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About the King-Devick Recovery Acceleration Program (K-D RAP)

Vision is integrated in more than 55% of brains' pathways. Visual symptoms are common following acquired brain injury (ABI), and many of these symptoms affect individual's reading and work performance. Research has demonstrated that oculomotor, or eye movement, disorders can be treated and improved with eye movement rehabilitation. The **K-D Recovery Acceleration Program** improves saccadic accuracy and speed, thereby enhancing reading performance.

K-D RAP System Requirements

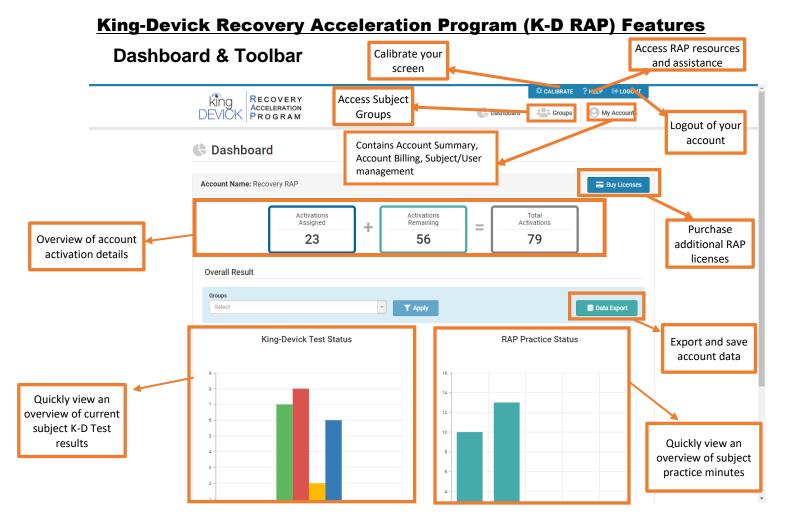
Specifications	iPad*	Laptop/Computer
Screen Size	9.7" +	13" +
Aspect Ratio	4:3 or 4.3:3	N/A
Resolution	1024 x 768 +	1024 x 768
Operating Systems	iOS 9+**	N/A
Compatible Browsers	N/A	Chrome, Firefox, Edge, Safari
App Location	RAP Recovery: Apple App Store	RAP Recovery: <u>KDt Website</u>
Notes	*The Practice App can only be signed into using a Subject account. **Automatic Speech Recognition (ASR) is not available prior to iOS11.	

Accessing K-D RAP Online

- 1. Launch your web browser and maximize your browser window.
- 2. Go to: https://recovery.kingdevick.com/.
- 3. Login with your K-D RAP Administrator Username and Password.

Forgotten Password

If you've forgotten your password, you may reset it by clicking on "Forgot your Password?" Enter your K-D RAP username email. Click "Reset" and you will receive a time sensitive link via email to reset your password.



Toolbar:

My Account: Hovering over "My Account" provides access to an Account Summary, Account Billing, and management of Users and Subjects.

Calibrate: Adjust device calibration **Groups:** Access Groups of Subjects

Help: Click "Help" for K-D RAP Support contact information, FAQ, to download and view the K-D RAP Manual or view the K-D RAP video tutorial. Live chat with a K-D RAP Specialist during normal business hours.

Settings: The display requires calibration to standardized size. Click "Settings" and use a ruler or standard letter page (8.5 x 11 inches) to calibrate your display.

Logout: Securely log out of your K-D RAP account.

Dashboard: Return to this page

Dashboard:

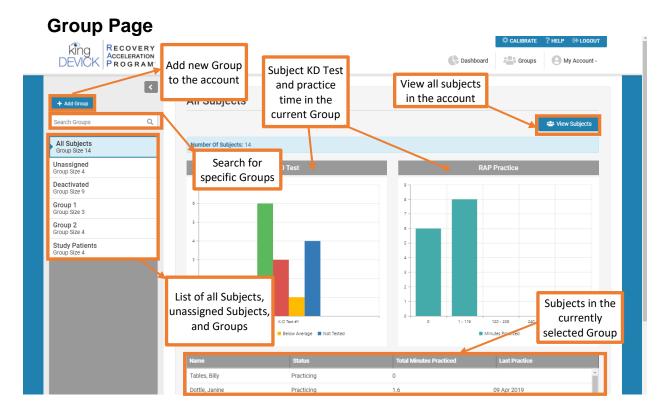
Activation Details: Easily view the number of Assigned, Remaining, and Total Activations in the account.

