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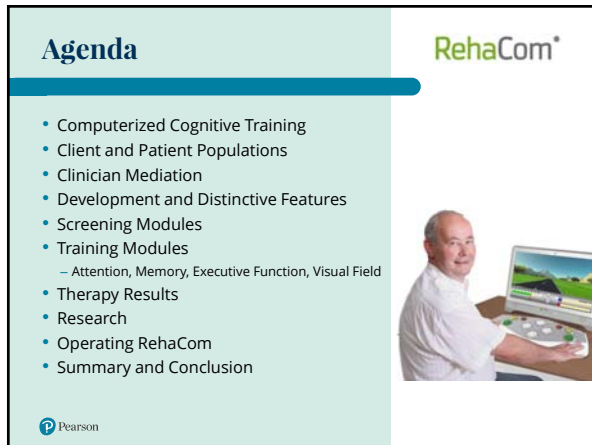
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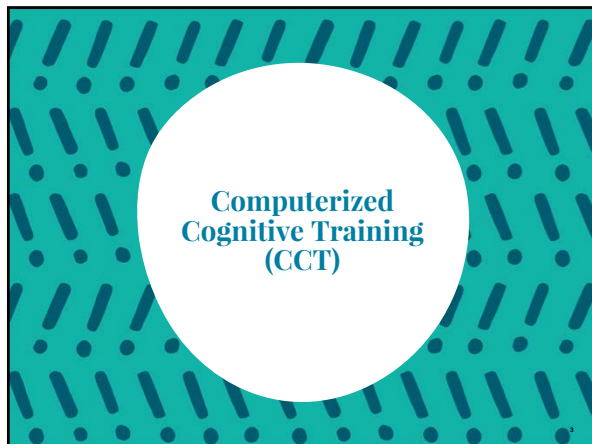
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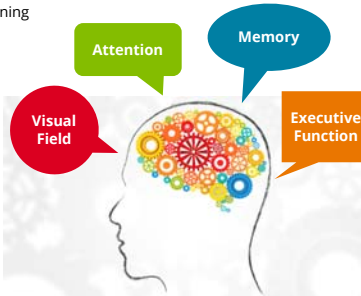
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### Computerized Cognitive Training (CCT) RehaCom®

- Four (4) key areas of training
  - ✓ Visual Field
  - ✓ Attention
  - ✓ Memory
  - ✓ Executive Function
- 20+ configurable training modules
- Continuously auto-adaptive to the training level of the patient
- Includes low training levels for those with severe cognitive deficits



Pearson 14

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## Client and Patient Populations



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### Client and Patient Populations RehaCom®

**Who is RehaCom used with?**

- **Patients with cognitive deficits resulting from:**
  - degenerative neurological disorders
  - TBI
  - stroke
  - other clinical conditions impacting cognitive functioning
- Deficits range from mild to severe
- Restorative or compensatory training
- Clients work in clinic/hospital setting often within a rehabilitation center

**Who delivers RehaCom?**

- **The program is clinician mediated**
  - It can only be accessed through engagement with a clinician

Pearson 14

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## Client and Patient Populations

RehaCom®

### Relevant Patient Populations

**What's your current process?**

How do you currently work with patients who have:

- deficits in attention, working memory, visual scanning, and/or
- difficulty with executive functions?

**What about current patients?**

Do you currently work with patients who have:

- degenerative disorders?
- TBI, stroke, etc.?
- ADHD?
- schizophrenia or other psychotic disorders?
- a combination of disorders?

- The disorders mentioned here generally include deficits in **attention** and **memory**.
- Some patients may also struggle with **visual field** and **executive functions**.
- RehaCom is also relevant for patients with **depression** and **anxiety**.

Pearson 17

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## Clinician Mediation

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## Clinician Mediation

RehaCom is clinician mediated.  
*Why does this matter?*

- Fidelity**
- Relationship**
- Integral**
- Efficiency**
- Accessibility**

Those with diagnosable disorders tend **not** to finish self-administered programs.

Pearson 19

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### Clinician Mediation

RehaCom is clinician mediated.  
*Why does this matter?*



**Fidelity**

**Relationship** The therapeutic alliance clinicians have with patients is very important to facilitate engagement with computerized cognitive training.

