

# RAPAEL

SMART PEGBOARD

*"It moves your hand"*



NEOFECT

# WHY RAPAE SMART PEGBOARD ?

RAPAE SMART PEGBOARD provides trainings through systematized games and result, differentiating it self from other rehab trainings that use analogue pegboard. This increases the patient’s motivation and creates an entertaining rehab experience for the patient.



## Neuro-Rehabilitation

- Repeated rehab training
- Hand mobility increase
- Sensorimotor training
- eye-hand coordination

## Digital Rehabilitation

- Gamification
- Visual, auditory feedback
- Display of training results
- Cognitive components



## RAPAE SMART PEGBOARD

*“It moves your hand”*

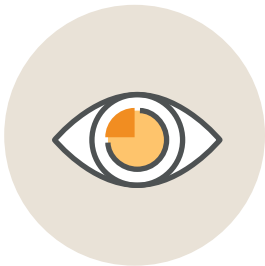
Restoration of hand mobility is very important for the self-reliance of patients with central nervous system disorders in their daily lives<sup>[1]</sup>. Functions of hands involve reach, grasp, grip, pinch, carry, release, in-hand manipulation and so on<sup>[2]</sup>. The pegboard is a great device for the trainings on these functions and enables sensorimotor training and eye-hand coordination training at the same time.

A repeated and regular training routine is necessary for rehabilitation to enhance and maintain brain plasticity<sup>[3]</sup>. RAPAE SMART PEGBOARD provides training routines composed of functional game factors<sup>[4]</sup>, visual feedback<sup>[5]</sup>, auditory feedback<sup>[6]</sup> and increases the patients’ motivation, encouraging them to keep up with the repeated routines with fun.

Cognitive factors that will improve the patient’s attention, memory, problem solving abilities are also applied to the training programs. This cognitive exercise therapy is based on the development process of cognition and creates positive effects for the restoration of hand functions<sup>[7]</sup>. While following the trainings featuring the cognitive factors, patients will not only be focused but also have a sense of accomplishment for finishing the task.



Digital Training Program



Visual Feedback



Auditory Feedback

Ref. [1] Hill JP(1986). Spinal cord injury. 1st ed

[2] Exner CE(1996). Development of hand skills. In j.C. Smith, A. S. Allen, & P. N. Pratt (Eds), Occupational therapy for children 3rd ed, 268-306

[3] Bayona NA, Bitensky J, Salter K, Teasell R. The role of task-specific training in rehabilitation therapies. Top Stroke Rehabil. 2005;12:58-65

[4] T. W. Malone and M. R. Lepper, “Making learning fun: A Taxonomy of Intrinsic Motivations for Learning”, in Aptitude, Learning and Instruction, vol.3, pp223-253, 1987.

[5] Quaney, B. M., He. J., Timberlake, G., Dodd, K., & Carr, C. (2010). Visuomotor training improves stroke-related ipsilesional upper extremity impairments. Neurorehabilitation and neuralrepair , 24(1), 52-61

[6] Malcolm, M. P., Massie, C., & Thaut M. (2009). Rhythmic auditory-motor entrainment improves hemiparetic arm kinematics during reaching movements: a pilot study. Topics in stroke rehabilitation , 1 6(1), 69-79

[7] Lee S, Bae S, Jeon D, et al. : The effects of cognitive exercise therapy on chronic stroke patients' upper limb functions, activities of daily living and quality of life. J Phys Ther Sci, 2015, 27: 2787–2791



# RAPAEL SMART PEGBOARD KEY FEATURES

## KEY FEATURES

### Visual Feedback

Equipped with high intensity LEDs. Provides visual cues for placement of pegs.

1

### Auditory Feedback

Provides a multi-sensory experience through voice and sound effects to prompt the patient through training.

2

### Various Peg Sets

By replacing pegboards with ease, one can receive various rehab trainings appropriate for their goals of training.

3

### Digital Training Program

Provides results oriented digital rehabilitation training for upper limb, visual/spatial and cognitive abilities.

4

### Training Result

Displays real-time test results on total time, the number of successful pegs, average peg movement time, and success rate, etc.

5

### Session Training

One can set his or her own training session with trainings he or she needs and follows the customized session.

6

### Wide Range of Difficulty Level

Games can be played with different difficulty levels and user can change the setting (time, speed, peg number, etc.).

7



# RAPAEL SMART PEGBOARD CONTENTS

There are functional and cognitive training options. The result includes overall time, the number of pegs placed in the right place, success rate, and reaction time.

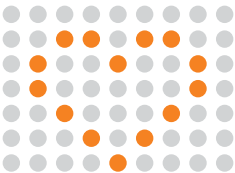
## Functional

Trainig type	Purpose of training
Freestyle	Free Exploration
Row Completion	Task Performance
Shape Completion	Task Performance
Blackout	Task Performance
Randomizer	Task Performance
Smash a Mole	Reaction time
Snake Trap	Reaction time

Example

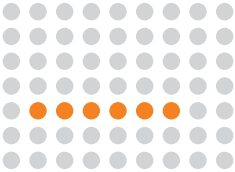
Shape Completion

Place the pegs to complete the shapes.



