ANA
DATE OF ASSESSMENT: 14/03/18
BIRTHDAY: 07/02/08
AGE: 10

TEST SUPERVISED BY:
Marcos

DYSIGACULIA COGNITIVE ASSESSMENT CAB-DC
RESULTS REPORT

ANA’S PROFILE
LOW RISK
MODERATE RISK
HIGH RISK
HIGH RISK FOR DYSCALCULIA

Ana's Results

ASSESSMENT

SYMPTOMS

44/45

A high risk for dyscalculia has been detected.

No apparent risk range: 0-13
Score: 44

COGNITIVE RISKS

5/9

A moderate risk that may be related to the learning disorder with a calculation predominance (dyscalculia) has been detected.

No apparent risk range: 0-2
Score: 5

EVALUATED RISKS AND SYMPTOMS

<table>
<thead>
<tr>
<th></th>
<th>NO APPARENT RISK</th>
<th>ANA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social relations</td>
<td>0-3</td>
<td>9</td>
</tr>
<tr>
<td>Learning and development</td>
<td>0-3</td>
<td>13</td>
</tr>
<tr>
<td>Mathematic reasoning</td>
<td>0-3</td>
<td>9</td>
</tr>
<tr>
<td>Mathematic language</td>
<td>0-4</td>
<td>13</td>
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<tr>
<td>Cognitive risks</td>
<td>0-2</td>
<td>5</td>
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CONCLUSIONS

- We recommend completing Ana's diagnosis with a clinical consultation.
- Stimulate the cognitive skills that Ana scored lowest in.
- Improving the cognitive functions that may be altered by dyscalculia can help improve a number of useful skills.

*This assessment is not a diagnostic test, but rather a tool that detects and assesses the risk of having physical, psychological, and cognitive symptoms associated with dyscalculia.*
DESCRIPTION OF THE DYSCALCULIA ASSESSMENT BATTERY

Ana took the cognitive assessment on 14/03/18 at 10 years-old. The detection questionnaire adapts to the main diagnostic criteria, signs, and symptoms for the age. The cognitive index evaluation uses clinical scales and normalized and validated tests for people 10 years-old.

The Cognitive Assessment Battery for Dyscalculia (CAB-DC) is made up of a series of clinical questions and a set of practical tasks that last about 30-40 minutes. The CAB-DC is a scientific resource that makes it possible to evaluate one's risk index of having dyscalculia, evaluating the main neuropsychological factors identified in scientific literature.

The scores presented in this report represent the user's performance on a specific day and at a specific time. Performance may vary depending on a number of factors, like comfort level, alertness, and time. The results from this report do not reflect a diagnosis and should be reviewed by a qualified healthcare professional (psychologist, psychiatrist, neuropsychologist, neurologist, etc.). These results should be used as a complementary tool to a clinical consultation.

The results from this report offer a base on which to identify support strategies or help the patient seek the help of a specialist that may be able to study the case in more detail. This cognitive screening is designed to provide valuable information that may help objectively evaluate the different neuropsychological factors of someone who may have dyscalculia.

THE REPORT FROM THE CAB-DC IS MADE OF THREE PARTS:

01 SYMPTOMS

The answers from the questionnaire will be focused on the following areas:

- Social Relations
- Learning and Development
- Mathematic Reasoning
- Mathematic Language

02 COGNITIVE RISKS

In this section, you will see a circular diagram next to each evaluated area, which will indicate the user's score based on their percentile and normalized for their age and gender. For example, a score of 500 would be calculated depending on the user's age group. CogniFit's values are calculated in percentiles but are shown adjusted on a scale of 0-800. As such, the higher score, the better.

- Green: Cognitive strengths
- Yellow: Below-average cognitive skills
- Red: Cognitive weaknesses

03 CONCLUSIONS

At the end of the report, you will find:

- A description of the risk index and the effects on cognitive profile and detected symptoms.
- Specific recommendations and personalized plan of action.
01 SYMPTOMS

The learning disorder with a mathematical competency and calculation predominance known as dyscalculia is characterized by clinical signs and symptoms that vary depending on age and severity. These indicators can help make it possible to understand the possible presence of this learning disorder. Some of the most common signs and symptoms in dyscalculia are difficulties in mathematic reasoning, mathematic language, learning and development, and social relationships.

ANA’S SYMPTOMS THAT SHOW A HIGH RISK ASSOCIATED WITH DYSCALCULIA

MATHEMATIC LANGUAGE
HIGH RISK
It is a way of communicating with special symbols to do mathematical calculations. In the case of dyscalculia, it is common to have trouble understanding mathematical symbols, their meaning, and what the represent.

