SETTINGS



Difficulty	1/3
Duration	90s
Range	20% ↔ 80%
Player speed	100%

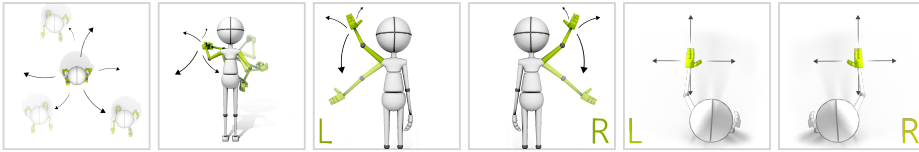


# FUNCTIONAL MOVEMENTS

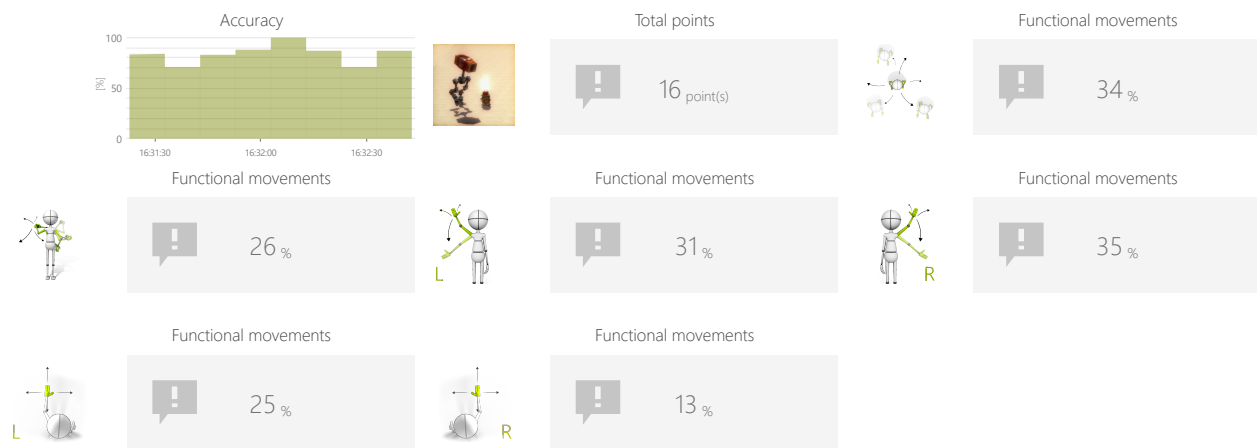
## HAMMER

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



## ADJUSTMENTS

- Positions to have targets on
- Task duration
- Range
- Time to react
- Reticle size

## OBJECTIVES

- Planning and Strategy
- Sideways walking
- Balance and equilibrium training
- Speed of decision making

## INSTRUCTION FOR PATIENT

Hit the burning barrels as quickly as you can. Then return to the center



## SAMPLE SETTINGS



◀	Difficulty <b>1/3</b>	▶
Active positions 		Duration < 90s >
Range 30% ↔ 70%		Time to react < 10s >
		Reticle size < 125% >

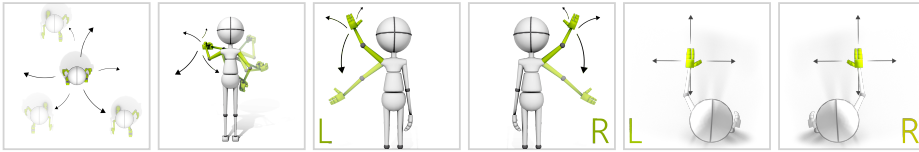


# FUNCTIONAL MOVEMENTS

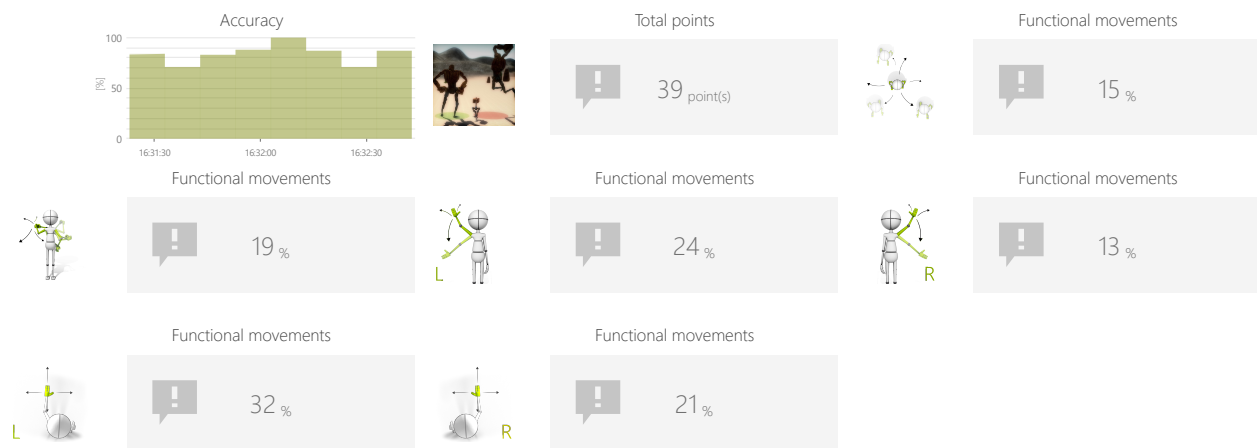
## RUNAWAY

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



## ADJUSTMENTS

- Task duration
- Range
- Number of enemies
- Enemies speed

## OBJECTIVES

- Predicting the trajectory of objects in 3D space
- Response to negative visual stimuli
- Focusing
- Perceptivity
- Balance and equilibrium training

## INSTRUCTION FOR PATIENT

Keep away from the big robots



## SAMPLE SETTINGS



Difficulty	1/3
Duration	90s
Range	30% ↔ 70%
Number of enemies	2
Enemies speed	100%



Difficulty	Custom
Duration	90s
Range	30% ↔ 70%
Number of enemies	4
Enemies speed	100%



