RAPAEL
ComCog
BASIC APPROACH TO COGNITIVE REHAB

RPAEL ComCog approaches cognitive rehabilitation with spiral structure, so as to promotes relearning and retraining of damaged cognitive functions.

Importance of Cognitive Rehabilitation

Cognitive function refers to a capability to adapt to an environment by comprehending, judging, and making a decision in everyday life. Damages to the cognitive functions hinders rehabilitation, and promoting brain plasticity is the key element to the rehabilitation. Cognitive rehabilitation have its utmost interest on relearning and retraining.

DSM-5 defines cognitive function with 6 major domains; cognitive domain includes fundamental area of concentration and memory and higher area of planning, organization, problem solving, and abstraction. Integration of sense, language, and visual-perceptual abilities is the very base of the area.

The DSM-5 approach: Neurocognitive disorders

(1) Arousal / alerting
(2) Perception, selective attention
(3) Discrimination
(4) Organization
(5) Memory, recall
(6) High-level thought processing

Basic Approach to Cognitive Rehabilitation

In general cognitive training, it is efficient to progress from the bottom to the top, and from the simple and the complicated: the spiral structure. RPAEL ComCog designs its cognitive rehabilitation to be done with Hierarchical Approach, which deals with the coverage of attention, perception, discrimination, organization and memory.

Hierarchical Processing Model of Cognition

Why RAPAELE ComCog?

RPAEL ComCog innovated itself by combining the strengths of Computer-assisted program and RPAEL.

Strength of CACR

CACR program shows notable enhancement of brain damaged patients in memory, problem solving, attention training.

Coherent Repeated Learning

Standardized repeated learning adapted to all therapists and patients.

Stepwise Refinement of Difficulty Level

Provide automatically customized difficulty level to individual patients.

Instant Feedback

Provide immediate feedback on performance.

Cure Effect Quantification

Determine the effect by an accurate note and analysis on patients' performance.


Ref. [1] Computer-assisted Cognitive

NEW RAPAELE ComCog

RPAEL maximized the concentration of users with a new design and a way to touch the screen, collaboratively developed by the experts from different disciplines.

Collaborative Expert R&D

Developed by the experts from different disciplines: clinicians, therapists and engineers.

Training Design Reinforcement

Improve interest and concentration by changing contents and graphic in regard to the purpose.

Instinctive User Experience

UX reinforced for therapists and patients to have a good understanding of progresses and results of the training.

ALL Touch Screen

Touch screen adapted for the convenience sake of the patients' uses.
RAPAEL COMCOG PLATFORM & CONTENTS DESIGN

RAPAEL platform enables therapists of easy and systematic training, while patients are able to experience it with much interest and concentration.

**Rehab information Processing & Key Features**

<table>
<thead>
<tr>
<th>Instinctive Selection</th>
<th>Convenient Use</th>
<th>Training Immersion</th>
<th>Training Performance and Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training Selection per Specific Purposes</td>
<td>Touch Input</td>
<td>Reinforced Design Meeting the Purpose</td>
<td>Comprehensive Result per Training Purposes</td>
</tr>
<tr>
<td>Instinctive Images Screen</td>
<td>Training Managing Widget</td>
<td>Contents Difficulty Segmentation</td>
<td>Core Result per Each Training</td>
</tr>
</tbody>
</table>
Attention Training

- Collecting Balls
  Basic Visual Perception
  Visual attention strategy training
- Hearing Sounds
  Basic Auditory Perception
  Attention discrimination training on auditory directions
- Holding Balls
  Maintaining Attention
  Attention / Distance perception training
- Catching Sounds
  Maintaining Attention
  Attention discrimination training on auditory directions
- Determining a Different Rabbit
  Attention Discrimination
  Visual attention discrimination training

- Catching Chameleons
  Complex Attention Discrimination
  Reaction training to complex visual stimuli
- Grabbing Hands of Clock
  Complex Attention Discrimination
  Visual / Auditory complex attention training
- Matching Cards
  Complex Attention Discrimination
  Visual / Auditory complex attention training
- Playing Darts
  Complex Attention Discrimination
  Visual / Auditory complex attention training
- Finding a Face
  Emotional Attention
  Sympathy training

Memory Training

- Pasting Cards
  Recognition Memory
  Space memory ability training
- Linking Names
  Recognition Memory
  Attention holding ability training
- Collecting Stuffs
  Space Memory
  Remembering features / Location of visual stimuli
- Selecting Tiles
  Space Memory
  Remembering features / Location of visual stimuli
- Making a Call
  Sequential Recalling
  Establishing memory strategy by sequential memorizing
- Playing a Musical Instrument
  Sequential Recalling
  Training by auditory stimuli
- Connecting Sounds
  Sequential Recalling
  Establishing memory strategy by auditory stimuli
- Connecting Numbers
  Associate Memory
  Verbal-Non verbal complex memory training
- Group Memory
  Verbal Categorizing Memory
  Memory training by categorization
- Story Memory
  Language Integration
  Memory improvement by video training
RAPAEL COMCOG EVOLUTION PLAN

Training Program Development By Additional Cognitive Purpose
Maximize the training effect by developing specified cognitive rehabilitation training per various reasons of brain function deterioration.

<table>
<thead>
<tr>
<th>Additional Training</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visuospatial Perception</td>
<td>Accurately perceives and represents an object, and transforms spatial information.</td>
</tr>
<tr>
<td>Execution Function</td>
<td>Obtains needed information and coordinates behaviors.</td>
</tr>
<tr>
<td>Emotion</td>
<td>Controls psychological physiological status related to various emotions, thoughts, and behaviors.</td>
</tr>
<tr>
<td>IADL</td>
<td>Requires more advanced problem solving ability than common factors does, which demands basic functions.</td>
</tr>
</tbody>
</table>

Initial Assessment System Development
Develops a customized algorithm for each patient and recommend a suitable through an optimized assessment process.

Training Program Development by Disease
A solution fit to each disease’s purpose approaches patients’ varied training, in order to ease the access from institutions and local communities.

NEOFECT EXPANSION OF LINE-UP

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shoulder / Elbow</td>
<td>Active</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hand</td>
<td>Active</td>
<td>Smart Glove</td>
<td>Smart Kids</td>
<td>Smart Pegboard</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assistive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NeoMano Glove</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Platform</th>
<th>RAPAE1.0</th>
<th>RAPAE1.2</th>
<th>RAPAE2.0 (+ Multi-Device)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Platform</td>
<td>Platform</td>
<td>Platform</td>
</tr>
</tbody>
</table>
NEOFECT was founded to create hope for better life and better world. NEOFECT believes that any patient is deserved to enjoy happy life with hope for full recovery. NEOFECT has vision to help more patients take advantage of advanced digital and robot technologies through developing and commercializing light, portable, and affordable rehabilitation solutions. Please look forward to more products to launch and join us in our journey to make meaningful impact through disruptive innovation for patient’s hope.

COMPONENT

- RAPAELE ComCoe Software
- Touch Screen Android Tablet PC (21“)
- Manual: 1ea

ABOUT NEOFECT

PRODUCT DEVELOPMENT & CLINICAL PARTNERS

- National Rehabilitation Center
- Seoul National University
- KAIST, Korea Advanced Institute of Science and Technology
- UNIST, Ulsan National Institute of Science and Technology
- Rehabilitation Institute of Chicago
- Samsung Medical Center
- Yonsei University Hospital
- Seoul National University Hospital
- Bundang Jeseang General Hospital
- Kunming Medical University
We inspire hope