Data Export: Export and save data for Subjects as a whole or for specific Groups.

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K-D Test Pre-Assessment: View a chart of K-D Test results prior to beginning K-D RAP Practice.

RAP Practice Status: This graph displays the number of subjects and Practice minutes within the account.



Add Group: K-D RAP allows you to add groups to help organize subjects.

Search Groups: Quickly search for a group by using the search field. Use the filter to narrow your search.

View Subjects: Click "View Subjects" to view All Subjects in your K-D RAP account.

View Unassigned Subjects: Click "Unassigned" to view subjects not currently assigned to any groups.

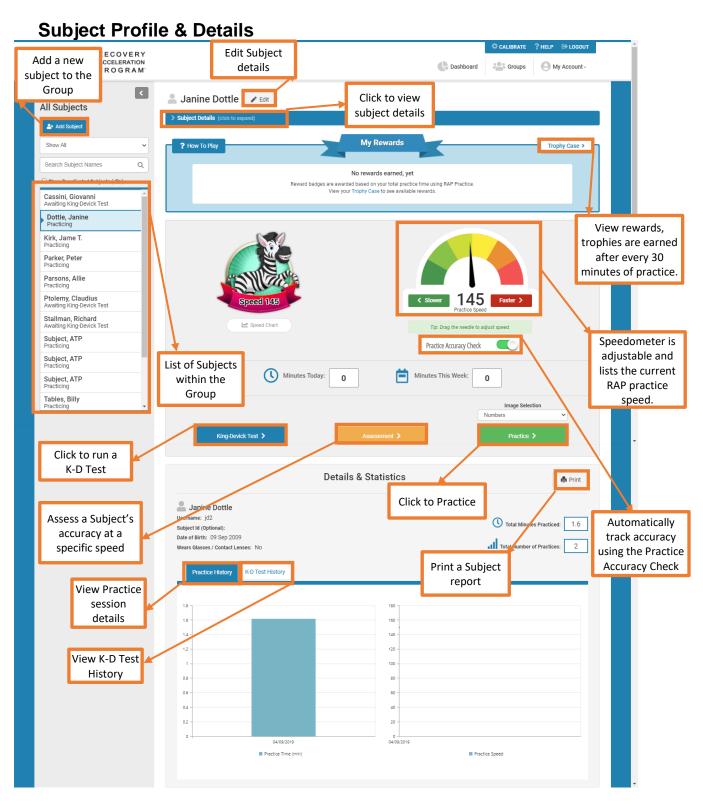
Deactivated: View Subjects whose 1 year activation has expired that need to be re-activated.

View Subjects in Group: Select a Group, click "View Subjects" to view all the subjects in the selected group.

Edit Group: Select a Group. Click "Edit" to make changes to the Group Name, add or remove subjects, or delete the group.

Add New Subject to Group: Select a Group. Click "Add New Subject" to add a new subject to the selected group.

Group Dashboard: Show's the K-D Test Pre-test status of subjects in this group as well as practice time. Also Includes a list of Subjects and their most recent practice along with total practice time.



Add Subject: Add subjects to your K-D RAP Account and assign them to a group. See Adding a

Subject.

Search for a Subject: Quickly search for a subject by using the search field. Use the filter to narrow your search.

Subject Details: Click on the dropdown "Subject Details" to view the subject's username, date of birth, practice details, group, and goals.

Edit Subject Details: Click "Edit" to make changes to the subject details such as Name, Subject Id, Date of Birth, Goals, Username or Password. See <u>Editing a Subject</u>.

Print Subject Report: Click "Print" to generate a Subject Report and view current status and a progress summary.

Practice Accuracy Check: Turn the Practice Accuracy Check ON to allow your device microphone and speech technology to provide automatic accuracy estimates during your Subject's K-D RAP practice.