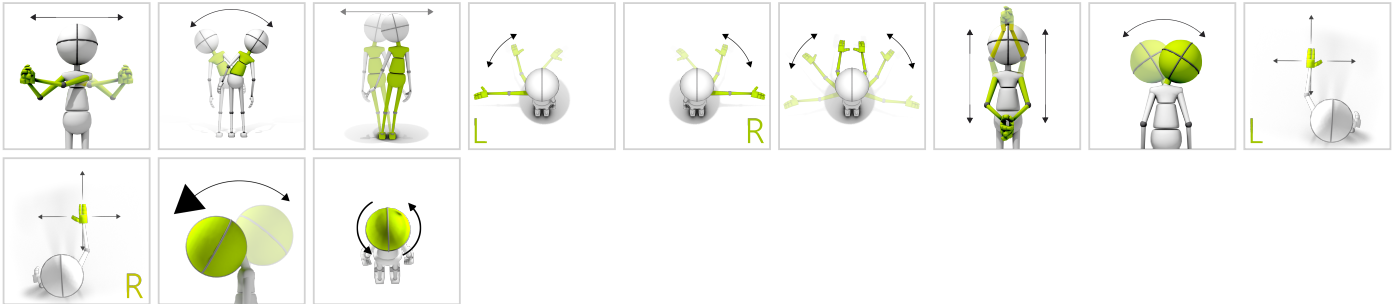


# FUNCTIONAL MOVEMENTS

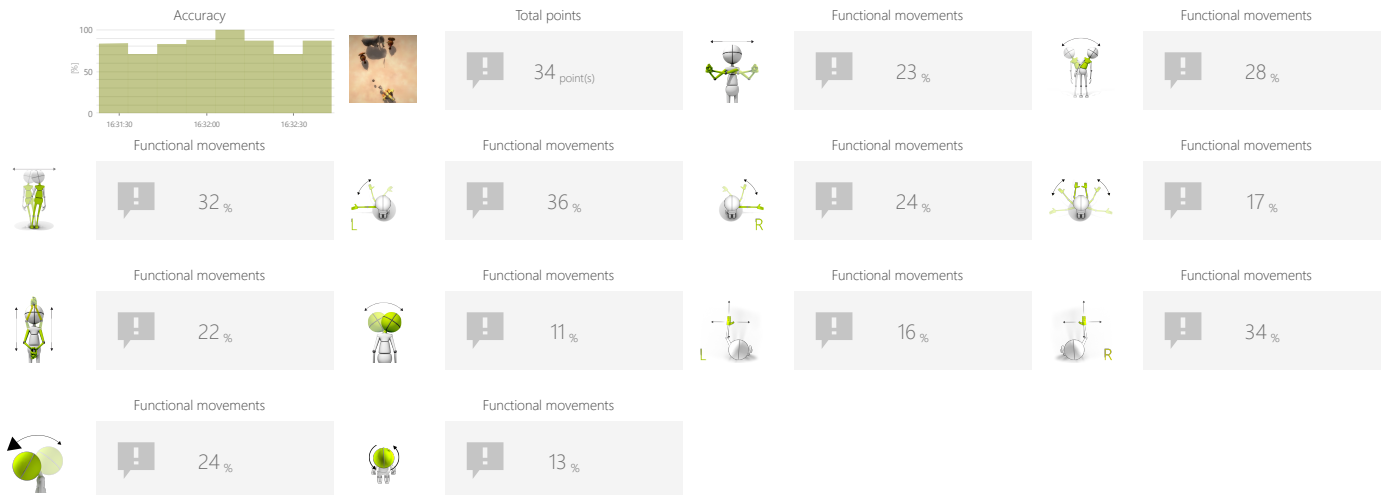
## AUTOMATIC CANNON

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



## ADJUSTMENTS

- Task duration
- Range
- Enable distractors
- Time between cannonballs
- Time between enemies
- Enemies speed

## OBJECTIVES

- Divided attention
- Spontaneous movements
- Arms swings
- Muscle strengthening

## INSTRUCTION FOR PATIENT

Control cannon(s) to destroy robots, but avoid hitting the elephant!



# FUNCTIONAL MOVEMENTS

## AUTOMATIC CANNON

### SAMPLE SETTINGS



Difficulty	1/3
Duration	90s
Range	20% ↔ 80%
Enable distractors	No
Time between cannonballs	1s
Time between enemies	3s
Enemies speed	50%



Difficulty	Custom
Duration	90s
Range	20% ↔ 80%
Enable distractors	No
Time between cannonballs	1s
Time between enemies	3s
Enemies speed	100%



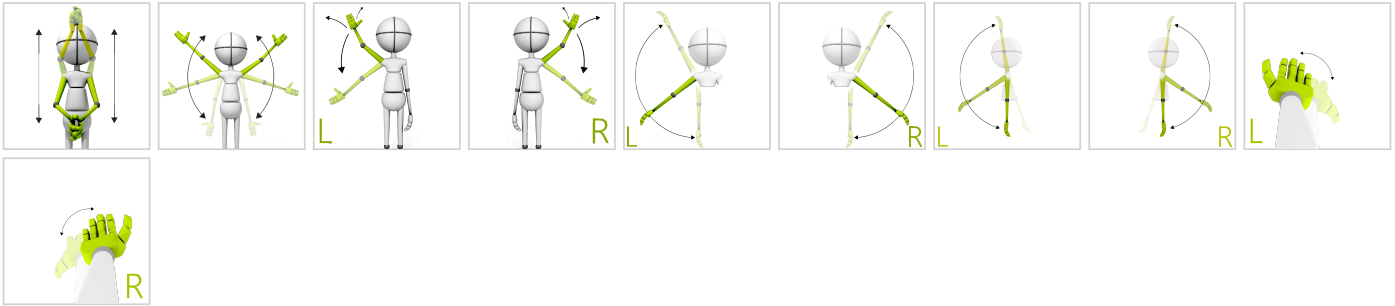


# FUNCTIONAL MOVEMENTS

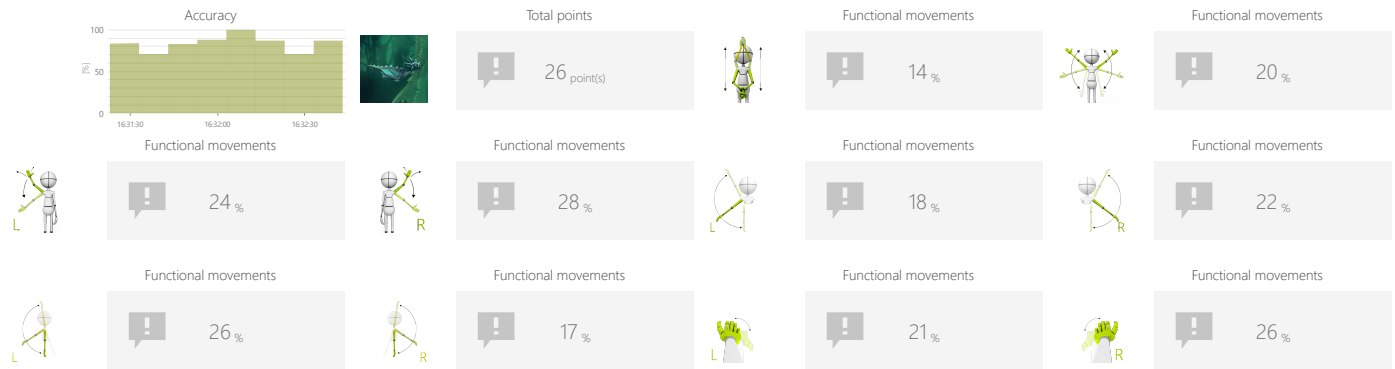
## DRAGON

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



### ADJUSTMENTS

- Task duration
- Range
- 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



# FUNCTIONAL MOVEMENTS

## DRAGON

### SAMPLE SETTINGS



Difficulty <b>Custom</b>	
Duration 90s	Range 20% 80%
Coins group size 3	Distance between coins 250%
Gravity force 100%	



Difficulty <b>1/3</b>	
Duration 90s	Range 20% 80%
Coins group size 5	Distance between coins 250%
Gravity force 100%	



# 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

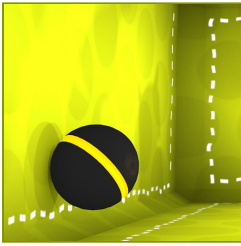


## OBJECTIVES

- Balance and equilibrium training
- 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