MATHEMATIC REASONING
HIGH RISK
People with dyscalculia often have trouble with logical reasoning in order to establish numeric thought, solve logic problems, understand abstract concepts, reason, and establish an understanding of relationships.

SOCIAL RELATIONS
HIGH RISK
Dyscalculia often leads to frustration when dealing with a concept that requires exceptional effort or difficulty learning the mathematical concepts.

LEARNING AND DEVELOPMENT
HIGH RISK
Family history, prenatal, perinatal, or postnatal factors (premature birth, low weight, infections, trauma, etc.), and other variables are related to the evolution and development of dyscalculia.
ANA'S COMPLETE SYMPTOM REPORT

According to the results of the questionnaire, Ana shows symptoms that indicate a high risk of dyscalculia in the areas of social relations, learning and development, mathematic reasoning and mathematic language. As such, there is a good possibility that Ana suffers from some degree of dyscalculia. If Ana shows academic problems, at home, or with friends, it may be due to dyscalculia. We recommend that you use this information to help make a precise diagnosis.

IMPORTANT These results are not a diagnosis. This information cannot substitute a formal diagnosis given by a professional, but it can serve as a complementary tool to help make a comprehensive diagnosis.
Ana presents significant warning signs in the area of Social Relationships. People with dyscalculia often suffer negative emotions, like frustration, low self-esteem, sadness, or social isolation because they don’t feel like they learn “like everyone else” or like they have to try harder than others.

The answers to the questionnaire related to social relationships that indicate that Ana has a high risk of dyscalculia are:

- **INTERPERSONAL RELATIONS (WITH OTHERS) HIGH RISK**
  - Often irritable or easily upset.
  - Sensitive to jokes or comments.
  - Is unorganized.
  - Seems distracted.

- **INTRAPERSONAL RELATIONS (WITH ONESELF) HIGH RISK**
  - People usually say that they are "lazy".
  - Has trouble making friends and keeping relationships.
  - Often avoids being with friends or going to social events

- **MOTIVATION HIGH RISK**
  - Feels overwhelmed when doing homework or taking exams.
  - Doesn’t seem to like school and doesn’t show enthusiasm to go.
Ana presents significant warning signs in the area of Learning and Development. The learning difficulties associated with dyscalculia may be the basis for academic failure and the difficulty learning academic concepts. Both problems during childhood development and family history may be risk factors.

The answers to the questionnaire related to learning and development that indicates that Ana has a high risk of dyscalculia are:

**Childhood development**
- There were complications during pregnancy.
- There were complications during birth.
- Wasn’t born at full-term.
- Weighed less than 2.5 kg (5.5 lbs).
- Has received extra help at school (speech therapy, psychotherapy, cognitive stimulation, etc.).

**Family background**
- Family history of learning disorders or reading difficulties.
- Family history of academic difficulty.
- Family history of giftedness.

**Academic competences**
- Often makes mistakes when doing homework and has a hard time passing exams.
- Academic performance is below the average for their age.
- Problems became more apparent after entering elementary school.
- Has trouble doing math and has difficulty understanding numbers and what they mean.
- Has difficulty understanding mathematical problems.
MATHEMATIC REASONING
HIGH RISK

Ana presents significant warning symptoms in the area of mathematical reasoning. Studies have shown that people with dyscalculia often have difficulties when it comes to logical reasoning to establish a numeric thought, solve logic problems, understand abstract concepts, and reason abstract thoughts, which makes it difficult to learn and acquire mathematical skills and concepts.

The answers to the questionnaire related to mathematical reasoning that indicates that Ana has a high risk of dyscalculia are:
- Has difficulty conceiving a plan to solve math problems.
- Has struggled or currently struggles to learn the multiplication tables.
- Has trouble understanding size, distance, or height comparisons (identifying which is bigger, further, or heavier).
- Has trouble understanding spoken math problems, even if they make visual aids.
- Has trouble knowing which number is bigger when multiple numbers are presented visually.
- Has difficulty telling what number is greater when it is presented orally.
- Has always had a hard time in math.
- Has trouble or had trouble understanding how to add, subtract, and divide.
- Shows difficulty doing simple mental math (5+8, 25-12...).