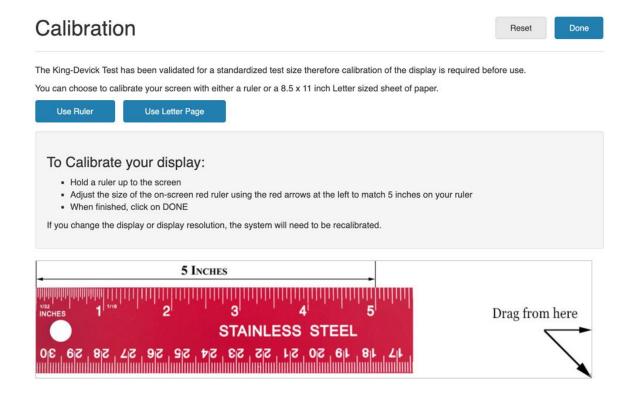
King-Devick Test: Click "King-Devick Test" to administer a K-D Test. See <u>Administering a K-D Test.</u> **Assessment**: Click "Assessment" to administer an Assessment. See <u>K-D RAP Assessment</u>. **Practice**: Click "Practice" to begin Practicing. See K-D RAP Practice.

Details & Statistics: Practice and K-D Test summaries. View Practice time and speed graphs or a summary of the K-D Test history.

Calibrate Your Screen

K-D RAP has been validated for a standardized test size therefore calibration of the display is required before use. You can choose to calibrate your screen with either a ruler or a Letter sized (8.5" x 11") sheet of paper.

- 1. Click on "Settings" in the Toolbar.
- Select to "Use Ruler" or "Use Letter Page".
- 3. Hold up a ruler or letter page to your computer screen to match the display on the left corner.
- 4. Drag the displayed ruler or letter page image from the right to match the size of your ruler or letter page.
- 5. When the horizontal distance of the 5 inches on the ruler image matches 5 inches on your ruler or the letter page image matches your letter page size, click "Done" to save.



Add a New Subject

Add a new subject's details to your account. This function is available to K-D RAP Administrators.

- 1. From the All Subjects view, click "Add Subject". Alternatively, to add a subject to an already existing group, select the group from the Group Details Page and click "Add Subject" or click "View Subjects" then "Add Subject".
- 2. Enter the subject's First Name, Middle, Last Name, Subject Id, and Date of Birth.
- 3. Checking the "Require King-Devick Test" box will allow you to run a K-D Test as a preassessment and to determine an appropriate beginning K-D RAP practice speed. Unchecking the "Require King-Devick Test" box, allows you to manually set the Initial Speed in Numbers per Minute (NPM).
- 4. Check the "Practice Accuracy Check" box when adding a new subject to allow K-D RAP to use your device microphone and speech technology to provide automatic accuracy estimates during K-D RAP practice.
- 5. Enter the Subject Username and Password the subject will use to login.
- 6. Click "Create" when complete. The new subject will appear in the Subject List.

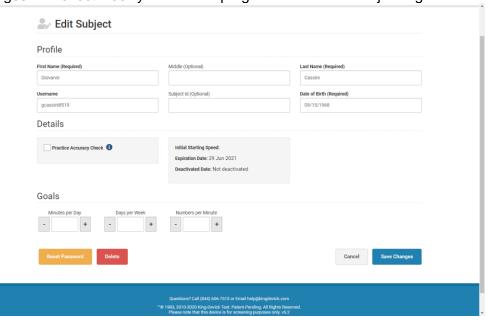
Edit Subject Details

Edit subject details to set goals, reset a subject's password, or delete/activate a subject.

- 1. Select the subject from the subject list and click "Edit".
- 2. Check the "Practice Accuracy Check" box to automatically display accuracy following K-D RAP Practice.
- 3. Make further necessary changes to the subject's details:

Goals

Set a subject's goals for weekly practice (i.e. 4 days a week, for 15 minutes each day). Refer to the Protocol section for recommended practice schedules. Set daily, weekly and numbers per minute speed goals. Goals will be displayed on the subject profile and gauges will reflect weekly status and progress toward the subject's goals.



Reset Password: Click 'Reset Password' under Edit Subject to reset a subject's login password.

Delete: Deleting a subject removes the subject from the subject list and prevents them from logging in. Deleted subjects only refund their activation if they have not had a starting speed established.

4. Click 'Save changes' to save and return to the Home Screen.

Groups

K-D RAP allows you to organize your subjects into Groups. From the toolbar click "Groups" and "Add Group".

- 1. Enter the Group Name. Check the box to add any current subjects.
- 2. Click "Create" when complete.

Edit Group

Click "Edit" to change the team name, add or remove subjects.

View Group

Click "View Subjects" to view subjects in the selected group.

Add New Subject

Click "Add Subject" to add a new subject to the selected group.

Users

Add New User

As the administrator of your K-D RAP account, you may add Users to your K-D RAP account with separate logins and full or limited visibility of subjects by Group. Edit User login details and team access here.