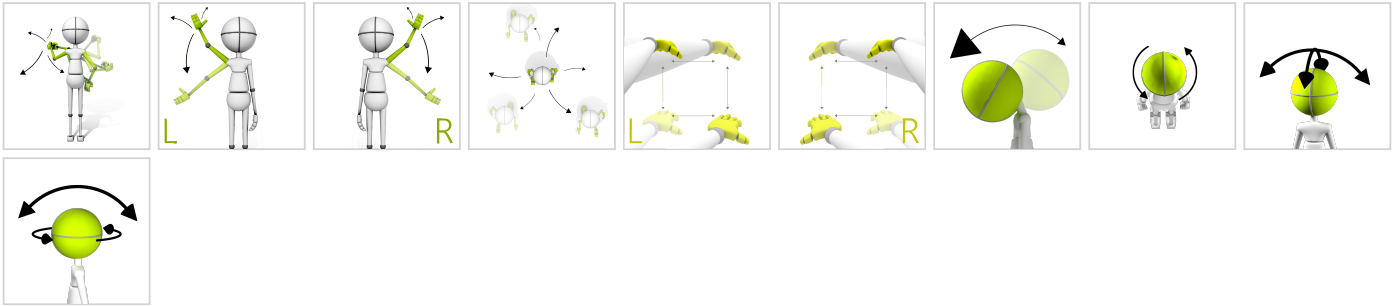


# FUNCTIONAL MOVEMENTS

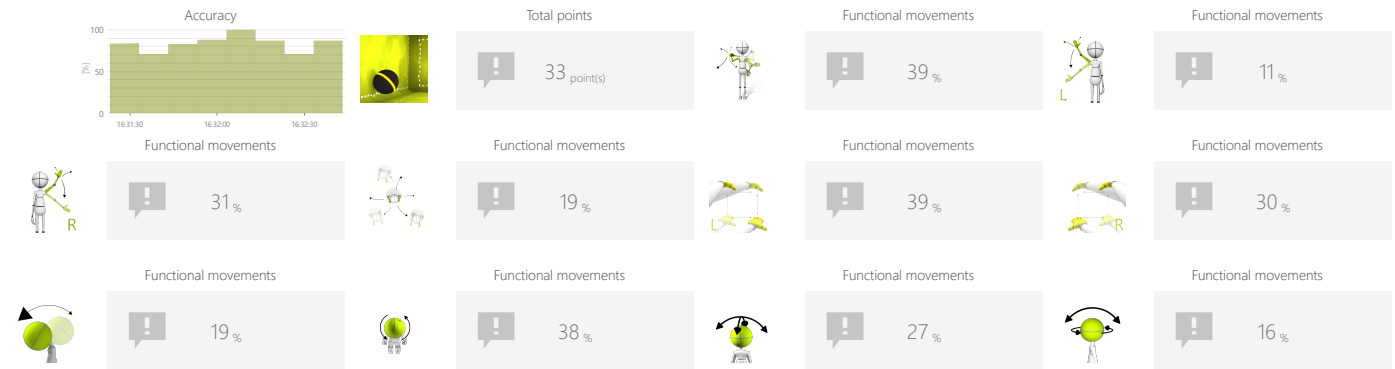
## ARCANOID

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



### ADJUSTMENTS

- Task duration
- Range
- Reticle size
- Speed of objects

### OBJECTIVES

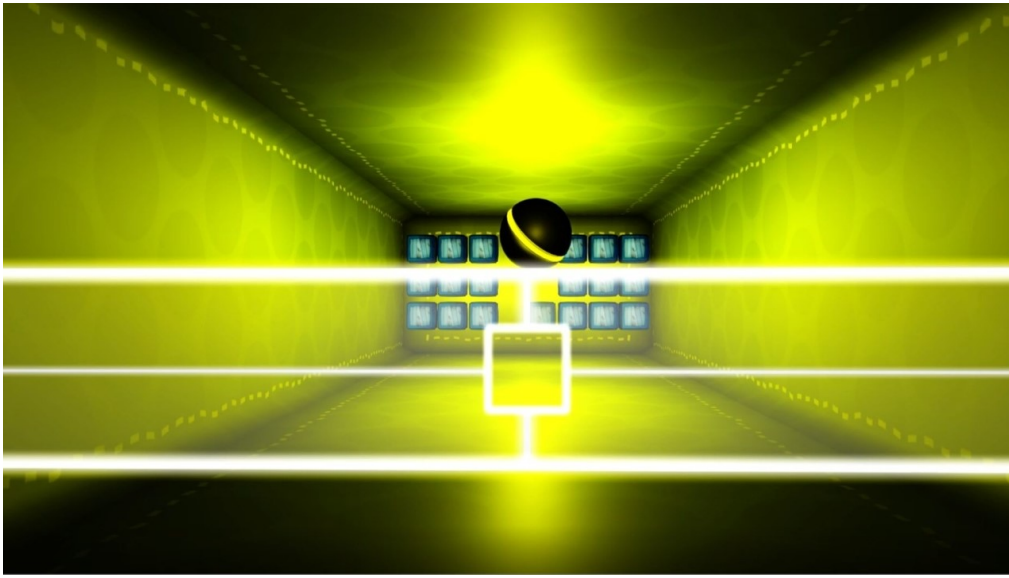
- Dynamics of planned movements
- Predicting the trajectory of objects in 3D space
- Visual motor coordination

### INSTRUCTION FOR PATIENT

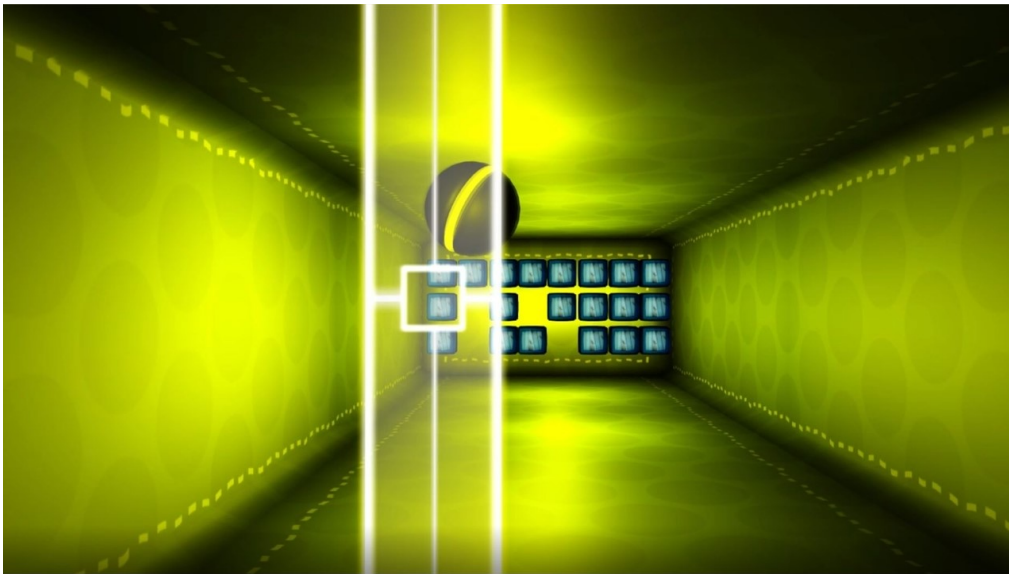
Destroy as many boxes as you can



## SAMPLE SETTINGS

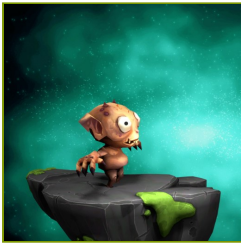


Difficulty <b>Custom</b>	
Duration 90s	Range 20% ↑ 80%
Reticle size 100%	Speed of objects 70%



Difficulty <b>Custom</b>	
Duration 90s	Range 20% ↔ 80%
Reticle size 75%	Speed of objects 70%