**Integral**

**Efficiency**

**Accessibility**

P Pearson 110

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### Clinician Mediation

RehaCom is clinician mediated.  
*Why does this matter?*



**Fidelity**

**Relationship**

**Integral** Computerized cognitive training in the context of more severe disorders is rarely seen as a stand alone treatment. Clinical expertise and oversight is needed to manage the process.

**Efficiency**

**Accessibility**

P Pearson 111

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### Clinician Mediation

RehaCom is clinician mediated.  
*Why does this matter?*



**Fidelity**

**Relationship** RehaCom extends the reach of clinicians by automating some elements of treatment and thereby creating greater efficiency and efficacy.

**Integral**

**Efficiency**

**Accessibility**

P Pearson 112

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### Clinician Mediation

**RehaCom is clinician mediated.**  
*Why does this matter?*



**Fidelity**  
**Relationship**  
**Integral**  
**Efficiency**  
**Accessibility**

More time and opportunity become available for the complicated and critical aspects of overall treatment management.

P Pearson 113

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### Clinician Mediation

**RehaCom is clinician mediated.**  
*Which clinicians mediate RehaCom?*



Disorders like TBI, stroke, ABI require a more comprehensive approach to treatment which often includes:

- Physical Therapy
- Occupational Therapy
- Psychiatric Treatment
- Speech Therapy

P Pearson 114

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### Clinician Mediation

**RehaCom is clinician mediated.**  
*Which clinicians mediate RehaCom?*



Treatment requires a comprehensive approach therefore, a variety of clinicians may be the mediator.

- Occupational Therapist
- Speech/Language Therapist
- Psychologist
- Neuro-psychologist
- Physiatrist
- Physical Therapist
- Physician
- Other clinical staff



P Pearson 115

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**Development and Distinctive Features**  
 RehaCom is clinician-developed.  
*Why does this matter?*



**Relevance** Updated and revised based upon clinical use and feedback which is reflected in a range of training areas, breadth of training, and its configurability.

**Training**

**Breadth**

**Configurability**

P Pearson 117

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**Development and Distinctive Features**  
 RehaCom is clinician-developed.  
*Why does this matter?*



**Relevance**

**Training** RehaCom offers a distinctively broad range of training areas including attention, memory, executive functioning, and visual scanning.

**Breadth**

**Configurability**

P Pearson 118

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### Development and Distinctive Features

RehaCom is clinician-developed.  
*Why does this matter?*




**Relevance** Levels vary from lower levels of challenge, for more severely impaired patients, to rather difficult levels for those with milder problems.

**Training**

**Breadth**

**Configurability**

 119

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### Development and Distinctive Features

RehaCom is clinician-developed.  
*Why does this matter?*




**Relevance**

**Training** While some sequences of training are typical, configurability offers clinicians an opportunity to refine their treatment through prioritizing areas of treatment and shifting levels of challenge.

**Breadth**

**Configurability**

 120

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### Development and Distinctive Features


Distinctive Features of RehaCom  
*Screening, Semi-Automation, and Reporting*



**Screening** RehaCom provides an initial baseline and reference points for training with nine screening modules or tests.

**Semi-Automation** The program adjusts according to an algorithm providing semi-autonomous training including live feedback. Training can be modulated by the clinician as well.

**Reporting** Performance report including graphs and numeric data can be generated. It can be exported, printed, and entered into the medical record.

 121

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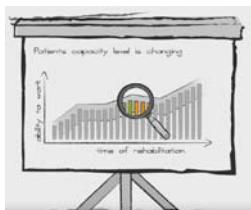
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## Development and Distinctive Features

### Distinctive Features of RehaCom *RehaCom is auto-adaptive.*

- RehaCom is individualized to the patient
- Auto-adaptation makes training more effective and easier to tolerate for the patient
- Clinician decides where to start training
- Flexible platform gives clinicians a range of options
- Helps clinicians do their jobs more effectively and efficiently



Pearson

122

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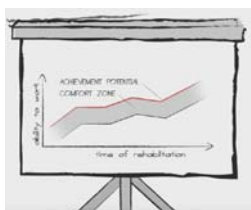
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## Development and Distinctive Features

### Distinctive Features of RehaCom *RehaCom meets the patient at their level.*

- Low levels of training allow those with severe deficits to train in a comfort zone
- The highest levels of training are very challenging
- This gives patients a broad range of rehabilitation
- Try the top levels yourself!