- 1. Click "Users" from the toolbar, then click "Add User".
- 2. Enter the User details: Username, Recovery Email, First and Last Name.
- 3. To allow the User full access to ALL subjects, check the box "User can access all subjects, including adding/editing them". Alternatively, give the User access to specific Groups by checking the box next to a Group.
- 4. Click "Create" to create the user and return to Account page.

Edit User Details

As the administrator of your K-D RAP account, you may add Users to your K-D RAP account with separate logins and full or limited visibility of subjects by team. Edit User login details and team access here. See Add New User.

- 1. In Account, select the User from the left pane User list. Click "Edit".
- 2. Make any necessary changes to the User details. Click "Reset Password" to change the User password.
 - Check the box "User can access all subjects, including adding/editing them" to give the User access to all subjects.
 - Give the User access to specific Groups by checking the box next to a Group.
- 3. Click "Save Changes" to save and return to Account.

Dashboard

The K-D RAP Dashboard page allows you to view your account activations: assigned, remaining, and total. In addition, view your subject results overall or by group. Additional licenses can be purchased on the Dashboard page. Export Data to save as a file on your computer. View K-D Test Pre-assessment results and K-D RAP Practice status in minutes and by the number of subjects.

Export Data

Export Data allows you to quickly download and export your current account data.

- 1. Click "Dashboard" from the toolbar.
- 2. If desired, select a specific Group from the dropdown menu, then Apply. Or All Subject results can be exported.
- 3. Click "Data Export".
- 4. The summary will automatically begin downloading as an Excel file.

Administer a King-Devick Test

King-Devick Test Procedure:

Tools Needed for Testing:

- Printed Score Sheet (Available Here)
- Pen/Pencil

Tip: Try laminating the score sheets and reuse them for testing.

King-Devick Test Setup:

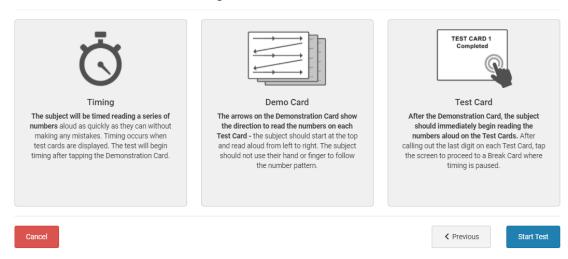
- Administrator: Sit next to the subject (side-by-side) for test administration. Mouse and keyboard control are for Administrators only during testing. Have score sheet and pen/pencil ready.
- 2. <u>Subject</u>: The subject should sit with good posture, at an arm's length from the screen, with eyes level at the top of the screen. During testing, the subject should hold the head still and move the eyes only, without using a finger to follow along, while calling out the numbers.
- 3. Scoring: The King-Devick Test is scored on age, speed and accuracy. Timing will automatically begin after the administrator clicks "Next" on the Demonstration Card. The subject should immediately begin reading numbers aloud on the test cards. After the subject calls out the last number on each test card, click "Next" to pause timing and proceed to a break card. Repeat the procedure for Test Cards II and III. The administrator will record errors for each Test Card on the score sheet. An error is recorded for each omission, addition, substitution, and transposition. If a subject skips a line, 5 errors (omissions) should be recorded. Tip: If a subject makes an error and quickly corrects it, no error is recorded.

Administering the King-Devick Test:

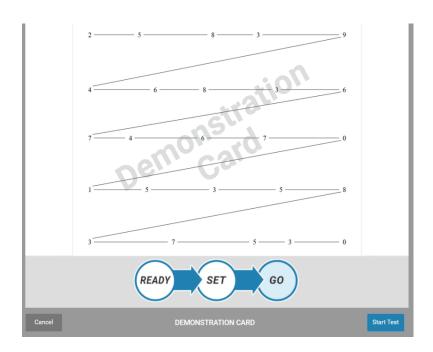
- 1. Select the subject "Awaiting King-Devick Test" listed in the left column.
- 2. In the subject's page, click the blue button "King-Devick Test.

3. You will be directed to an instructions page. Click next to proceed through the instructions. Click "Start King-Devick Test".