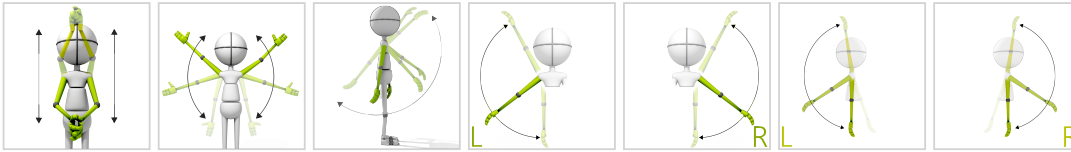


# FUNCTIONAL MOVEMENTS

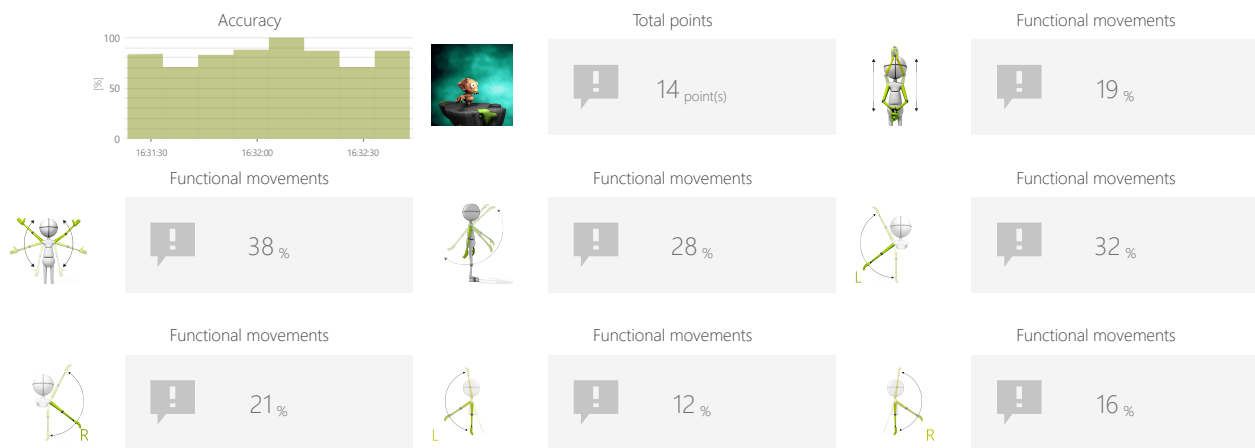
## ROCKET JUMPING

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



### ADJUSTMENTS

- Task duration
- Range
- Time between objects
- Bomb format
- Speed of objects

### OBJECTIVES

- Spontaneous movements
- Dynamic responses to emerging moving targets
- Predicting the trajectory of objects

### INSTRUCTION FOR PATIENT

Help the creature jump over incoming rockets and avoid being hit.



# FUNCTIONAL MOVEMENTS

## ROCKET JUMPING

### SAMPLE SETTINGS



Difficulty <b>1/3</b>	
Duration <b>90s</b>	Range <b>80%</b>
Time between objects <b>5s</b>	Bomb format <b>1</b>
Speed of objects <b>100%</b>	



Difficulty <b>Custom</b>	
Duration <b>90s</b>	Range <b>80%</b>
Time between objects <b>5s</b>	Bomb format <b>2</b>
Speed of objects <b>100%</b>	

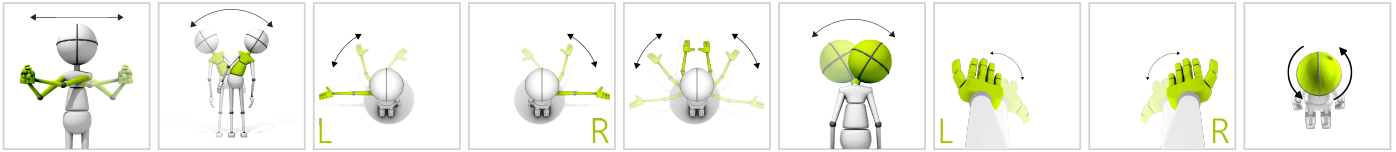


# FUNCTIONAL MOVEMENTS

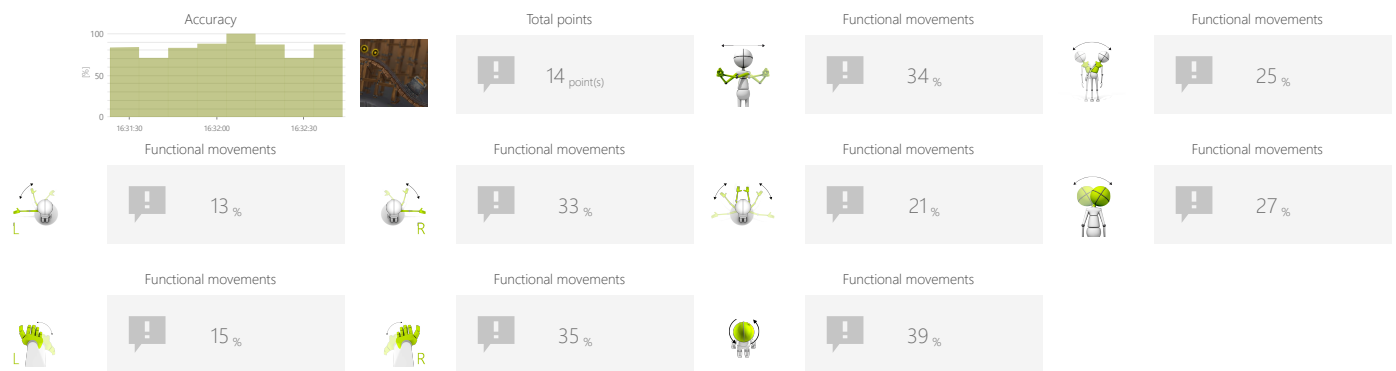
## RAILS

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



## ADJUSTMENTS

- Task duration
- Range
- Route shape
- Enable derailing
- Enable obstacles
- Time between objects
- Player speed

## OBJECTIVES

- Dynamic responses to emerging moving targets
- Predicting the trajectory of objects
- Visual motor coordination

## INSTRUCTION FOR PATIENT

Tilt the world to let the trolley collect the coins





# FUNCTIONAL MOVEMENTS

## RAILS

### SAMPLE SETTINGS



Difficulty	1/3
Duration	90s
Range	20% ↔ 80%
Route shape	_____
Enable derailling	No
Enable obstacles	No
Time between objects	5s
Player speed	100%



Difficulty	3/3
Duration	90s
Range	20% ↔ 80%
Route shape	~~~~~
Enable derailling	Yes
Enable obstacles	No
Time between objects	5s
Player speed	200%