Snake Trap

Trap the snake's body with a peg while it moves.



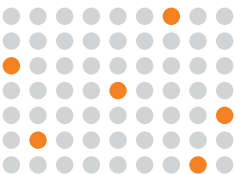
## Cognitive

Training type	Purpose of training
Visual Training 1	Visual tracking
Visual Training 2	Visual field
Shape Recognition	Shape sense
Memory Placement	Memory
Simon Says 1	Memory
Simon Says 2	Memory
Pathfinder	Problem solving ability
Find Home	Problem solving ability

Example

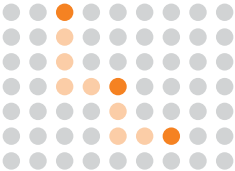
Memory Placement

Memorize the locations and place the pegs in the correct holes.



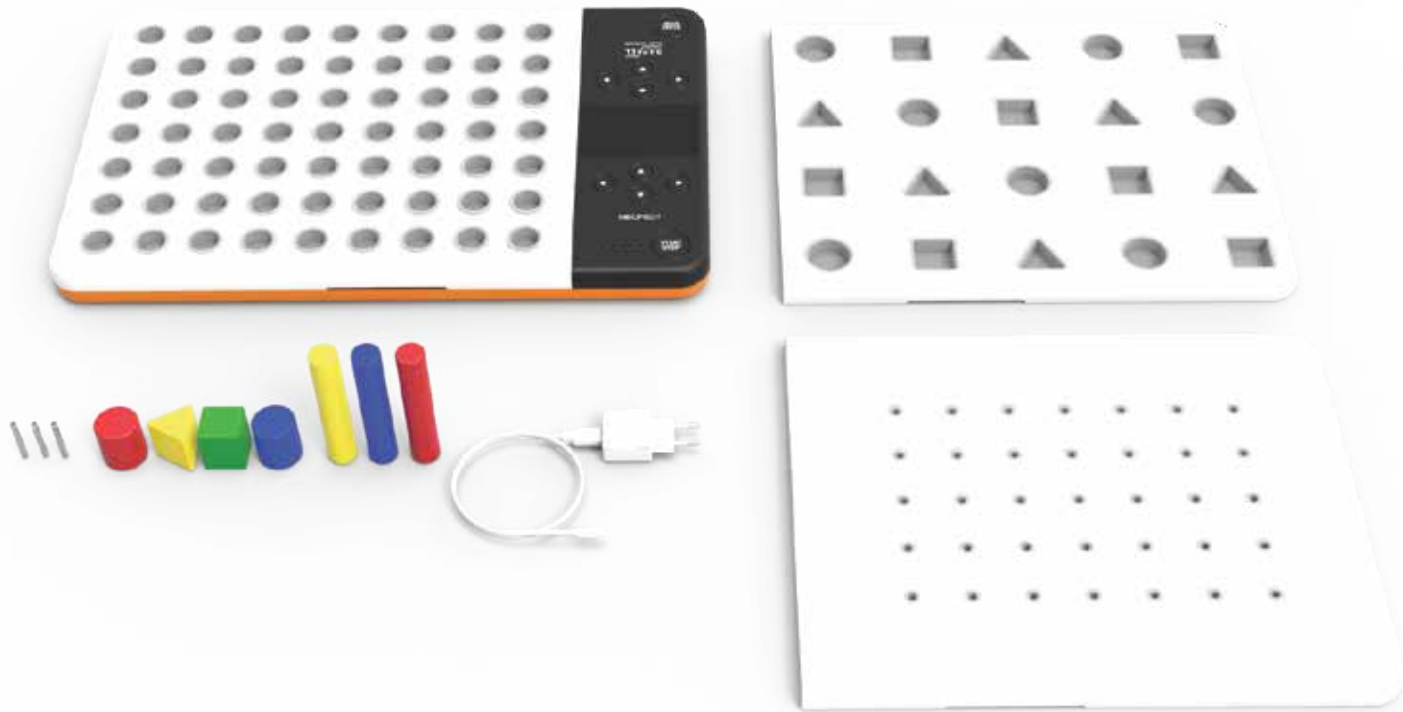
Pathfinder

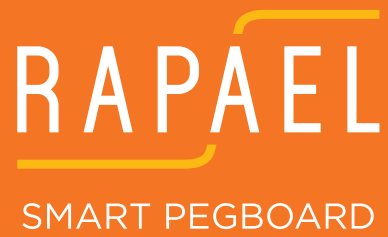
Connect all three lights to make a path.



# COMPONENTS

- Base Unit (x1)
- Standard Board (x1)
- Standard Pegs (x63)
- Mixed Shape Board (x1)
- Mixed Shape Pegs (x20)
- Pinch Board (x1)
- Pinch Pegs (x35)
- Charger (x1)
- Quick Guide (x1)





*We inspire hope*

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