Pearson

123

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## Development and Distinctive Features

### Distinctive Features of RehaCom *RehaCom keyboard is uniquely designed.*

- This keyboard makes the program accessible for a broader range of patients
- The large buttons allow the patient to select or steer, and two large "OK" buttons are used to confirm the patient's decisions



Pearson

124

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## Development and Distinctive Features

### Distinctive Features of RehaCom *Screening and Training*

- Screening is a good place to start
  - Identify deficits
  - Guide treatment
- Training is flexible
  - Start with almost any module
  - Patients may need foundation training
  - Allows clinicians to approach training as they see fit



Pearson

125

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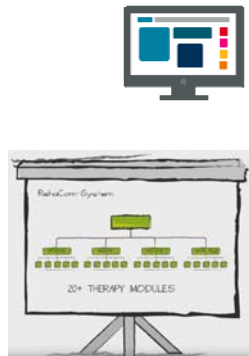
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## Development and Distinctive Features

### Distinctive Features of RehaCom *Screening and Training*

- 20+ Training Modules
  - Same principles and structure applied to all modules
  - Makes training faster and more intuitive



Pearson

126

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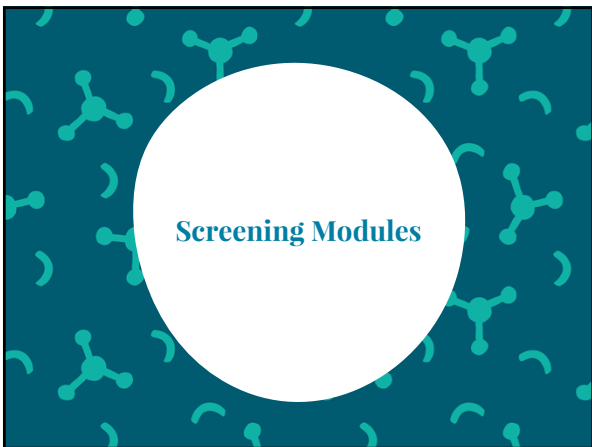
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## Screening Modules

RehaCom®

**9 Screening Modules**

- Screening modules identify deficits compared to age and gender based norms.
- Attention and Concentration** is often a good place to start due to the pervasiveness of attention deficits across disorders.

Area	Screening Module	Training Module
Attention	Alertness	Alertness, Reaction Behavior, Responsiveness
	Selective Attention	Attention and Concentration <span style="color: orange;">★</span>
	Divided Attention	Divided Attention
	Spatial Number Search	Visual Scanning, Selective Attention
Memory	Memory for Words	Memory for Words
	Working Memory	Working Memory
Executive Function	Logical Reasoning	Logical Reasoning
Visual Field	Visual Scanning	Saccadic Training
	Visual Field	Overview and Reading

Pearson 129

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## Screening Modules

RehaCom®

<b>Alertness</b>	Tonic and phasic alertness.
<b>Selective Attention</b>	Reacting appropriately under time pressure & simultaneously controlling impulsivity.
<b>Divided Attention</b>	Divided visual & auditory attention with simultaneously presented stimuli.
<b>Spatial Number Search</b>	Basal cognitive performance, selective attention & visual scanning. Can test visual neglect.
<b>Memory for Words</b>	Verbal learning ability according to the paradigm of the recurring figures. Read and store real words which are difficult to visualize.
<b>Working Memory</b>	Visual spatial memory span. Also tests implicit visual-memory learning and working memory.
<b>Logical Reasoning</b>	Ability to identify regularities, to continue a series, and draw logical conclusions (Examines the ability to complete logical sequences).
<b>Visual Field</b>	Measures visual field, fixation accuracy & sustained attention.
<b>Visual Scanning</b>	Measures performance in exploring visual field. Two parameters are measured: parallel search ('at a glance') and serial search ('in a structured way').