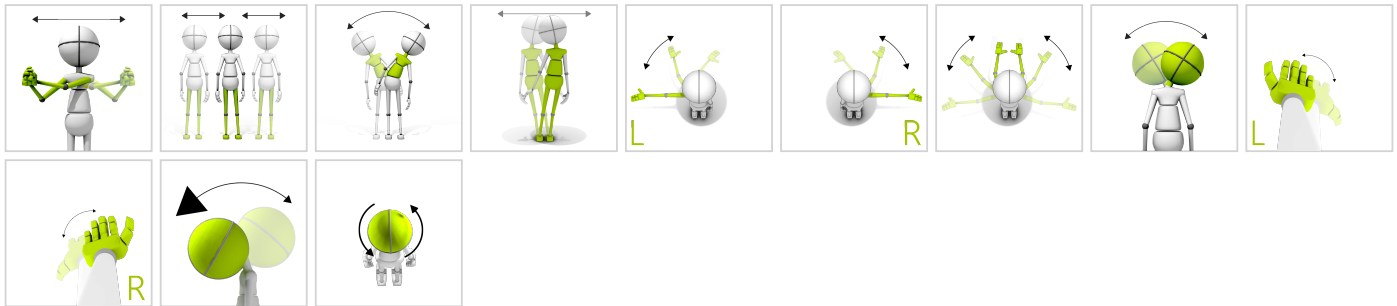


# FUNCTIONAL MOVEMENTS

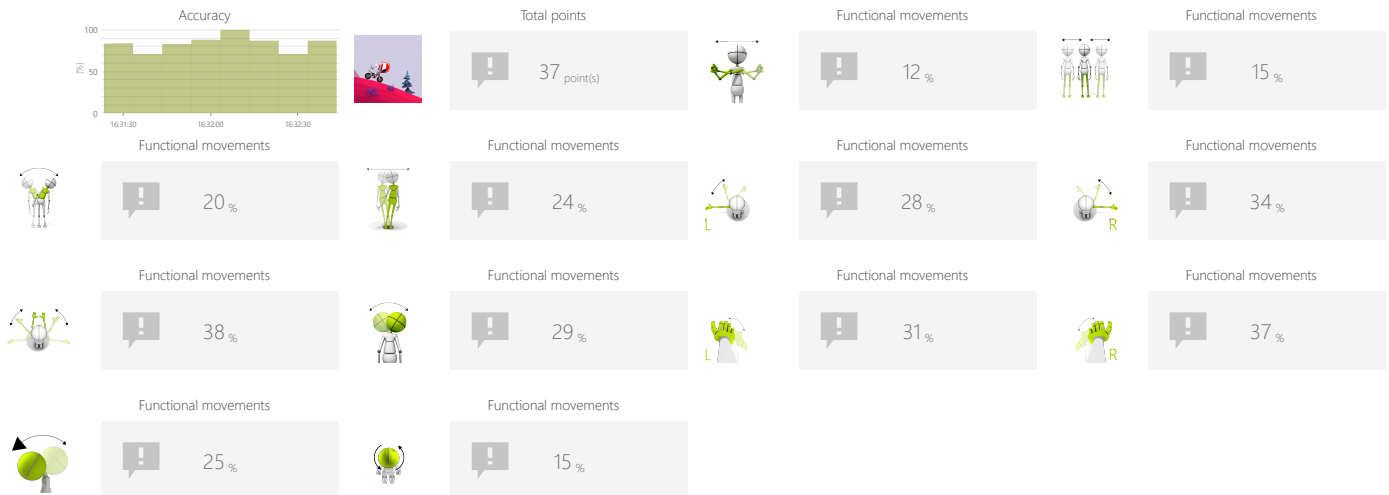
## MOTOCROSS

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



### ADJUSTMENTS

- Task duration
- Range
- Route shape

### OBJECTIVES

- Dynamics of planned movements
- Planning and Strategy

### INSTRUCTION FOR PATIENT

accelerate and brake to cover the entire route as quickly as possible without tipping.



## SAMPLE SETTINGS



◀	Difficulty <b>2/3</b>	▶
<	Duration <b>90s</b>	>
	Range 20% ↔ 80%	
	Route shape <b>Medium</b>	>



# FUNCTIONAL MOVEMENTS

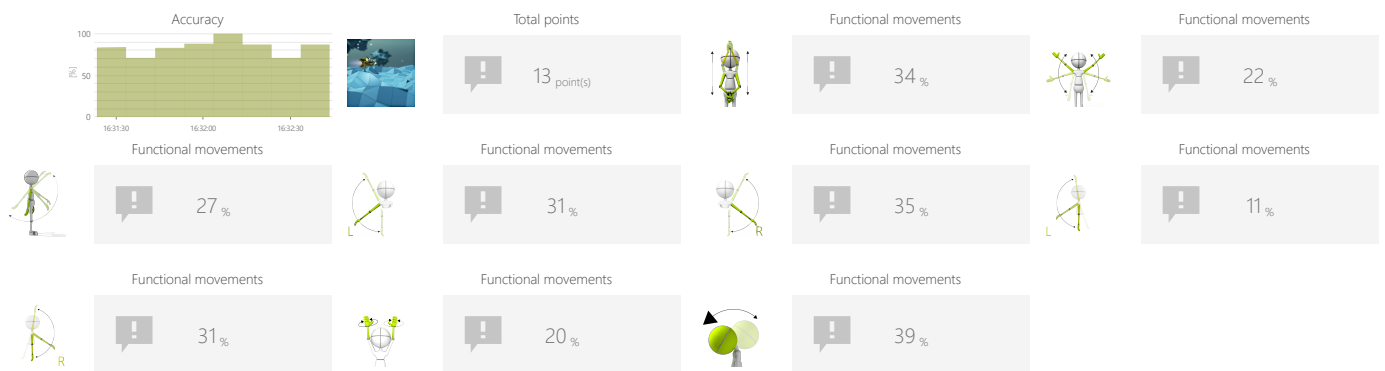
## GEOMETRY FLIER

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



### ADJUSTMENTS

- Task duration
- Range
- Player speed

### OBJECTIVES

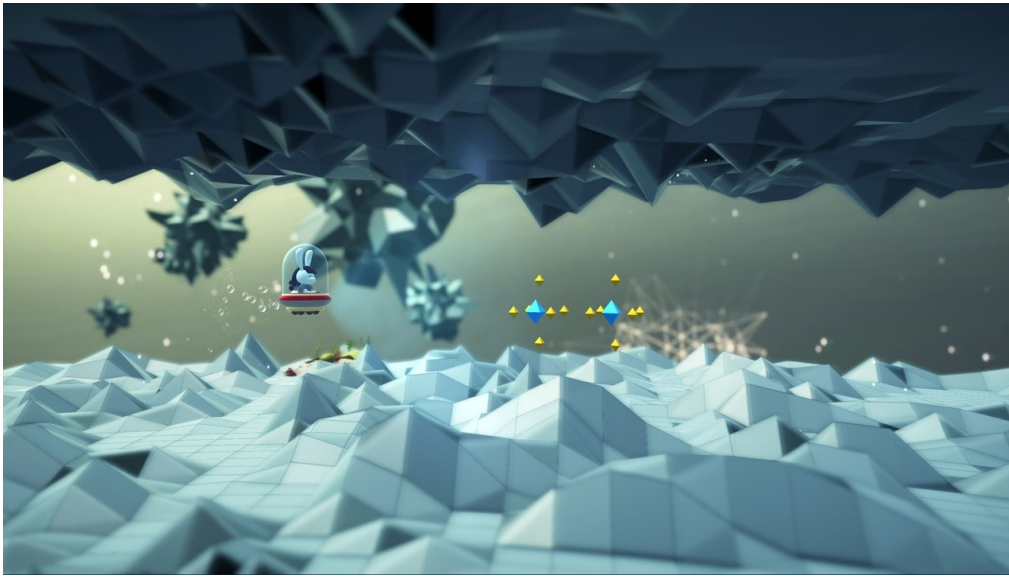
- Dynamics of planned movements
- Activity in a given rhythm
- Visual motor coordination

### INSTRUCTION FOR PATIENT

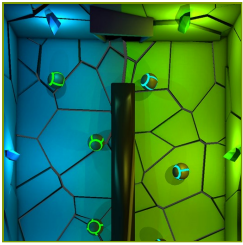
Control the vehicle to avoid the obstacles