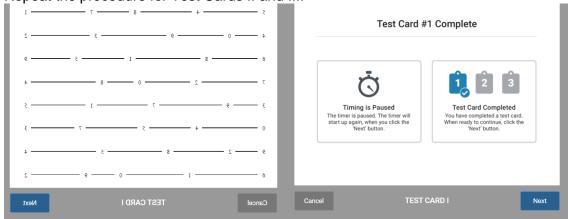


4. You will be directed to the King-Devick Demonstration Card. Use this card as practice and explain to the student how to read aloud the numbers from left to right as quickly as they can while trying not to make errors. When the subject understands the task at hand, click "Next" and proceed to Test Card I. The Test has begun, and the subject should immediately begin calling out numbers. *Tip: The Demonstration Card is not included on the administrator's score sheet.*

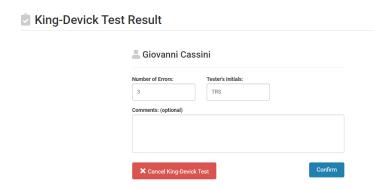


5. Once the subject calls out the last digit on Test Card I, quickly click "Next" to proceed to a break card. Timing is paused on all break cards.

6. Repeat the procedure for Test Cards II and III.



7. After the subject completes Test Card III, the administrator tallies any errors and enters the total errors on the Results page. Enter tester's initials and any optional comments. Click "Confirm".



- 8. Results will be automatically compared to age-matched normative data in Speed and Accuracy. Click "Save Test".
- 9. You will return to the subject's profile page, and your subject is ready to begin K-D RAP Practice.

Tip: To monitor progress, the King-Devick Test may be re-administered periodically during King-Devick Recovery Acceleration Program.

K-D RAP Practice

Why K-D RAP Practice Works

Vision is integrated in more than 55% of brains' pathways. Visual symptoms are common following acquired brain injury (ABI), and many of these symptoms affect individual's reading and work performance. Research has demonstrated that oculomotor, or eye movement, disorders can be treated and improved with eye movement rehabilitation. The **K-D Recovery Acceleration Program** improves saccadic accuracy and speed, thereby enhancing reading performance.

Practice consists of 3 Practice Cards presenting numbers that appear and disappear in a left-to-right, top-to-bottom order. The presentation speed is adjustable.

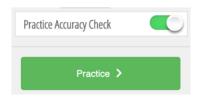
- Practice Card I: number targets are connected by lines to direct the subject to the next number target
- Practice Card II: guide lines are removed and only number targets are displayed
- Practice Card III shows numbers only and the rows are closer together
- 1. Select the subject from the Subject List to display the subject's profile.
- 2. For the first session, the recommended speed (numbers per minute) will be automatically generated and displayed on the speedometer based on the K-D Test results, if completed. Alternately, the starting speed can manually be set if no K-D Test was performed. When adjusting the speed initially, it may take a couple of practice runs to determine the appropriate speed for the first practice session. The subject must see and say each number that appears on the screen aloud. The goal is for the subject to practice at the fastest speed possible with no errors. If the subject cannot keep up at a given speed, adjust to a slower speed until the subject is able to achieve 100% accuracy.

Recommended starting speed by age

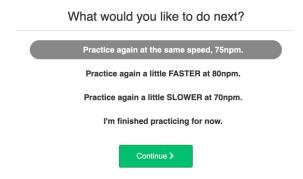
Age (years)	Speed (npm)
6	40
7	50
8	70
9	75
10	85
11	105
12	110
13	115
14+	120

Practice Accuracy Check: The Practice Accuracy Check feature uses your device microphone and speech technology to provide automatic accuracy estimates during your subject's K-D RAP practice. Once the K-D RAP Administrator has checked the Practice Accuracy Check box in the Subject's profile (See <u>Edit Subject</u>), the Practice Accuracy Check feature is now available.

✓ The Practice Accuracy Check feature can be toggled ON or OFF.



- 3. Click "Practice" to begin practicing.
- 4. After one practice round, or Practice Cards I-III, select how you would like to proceed then click "Continue".



5. If you have the Practice Accuracy Check feature turned ON, following completion of 1 Practice round or 3 Practice Cards, the estimated accuracy percentage based on the accuracy check results will display. Try to shoot for 100% accuracy before increasing the practice speed.