Pearson 129

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## Screening Modules

RehaCom®

### Screening Results

**Graphical Representation**  
Statistics T-scores norms, Z-scores norms, and percentile ranks are shown across the top.

	20	30	40	50	70
T Norms	-3	-2	-1	0	2
Z Norms	0.2	2.3	15.9	50	97.7

**Gray Bars**  
Patient's Results  
Longer bars denote larger deviations from norms.

**50/0/50**  
Average performance of a sample group of healthy people.

**Background Colors (Green, Yellow, Red)**  
Indicate extent of deficit.  
**Red** = more than 3 standard deviations below norm.

**Training Module Recommendation** is in quotes/bold.

**Discussion Section**  
Results summarized to the left of the graph.

Pearson 129

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**Training Modules**  
 Attention  
 Memory  
 Executive  
 Functions

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**Training Modules** RehaCom®

**Attention**

Attention

Ten (10) training modules are dedicated to **Attention**, a pervasive deficit in stroke, TBI, and other disorders.

Attention deficits after Stroke & TBI

80%

ATTENTION DEFICITS

Pearson 112

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**Training Modules** RehaCom®

**Ten (10) Attention and Concentration Modules**

Modules	Levels	
Alertness	Alertness	16
	Reaction Behavior	16
	Responsiveness	20
Vigilance	Vigilance	15
Selective Attention	Attention & Concentration	24
Visual Spatial Attention	2D Operations	24
	3D Operations	24
Visual-Spatial Attention (Spatial-Perceptive)	Spatial Operations	42
Divided Attention	Divided Attention	14
	Divided Attention 2	22

} Easier Modules (points to Alertness, Vigilance, Selective Attention, Visual Spatial Attention, Divided Attention)  
} Challenging Modules (points to Visual-Spatial Attention, Divided Attention 2)

★ Starting Point → Too hard? Too easy?

Attention and Concentration

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### Training Modules

Start with Attention and Concentration Training

RehaCom®

Start here

Level Indicator

Press ESC to change level of difficulty.

Tasks too hard? Go to Alertness Therapy

Tasks too easy? Go to Spatial Attention or Divided Attention

Pearson

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### Training Modules

Attention and Concentration Training

RehaCom®

Easy Hard Harder

Alertness Modules

Alertness Reaction Behaviour

Responsiveness Vigilance

Spatial Attention Modules

Spatial Operations

2D Operations

Spatial Operations 3D

Divided Attention Modules

Divided Attention

Divided Attention 2

Pearson

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### Training Modules

Memory

RehaCom®

Memory

The next most common deficit is **Memory**.

Memory deficits after Stroke & TBI

60%

MEMORY DEFICITS

Pearson

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## Training Modules

Six (6) Memory Modules

RehaCom®

Memory

Modules	Levels
Working Memory	70
Topological Memory	20
Physiognomic Memory	21
Memory for Words	30
Figural Memory	9
Verbal Memory	10

P Pearson 127

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## Training Modules

Memory Training


RehaCom®




**Working Memory**  
Short-term and selective memory, mental manipulation.




**Topological Memory**  
Picture cards are turned over, memorize positions and content.




**Physiognomic Memory**  
Memorize faces, names, occupations, and phone numbers. Can be personalized.



**Figural Memory**  
Figural content, picture-word association, captions, aphasia.



**Memory for Words**  
Memorize up to 10 words in 3 degrees of complexity.



**Verbal Memory**  
Short stories are presented, multiple choice questions.

P Pearson 128

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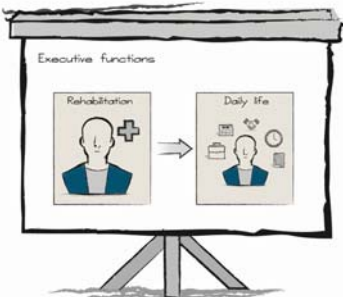
## Training Modules

Executive Functions

RehaCom®

Executive Functions

**Executive Functions**, such as planning and logical reasoning, are important for the patient's return to daily life.



The diagram shows a whiteboard titled 'Executive functions'. On the left, a box labeled 'Rehabilitation' contains a person icon with a plus sign. An arrow points to a box labeled 'Daily Life' which contains a person icon with a clock, a heart, and a document icon.