## SAMPLE SETTINGS



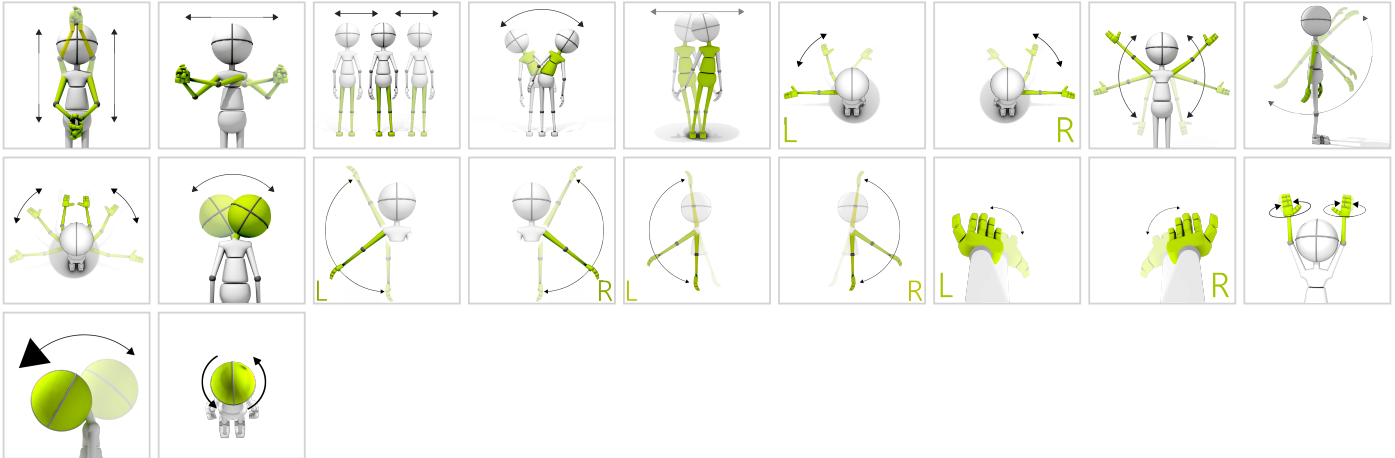
◀	Difficulty <b>1/3</b>	▶
<	Duration <b>30s</b>	>
	Range 20% 80%	
<	Player speed <b>100%</b>	>



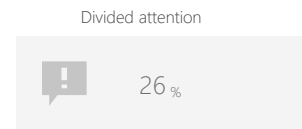
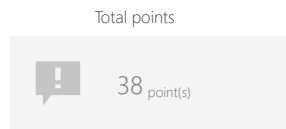
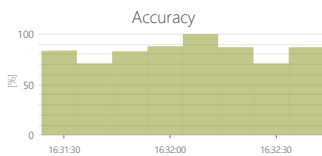
# DIVIDED ATTENTION SORTER

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



## ADJUSTMENTS

- Task duration
- Range
- 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

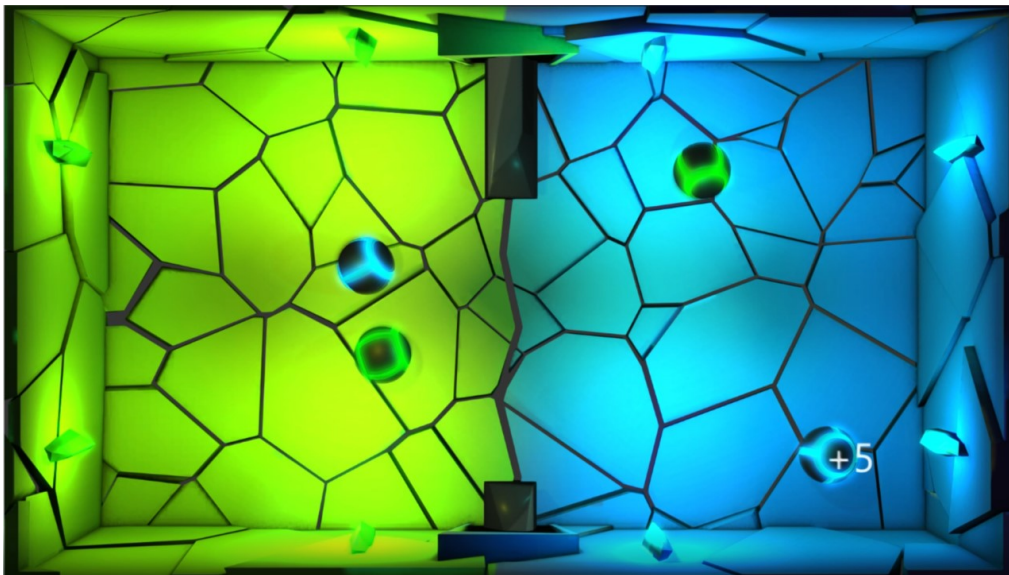
Pass or block the balls so that the blue balls are on the blue side and the green balls are on the green side of the screen.



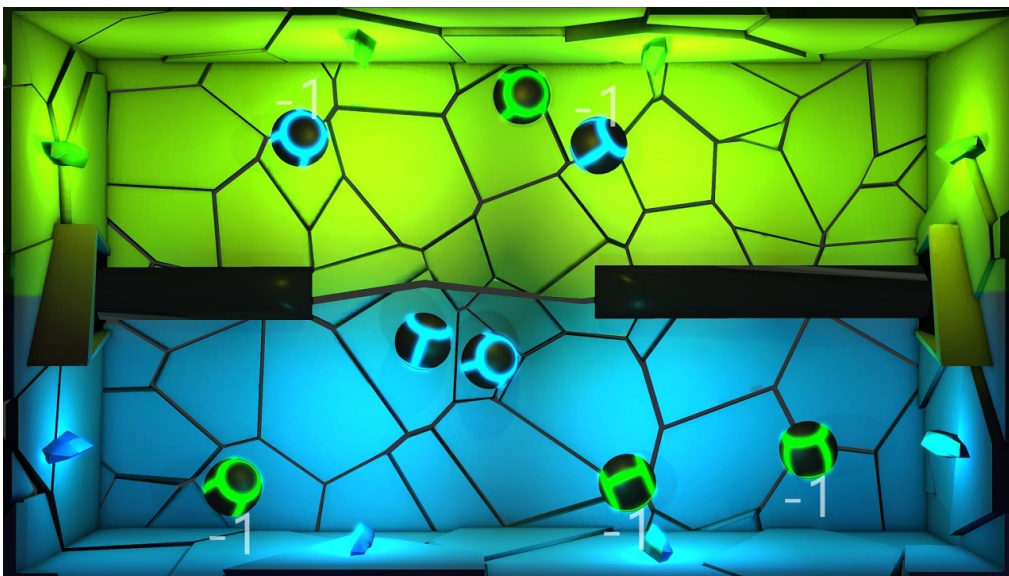


# DIVIDED ATTENTION SORTER

## SAMPLE SETTINGS

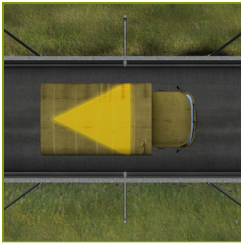


Difficulty <b>1/3</b>	
Duration <b>30s</b>	Range <b>20% - 80%</b>
Number of objects <b>4</b>	Gap size <b>150%</b>
Speed of objects <b>100%</b>	



Difficulty <b>1/3</b>	
Duration <b>30s</b>	Range <b>20% - 80%</b>
Number of objects <b>4</b>	Gap size <b>150%</b>
Speed of objects <b>100%</b>	