Practice Protocol

- ✓ If 20-minute sessions provoke symptoms for the subject or are difficult to incorporate into the subject's schedule, consider individualizing the protocol based on subject's symptoms, attention and concentration ability.
 - 5-minute sessions twice per day, 6 days per week
 - 10-minute sessions 6 days per week
 - 15-minute sessions 4 days per week
- ✓ If RAP exacerbates symptoms, consider practicing in the evening before bed or prior to a nap for rest after training.
- ✓ Take breaks during Practice if experiencing headaches or eye strain. When one Practice
 round ends (3 Test Cards complete), you will have the option to continue or stop
 practicing. Use this time to look away from the computer screen, stand up, stretch, and
 then resume Practice.

Practice Instructions

- ✓ Posture: The subject sits with good posture, approximately arm's length from the screen, with the eyes level at the top of the screen.
- ✓ Head Position: During practice, the subject should hold the head still and move the eyes only. Tip: For subjects with excessive head movement, place a bean bag on the subject's head for feedback.
- ✓ Rapid Number Naming: Once practice begins, the subject says each number out loud, left-to-right, top-to-bottom as quickly and accurately as possible.
- ✓ Adjusting Practice Speed: The goal is to achieve the fastest speed (numbers per minute) with no errors. It may take a few trials to find the ideal practice speed. If the subject is having difficulty keeping up or has excessive errors, adjust to a slower speed. If the subject is able to see and say all numbers presented without difficulty, increase the speed by 5 numbers per minute. 100% accuracy should be achieved for three practice rounds, or nine Practice Cards, before increasing the speed.

Practice Loading

- Consider adding the following exercises to increase the difficulty of the learning task and capture attention with new training activities. The subject is to continue reading the number targets presented.
- ✓ Techniques to increase attention and difficulty:
 - Number of the day: Pick a 'number of the day' between 0 and 9. Have the subject clap or snap any time he or she says the 'number of the day'. To increase the difficulty, select two 'numbers of the day', and have the subject clap at one number and snap at the other number. For example, the subject claps when calling out the number 5 and snaps for 2.
 - Number memory: Pick a number between 0 and 9. Have the subject remember how many of that given number she or he saw in a test card. If this memory task is too difficult, have the subject keep track of how many of the given numbers was seen by keeping track using finger-counting.
 - **Number replacement**: Replace another word with the 'number of the day'. For example, have the subject say her or his favorite food for the number '0'.
 - Whisper number: The subject calls out all numbers in a normal voice volume except one specified number, which the subject whispers.
 - Mystery speed: After practicing at length at the subject's current speed, change things up, by picking a mystery speed for the subject to try. Have the subject close his or her eyes as to not see the 'mystery speed', then have the subject open their eyes to begin once clicking the Practice button. To increase the difficulty, have the subject guess what the mystery speed is.
 - Team number: Pick a number, have the subject give the administrator a 'high five' when the subject identifies or calls out a certain number.

K-D RAP Practice App for iPad



- ✓ You may download the companion K-D RAP Practice App from the iTunes store.
- ✓ This is a companion application and available with compatible sized iPads.
- ✓ The K-D RAP Practice App requires an internet connection for initial log in and regular synchronization and is designed for subject level log in and practice.
- ✓ Subject's RAP practice using the K-D RAP Practice App automatically syncs with the subject's account, so the administrator will be able to view all K-D RAP practice sessions.

K-D RAP Assessment

Assessments allow the administrator to test and record the subject's accuracy at a specific speed.

- 1. Select the subject from the Subject List to display the subject's profile.
- For scoresheets, click 'Assessment Key' on top Toolbar. Use an Assessment Set (A through J, which offer assessment variations in number sequences) to keep track of errors during the assessment.
- 3. Adjust the Speedometer to the desired speed or use the last practiced speed to assess accuracy.
- 4. Click 'Assessment'. Read the instructions carefully.
- 5. You can readjust the speed by clicking 'Slower' or 'Faster'. Instruct the subject to call out the numbers quickly and accurately as they are displayed.
- 6. To begin the Assessment, click on an Assessment Set (A through J, be sure to have the corresponding scoresheet to check for errors).
- 7. After completing the Assessment, enter the number of errors, tester's initials, and any comments. Click 'Continue' to save.
- 8. Results are displayed. Adjust the subject's practice speed based on accuracy performance on the Assessment results. The goal is 100% accuracy at a speed before continuing to higher levels of practice.

Billing & Coding

Structure billing according to your clinical rehabilitation program. You may charge your patient for home-based RAP and bill for the initial and follow-up visits.