MATHEMATIC LANGUAGE
HIGH RISK

Ana presents important warning signs in the area of mathematical language. People with dyscalculia often have significant difficulties understanding and using mathematical language, which is a way to communicate using special symbols to carry out calculations and mathematical representations. This is reflected in an inability to understand mathematical concepts and relationships presented orally, or a lack of ability to use mathematical symbols. In other words, the person isn’t able to write numbers presented orally, or even copy them.

The answers to the questionnaire related to mathematical language that indicates that Ana has a high risk of dyscalculia are:
- Has trouble recognizing numbers and symbols.
- Has trouble learning and remembering basic math, like 2+4=6.
- Has trouble identifying +, -, and other symbols, and doesn’t know how to use them correctly.
- Uses their fingers to count rather than using more ‘sophisticated’ methods.
- Has trouble remembering phone numbers or the score from the football game.
- Has difficulty with oral counting.
- Has trouble learning time concepts including time.
- Has difficulty understanding mathematical words such as bigger than and smaller than.
- Has trouble recognizing symbols that represent numbers, such as making the connection between ‘7’ and the word seven.
- Has trouble connecting a number to a real situation, like knowing that “3” can be applied to any group with 3 things: 3 cookies, 3 carrots, 3 kids.
- Has trouble understanding words like compare, add, equals, subtract, define, etc.
- Has trouble reading Arabic numbers (6,10,56,195,2456).
- Has trouble writing numbers presented orally in Arabic format (45, 156, 769...).
A MILD OR MODERATE RISK HAS BEEN DETECTED IN ANA'S COGNITIVE PROFILE

**REASONING**

304/800

Ability to efficiently use (organize, relate, etc.) acquired information.

**MEMORY**

89/800

Ability to retain and manipulate new information and recover past memories.

**ATTENTION**

659/800

The ability to filter distractions and concentrate on relevant information.

**COORDINATION**

600/800

The ability to efficiently and precisely carry out organized movements.

**PERCEPTION**

146/800

Ability to interpret stimuli from the environment.

**LANGUAGE**

8/800

Ability to understand and express verbal information (written, spoken).
Ana's cognitive profile indicates a moderate risk for dyscalculia. The results from the different tasks in the cognitive assessment highlight that Ana's cognitive strengths are attention and coordination, while reasoning, memory, perception and language are areas of improvement. Ana's cognitive profile does not indicate any weak cognitive skills associated with dyscalculia. As such, Ana's cognitive profile shows cognitive weaknesses associated with dyscalculia. We recommend that you use this information to help make a more precise diagnosis.

**IMPORTANT** These results are not a diagnosis. This information cannot substitute a formal diagnosis given by a professional, but it can serve as a complementary tool to help make a comprehensive diagnosis.
IN DETAIL: COGNITIVE AREAS AFFECTED BY DYSCALCULIA

**REASONING**

**PROCESSING SPEED**

Score Received: 600

Ana has received scores that indicate that processing speed is age-appropriate, which means that it is not indicative of dyscalculia. Processing speed is the ability to quickly and automatically process information. People with alterations in processing speed generally take longer to understand and process what they read and what they want to say or write. Slow auditory and verbal processing may cause problems when decoding numbers, symbols, and word problems.

**PLANNING**

Score Received: 8

Ana has received scores that show that planning is compatible with a possible alteration in this skill. It's important to keep in mind that weak planning may be an indicator of dyscalculia. Planning is the ability to mentally organize the best way to reach a future goal, like organizing a story in your head in order to tell it to someone later. People with alterations in planning have more trouble structuring how to logically solve a math problem and sequentially find a solution.

**SHORT-TERM MEMORY**

Score Received: 8

Ana has received scores that show that short-term memory is compatible with a possible alteration in this skill. It’s important to keep in mind that weak short-term memory may be an indicator of dyscalculia. Short-term memory is the ability to maintain a small amount of information for a short amount of time, like when you remember the beginning of a sentence in order to understand the sentence as a whole. A problem with short-term memory can alter auditory comprehension, as we are not able to correctly retain the information that we hear, which may cause trouble when completing math problems.

**WORKING MEMORY**

Score Received: 171

Ana has received scores that show that working memory is compatible with a possible alteration in this skill. It’s important to keep in mind that weak working memory may be an indicator of dyscalculia. Working memory is the ability to retain and manipulate necessary information to carry out complex tasks like language comprehension, learning, and reasoning. A deficient working memory may make it difficult to memorize a math problem or remember the rules to solve a math equation.
FOCUSED ATTENTION
Score Received: 648
Ana has received some scores that indicate that focused attention is age-appropriate, which means that it is not indicative of dyscalculia. Focused attention is the ability to pay attention to a stimulus or activity for a long period of time, like paying attention when someone is talking or working on a project. When you get distracted, you miss important information, which hinders comprehension of the activity. Children and adults with dyscalculia are generally distracted easily and have a harder time doing tasks that require concentration, problem-solving, and math.