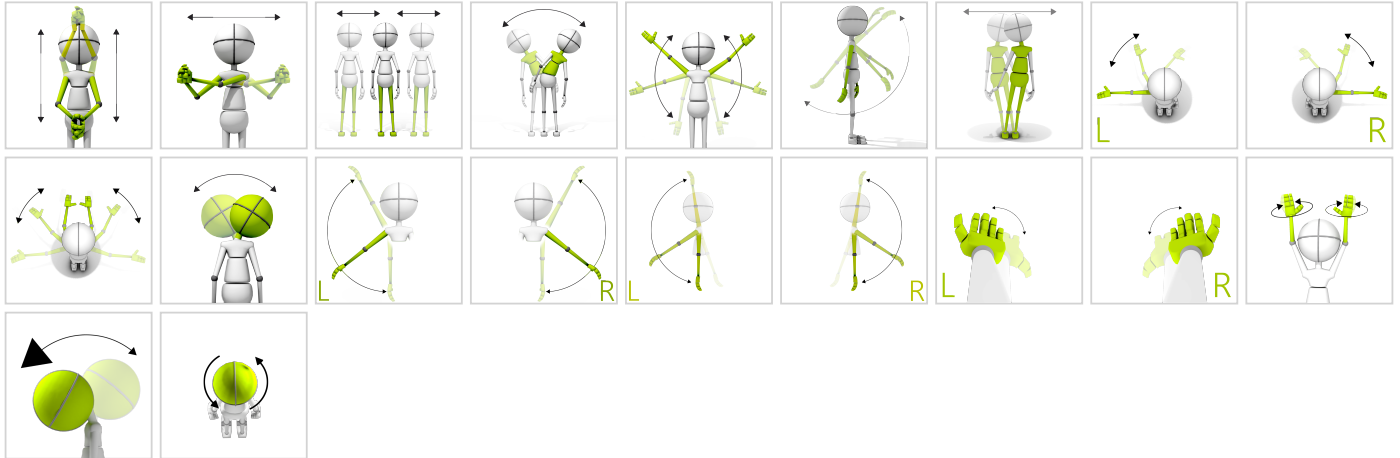




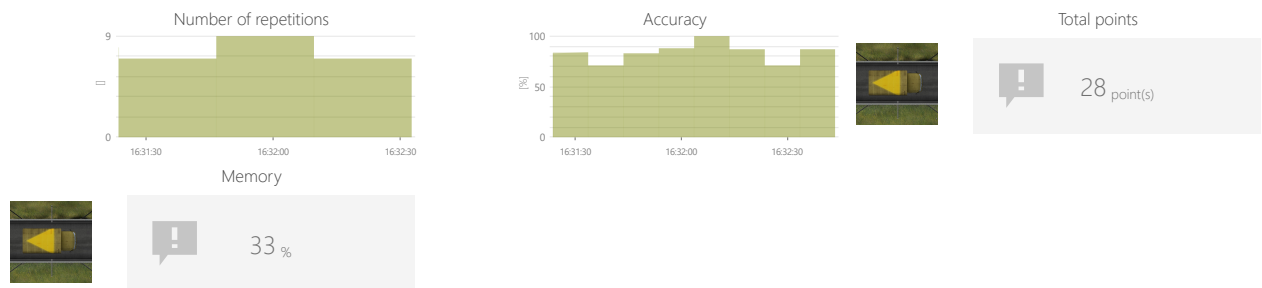
# MEMORY TRUCKS

Measure and train individual's skills to memorize information.

## CONTROL MODES



## RESULTS



## ADJUSTMENTS

- Task duration
- Range
- Variations

## OBJECTIVES

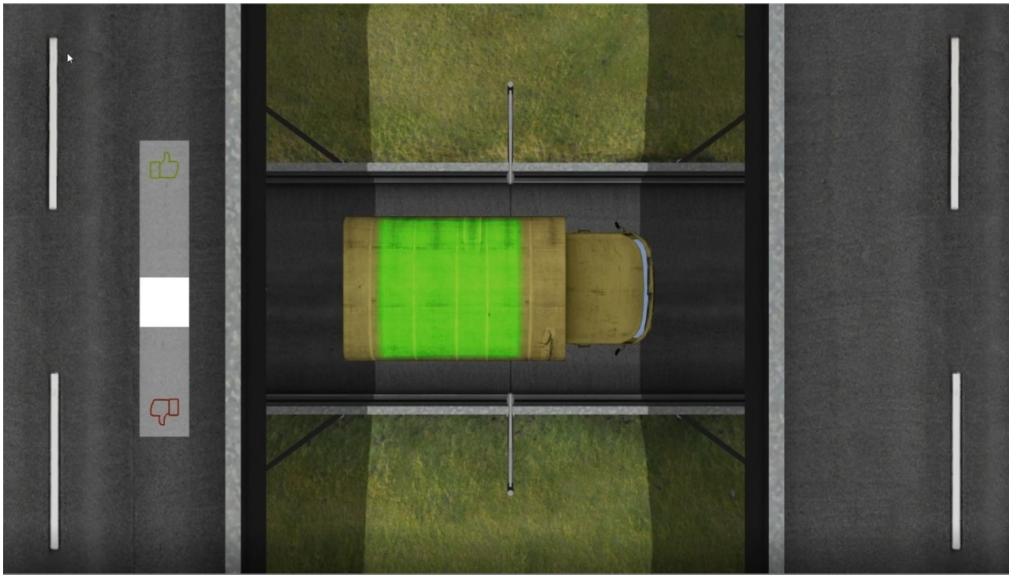
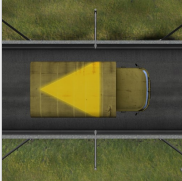
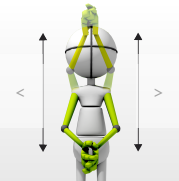
- Logical tasks
- Focusing
- Perceptivity

## 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.



SAMPLE SETTINGS

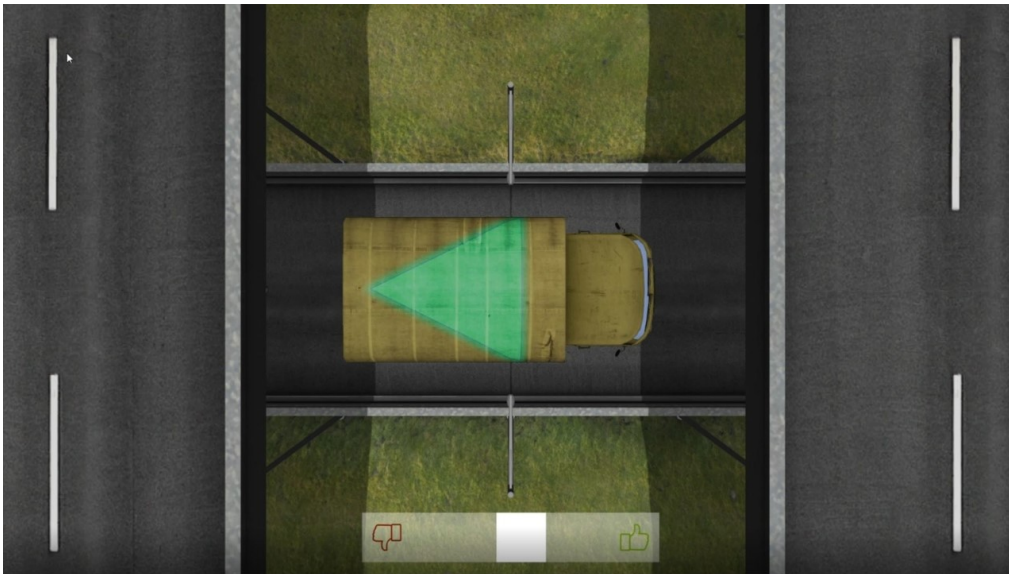
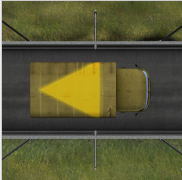





Difficulty **1/3**

Duration **30s**

Range **20% 80%**

Variations **colors**

Difficulty **2/3**

Duration **30s**

Range **20% 80%**

Variations **shapes**

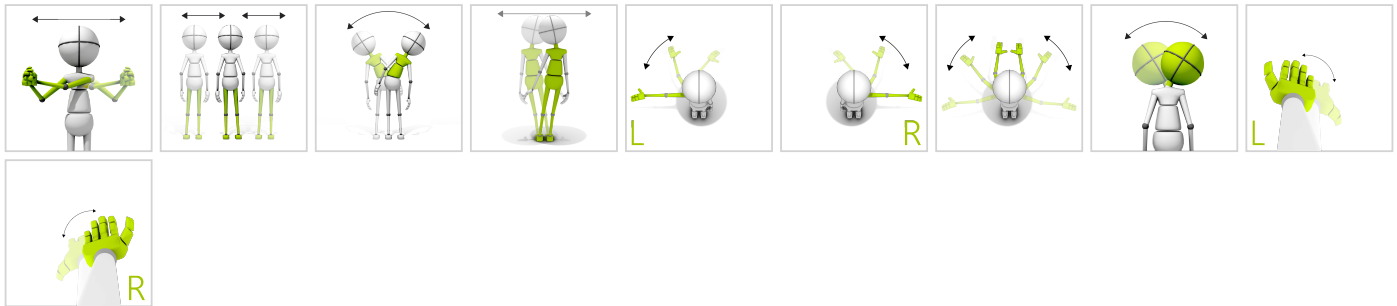


# PROBLEM SOLVING

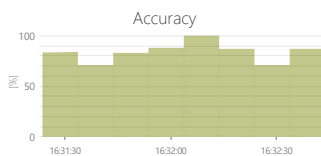
## CLONES

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.