P Pearson 129

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**Training Modules** RehaCom®

**Three (3) Executive Functions Modules**

Executive Functions

Modules	Levels
Logical Reasoning	18
Plan a Vacation	55
Shopping	23

Pearson
140

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**Training Modules** RehaCom®

**Executive Functions Training**



Logical Reasoning



Plan a Vacation



Shopping

- The Executive Functions modules provide activities that are more ecologically meaningful such as planning a shopping trip, planning a vacation, etc.
- We expect people will better understand why they would need to train on these activities because they make a difference in their daily lives.
- Patients want to resume self-reliance. These training activities are more obviously relevant to accomplish this.

Pearson
141

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**Training Modules**

Visual Field

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**Training Modules** RehaCom®

**Visual Field**

Visual Field

Approximately 1 in 5 stroke and TBI patients experience **Visual Field** deficits.

Pearson 143

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**Training Modules** RehaCom®

**Three (3) Visual Field Modules**

Visual Field

Modules	Levels
Saccadic Training	34
Restoration Training	1
Overview and Reading	52

Pearson 144

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**Training Modules** RehaCom®

**Visual Field Training**

**Saccadic Training**

Eye movement training, hemianopia, neglect.

*Click the correct arrow button depending upon which side of the screen an object appears.*

**Restoration**

Stimulates the re-organization of damaged, but not destroyed, neuronal structure through intense stimulation.

*Look at fixation point and respond to changes of central stimuli and stimuli emerging in the 'blind' area of your visual field. Keep eyes focused upon fixation point.*

**Overview & Reading**

Parallel and sequential search on the homonymous visual fields.

*Searching for one letter among groups of letters.*

Pearson 145

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**Therapy Results**

On the **Dashboard**, on the left side under "**Parameters**", click "**Results**" to access this screen.

Navigate to the "**Results**" tab to view progress and session data in graphical format.

More detailed information is accessible in this area.

All training modules for this patient are listed.

Progression through levels of training over several sessions.

Data can be printed or exported to PDF or Excel.

Configuration allows adding information to reports such as clinic name.

Pearson 147

The screenshot shows a software interface with a sidebar on the left containing a tree view of training modules. The main area displays three bar charts showing progression over sessions. A right-hand panel contains various settings and options, including a 'Print' button and a 'Configuration' section.

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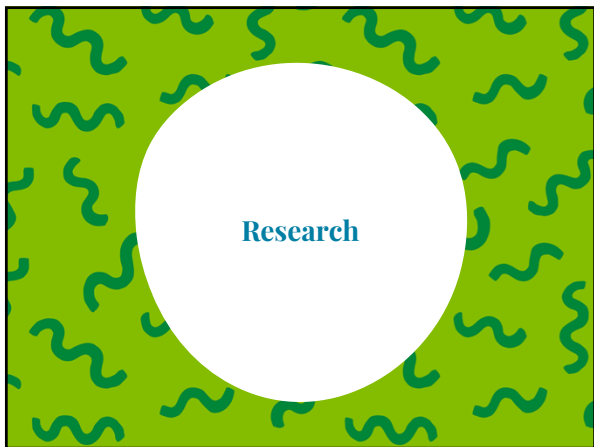
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**Research** RehaCom®

**Research Studies with TBI, CVA & MS**

**Traumatic Brain Injury**

- Attention remediation following traumatic brain injury in childhood and adolescence by (Galbiati et al., 2009).
- Clinical Impact of RehaCom Software for Cognitive Rehabilitation of Patients with Acquired Brain Injury, (Fernandez et al., 2012)
- Effectiveness of Cognitive Rehabilitation Following Acquired Brain Injury: A Meta-Analytic Re-Examination of Cicerone et al.'s (2000, 2005) (Rohling et al., 2009)



P Pearson 149

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**Research** RehaCom®

**RehaCom Research**

**Stroke**

- Effect of computerized cognitive rehabilitation program on cognitive function and activities of living in stroke patients (Yoo et al., 2015)
- Clinical Efficacy of Acupuncture Treatment in Combination With RehaCom Cognitive Training for Improving Cognitive Function in Stroke: A 2 x 2 Factorial Design Randomized Controlled Trial (Jiang et al., 2016)