DIVIDED ATTENTION
Score Received: 670
Ana has received scores that show that divided attention is age-appropriate for the age, which suggests that it is not indicative of dyscalculia. Divided attention is the ability to pay attention to more than one stimuli or activity at a time, like listening to someone and writing at the same time. People with difficulties with divided attention consume more cognitive resources when doing two or more tasks at a time, which would make it difficult to listen to the teacher while writing a word problem.

RESPONSE TIME
Score Received: 600
Ana has received scores that indicate that response time is age-appropriate, which means that it is not indicative of dyscalculia. Response time is the ability to perceive and process a simple stimulus and respond to it correctly. People with slow response time generally have more difficulty analyzing, processing, and responding efficiently to mathematical reasoning problems.
Ana has received scores that show that recognition is compatible with a possible alteration in this skill. It’s important to keep in mind that weak recognition may be an indicator of dyscalculia. Recognition is the brain’s ability to identify stimuli that were perceived previously. Recognition is a cognitive ability that makes it possible to recover information like digits, numbers, formulas, hypothesis, or word problems.

Ana has received scores that show that the area of naming is compatible with a possible alteration in this skill. It’s important to keep in mind that weak naming may be an indicator of dyscalculia. Naming is the ability to access a word from memory to name a certain concept and use it when appropriate. This cognitive skill makes it possible to learn and process mathematical concepts, and is often altered in people with dyscalculia.
EXECUTIVE FUNCTIONS AND DYSCALCULIA

Executive functions are a group of sophisticated cognitive skills that are aimed at perfecting behavior in order to reach certain goals. Scientific evidence has shown that developmental disorders, like dyscalculia, are closely related to the executive functions and the learning and acquisition of mathematical concepts. Another important part of the brain is the parietal lobe, which is largely responsible for abstract reasoning, calculations, and mathematical concepts.

IT IS POSSIBLE THAT ANA:

WORKING MEMORY
- Has severe difficulty remembering information without using abbreviations.
- Unable to remember that they were saying if interrupted.

FOCUSED ATTENTION
- Is able to concentrate without any problems and avoid being distracted easily.
- Completes tasks that have to be done quickly and efficiently.

PLANNING
- Presents significant difficulties calculating how much time a task will take.
- Shows significant problems knowing how to start a task.

PROCESSING SPEED
- Understands instructions and doesn’t usually need them repeated.
- Easily remembers the right words to explain things in detail.
Ana has some symptoms that are below the expected score for the age range, which suggests that there is a moderate risk of dyscalculia. Ana has the highest scores in focused attention and processing speed, while the areas of executive functions that Ana needs to improve are working memory and planning. This is why we recommend that you use this information to make a more precise diagnosis.

**IMPORTANT** These results are not a diagnosis. This information cannot substitute a formal diagnosis given by a professional, but it can serve as a complementary tool to help make a comprehensive diagnosis.
CONCLUSIONS

Ana shows a high risk of dyscalculia in Clinical symptoms. This means that there may be cognitive weaknesses caused by dyscalculia.

In addition to the interpretation of symptoms and cognitive profile assessed, the following criteria should be taken into account to ensure the validity of the diagnosis by a qualified professional:

**General criteria from the questionnaire that Ana responded YES to:**
- Frequently uses a computer mouse.
- Has a visual, auditory, or intellectual handicap or has had some neurological damage.
- Is right-handed.
- Frequently uses a tablet or touchscreen.

**General criteria from the questionnaire that Ana responded NO to:**
- Uses glasses or contact lenses.
- Uses hearing aids.

We suggest that you see a professional in order to make a more precise diagnosis, as the results of these tests indicate that dyscalculia is very likely.

Try brain training, as it may help you improve your symptoms and your cognitive abilities. CogniFit has a series of scientifically validated and clinical cognitive activities to train the executive functions and other altered cognitive abilities related to dyscalculia, making it possible to improve the learning of reading and writing. This can reduce the clinical symptoms of dyscalculia.

Please make sure that all of the questions have been answered carefully and correctly and that the assessment was completed in a quiet room free from distractions, as this may alter results. The data in this report corresponds to a specific time in Ana’s life and may vary over time.

COMMENTS