- ✓ For in-office rehabilitation or RAP Practice, refer to your state's requirements for the appropriate ICD-10 (diagnostic) and CPT (procedural) codes. Visit https://www.ama-assn.org/practice-management/find-coding-resources to search CPT codes by state.
- ✓ Eye Care professionals may consider using the following 92000 codes for Rehabilitation billing:
 - 92012: Ophthalmological services, medical examination and evaluation, with initiation or continuation of diagnostic and treatment program; intermediate, established patient
 - 92065: Orthoptic and/or pleoptic training, with continuing medical direction and evaluation
- ✓ Physical and Occupational Therapists may consider using the following 97000 therapeutic codes:
 - 97110: Therapeutic procedure, one or more areas, each 15 minutes; therapeutic exercises to develop strength and endurance, range of motion and flexibility
 - 97535: Self-care/home management training (eg, activities of daily living and compensatory training) direct one-on-one contact by provider, each 15 minutes
 - 97112: Neuromuscular reeducation of movement, balance, coordination, kinesthetic sense, posture, and/or proprioception for sitting and/or standing activities
- ✓ Find-a-Code offers a smartphone app and website to quickly search ICD-10 codes.

Troubleshooting & Technical Support

Your satisfaction is important to us. We're happy to assist you over the phone or via email. Please contact us directly at: +1-844-606-7513 or help@kingdevick.com. Additional support materials are also available at https://help.kingdevick.com/ArticleList/recovery_clinical.

Can't log in

- 1. Check your internet connection. K-D RAP requires a working internet connection to log in and use the program.
- 2. Contact us at: help@kingdevick.com of the problem persists.

Forgot my password

If you've forgotten your password, email help@kingdevick.com.

Can't find a subject

- 1. If the subject's activation has expired, check the box 'Show Deactivated Subjects' to view archived subjects, or navigate to the "Deactivated" group.
- 2. Email our support team at help@kingdevick.com for further questions.



Patient Instructions

Vision is integrated in more than 55% of brains' pathways. Visual symptoms are common following acquired brain injury (ABI), and many of these symptoms affect individual's reading and work

performance. Research has demonstrated that oculomotor, or eye movement, disorders can be treated and improved with eye movement rehabilitation. The **K-D Recovery Acceleration Program (K-D RAP)** improves saccadic accuracy and speed, thereby enhancing reading performance.

Visit the RAP website at app.recoveryacceleration.com. Log in with your		
Username:	& Password:	
Your Starting Practice Speed is:	numbers per minute	
You may also practice on the K-D RAP Practice App for iPad		



- ✓ Download the K-D RAP Practice App from the iTunes App store.
- ✓ This is a companion application and available with compatible sized iPads.
- ✓ The K-D RAP Practice App requires an internet connection when logging in.
- ✓ RAP practice using the K-D RAP Practice App automatically syncs with your account to save your practice sessions, both on the iPad or on a computer.

K-D RAP Practicing Tips:

- Practice Accuracy Check: This new feature uses your device's microphone and speech technology to provide automatic accuracy estimates during K-D RAP practice.
- **Posture:** Sit with good posture and center your screen at arm's length from the computer or at an appropriate reading distance (e.g. 16 inches) if using an iPad.
- Head Position: Try to keep your head still and let your eyes track the moving numbers across
 the screen.
- Rapid Number Naming: Say each number out loud as it appears on the screen. The goal is to achieve the fastest speed (numbers per minute) with no errors.
- Adjusting Practice Speed: It may take a few trials to find the ideal practice speed. If you are having difficulty keeping up, adjust to a slower speed. Once you're able to see and say all numbers presented without difficulty and 100% accuracy, increase the speed by 5 numbers per minute at a time.
- Protocol: If 20-minute sessions worsen your symptoms or if 20 minutes is too difficult to
 incorporate into your schedule, consider modifying the session length based on ability and
 symptoms (i.e. 5-minute sessions twice per day, 6 days per week).
 - If RAP exacerbates symptoms, consider practicing in the evening before bed or prior to a nap in order to rest after a practice session.
 - Take frequent breaks during Practice especially if you experience a worsening of symptoms like headaches or eye strain. When one Practice round ends (3 Test Cards have been completed), you will have the option to continue or stop practicing. Use this time to look away from the computer screen, stand up, stretch, and then resume Practice.
- Goals: Follow your practice goals set by your doctor to reach your fastest speed and highest accuracy.

<u>Technical Support</u>: If you encounter technical difficulties or need assistance loading the program, please email the K-D support team at help@kingdevick.com.

Contact Details

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