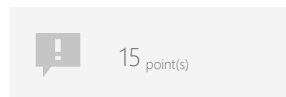
## CONTROL MODES



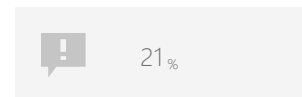
## RESULTS



Total points



Problem solving



## ADJUSTMENTS

- Task duration
- Time to complete action
- Range
- Number of pairs

## OBJECTIVES

- Perceptivity
- Visual motor coordination
- Logical tasks

## INSTRUCTION FOR PATIENT

Select the item which has a pair on the screen



## SAMPLE SETTINGS



◀	Difficulty <b>1/3</b>	▶
<	Duration <b>90s</b>	>
<	Minitask duration <b>30s</b>	>
<	Range <b>20% ↔ 80%</b>	>
	Number of pairs <b>4</b>	

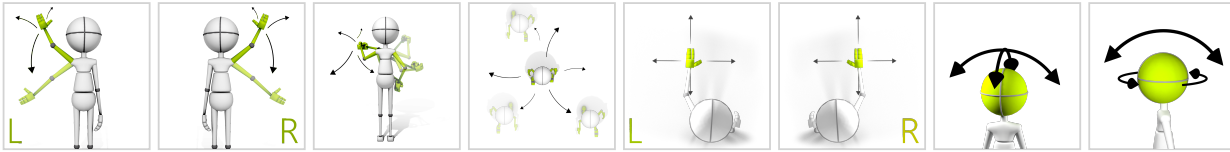


# PROBLEM SOLVING

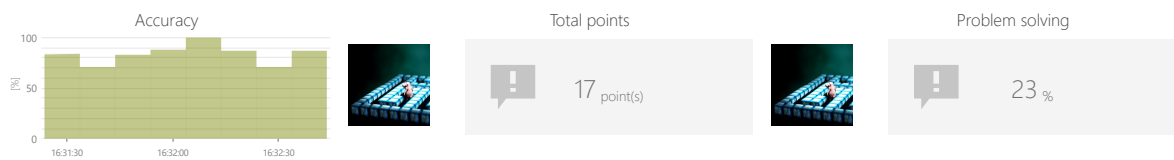
## MAZE

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



## ADJUSTMENTS

- Task duration
- Range
- Show path
- Maze size

## OBJECTIVES

- Logical tasks
- Planned movements
- Planning and Strategy

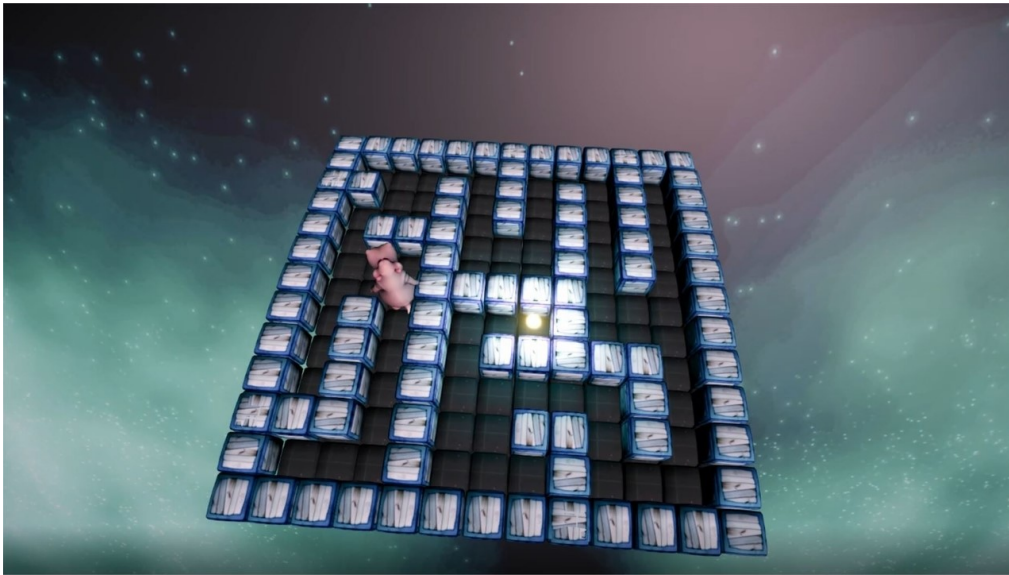
## INSTRUCTION FOR PATIENT

Lead the hippo through the maze to the glowing target.

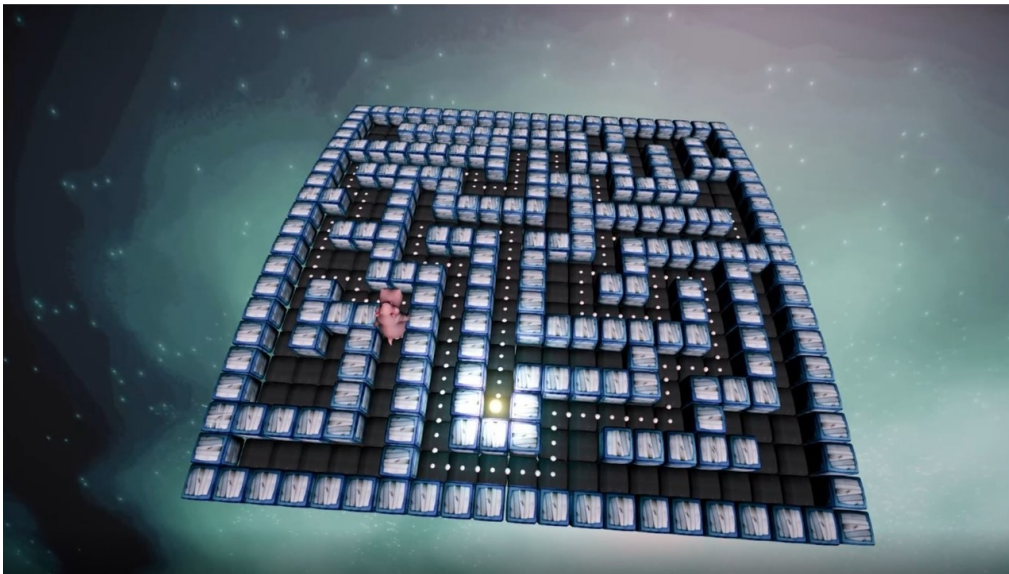




SAMPLE SETTINGS



Difficulty	2/4
Duration	90s
Range	80% (vertical), 80% (horizontal), 20% (diagonal)
Show path	No
Maze size	6



Difficulty	Custom
Duration	90s
Range	80% (vertical), 80% (horizontal), 20% (diagonal)
Show path	Yes
Maze size	10