P Pearson 150

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**Research** RehaCom®

**RehaCom Research**

**Multiple Sclerosis**

- Computer-Assisted Cognitive Rehabilitation of Attention Deficits for Multiple Sclerosis: A Randomized Trial With fMRI Correlates. (Cerasa et al 2013)
- Cognitive Rehabilitation in Multiple Sclerosis, (Barbosa et al., 2013)
- Efficacy and specificity of intensive cognitive rehabilitation of attention and executive functions in multiple sclerosis, (Flavia et al., 2011)



P Pearson 151

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**Operating RehaCom** RehaCom®  
Computer-assisted RehaCom Setting



- Quiet
- Minimal Distractions
- Comfortable
- Soft Lighting
- Multiple Work Stations?
- Headphones?
- Laptop
- Networked?

P Pearson 153

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**Operating RehaCom** RehaCom®  
Technical Requirements

**To run RehaCom you will need:**

- Windows Laptop or Desktop Computer
- 19" - 21" Monitor
- 2 GB RAM
- Direct3D Graphics Card (Nvidia, ATI)
- USB drive
- 100 GB Hard Drive
- Printer



**To install RehaCom:**

- You must be logged into your computer with **Administrator** access.
- RehaCom software is installed from a USB drive.
- Licenses are managed via the RehaCom panel or optional dongle which must be connected to run RehaCom.

P Pearson 154

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**Summary and Conclusion** RehaCom®


**RehaCom Summary**

**Training Domains**  
 Computerized Cognitive Training (CCT)  
 in 4 Major Cognitive Domains:

- Attention
- Memory
- Executive Function
- Visual Field

**Features and Benefits**

- 9 screening modules to identify deficits
- 20+ configurable training modules
- RehaCom keyboard to accommodate motor deficits
- Progress monitoring and/or outcome reports of patient therapy can be viewed, printed, and exported
- System is auto-adaptive to meet each patient at their current level of need



P Pearson 156

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**Summary and Conclusion** RehaCom®


**RehaCom Summary**

**Environments**

- NeuroRehab
- Skilled Nursing
- Private Practice

**Patients/Clients**  
 Patients suffering from cognitive deficits resulting from

- degenerative neurological disorders,
- TBI,
- stroke,
- or other clinical conditions impacting cognitive functioning.



P Pearson 157

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**Summary and Conclusion** RehaCom®

**RehaCom Summary**

**Training**

- Can be restorative or compensatory training
- All modules are configurable based on clinical need and client variables
- Clients work in clinic/hospital or rehabilitation setting
- High ceilings for training provides a comprehensive range of training levels



P Pearson 158

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**Summary and Conclusion** RehaCom®

**RehaCom Summary**

**Efficacy Research**  
 Approximately 20 peer-reviewed studies showing some positive effects across TBI, Stroke, Dementia, ADHD, MS. RehaCom is one aspect of the total rehabilitation program for patients.

**Pricing**  
 Unlimited use per station with volume discounts.

**Reimbursement Opportunities**



P Pearson 159

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**Summary and Conclusion** RehaCom®

**RehaCom Pricing**  
*Prices are valid through December 31, 2017 and are subject to change without notice.*

License Terms and Inclusions		Regular Price	Renewal Price
Annual Licenses	1 Year with Panel	\$1,495	\$1,250
	2 Year with Panel	\$2,495	\$2,000
	3 Year with Panel	\$3,495	\$3,000
Quarterly Licenses	Includes Dongle	\$395	\$395
	Includes Panel	\$745	\$395
RehaCom Equipment	Panel	\$585	
	Chin rest	\$200	

	5-9	10-24	25-50	>51
<b>Multi-station Discounts</b>	5%	10%	15%	20%

P Pearson 160

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**Summary and Conclusion** **RehaCom®**

**RehaCom Contacts**

**General Information and Ordering**  
Kent Willette  
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(800) 627-7271, x 262355  
Mobile: (317) 641-7794  
Email: Charles.Shinaver@Pearson.com



 Pearson 161

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**ALWAYS LEARNING**

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