BACKUP UGANDA

Gulu, Uganda / Zwolle, The Netherlands
E-mail: info@backupuganda.org
Web: www.backupuganda.org
Tel: UG +256 7 72630078 **NL** +31 38 4604615

Every Child Can Learn Podcast
Episode 3: Dyscalculia

- **Intro**

Glades: You are listening to the Every Child Can Learn podcast. The podcast is offered to you by Backup Uganda and Brainstud. You can listen to our podcast online on our website, www.backupuganda.org, and if you are in Gulu, you can pick up the audios offline from Mega FM, Divine Video & Music Library, Highland Primary School, Gulu Prison Primary School, Gulu Town Primary School, Mary Immaculate Primary School, St Joseph's Primary School, or Christ the King Demonstration Primary School. Do you like our podcast? Feel free to share it with your family, friends and neighbors! The more people learn about learning difficulties, the better we can help our children!

- **Episode intro**

Glades: Welcome to the third episode of Every Child Can Learn, a podcast series about how to meet every child's learning needs - even if they are a little more complicated.

My name is Glades and I work as the Lead Trainer at Backup Uganda. Today, I am joined by Gertrude. Gertrude, please introduce yourself?

Gertrude: Thank you Glades. My name is Gertrude and I work at Backup Uganda as a trainee. In today's episode of Every Child Can Learn, we will be taking you through all the details of a specific learning difficulty called dyscalculia. If you listen to the word closely, I think you already guess what it is about…

- **Recap previous episode**

Glades: But before we tell you all about dyscalculia, let's look back at the previous episode for a second. In episode two of Every Child Can Learn, we talked about a learning disability called dyslexia, which is a disability that shows itself in reading, writing and spelling. We hope you listened to this episode already; if you haven't, you can find it online on our website, www.backupuganda.org, and offline at Mega FM, Divine Video & Music Library, Highland Primary School, Gulu Prison Primary School, Gulu Town Primary School, Mary Immaculate Primary School, St Joseph's Primary School, or Christ the King Demonstration Primary School. . Remember: children with dyslexia can still learn how to read and write! They will just need extra help, time, encouragement and practice, both at school and at home. Now, let's get started with dyscalculia.

- **Today's topic: Dyscalculia**

Gertrude: In this third episode, we are going to talk about what we like to call 'dyslexia's sibling': dyscalculia. What familiar English word are you hearing in this word 'dyscalculia', have you figured it out? That's right, if you listen closely, you can hear something that resembles 'calculate'.

Gulu, Uganda / Zwolle, The Netherlands
E-mail: info@backupuganda.org
Web: www.backupuganda.org
Tel: UG +256 7 72630078 **NL** +31 38 4604615

I think you must have understood by now: Dyscalculia has everything to do with numeracy and mathematics. Dyscalculia can show itself in many different ways, ranging from having a difficulty in understanding what numbers are, and to use difficult mathematical operations.

What is very important to keep in mind, is that we should always look at children's age and level of education as well, if we want to find out whether he or she has dyscalculia, as it is called. For example, if a 7-year old boy in Primary 2 is not able to calculate the surface area of a rectangle, we can't conclude that this child has dyscalculia, because he will learn this skill later on in other classes. Even if this boy would be 12 years old, in Primary 6, he would still not be able to calculate the surface area, because he has missed half of his math lessons up to this point. In his case, the reason for him being unable to do specific mathematical operations, is that he was not there in many of his lessons. So when do we say someone has dyscalculia? That is what we are going to talk about today.

A final important thing to keep in mind, is that having dyscalculia has nothing to do with how intelligent or how bright someone is. It is a difficulty in a very specific area, and it is not related to how a child is performing in other subjects, for example. For children with dyscalculia, what you often see is that their general performance is okay, for example, they perform well in English, Social Studies and Science, but not in Mathematics.

- **Characteristics of dyscalculia**

Glades: So what are these specific characteristics that someone who has dyscalculia shows? In many cases, these signs will become clear when a child has already started school and it is time to learn basic numeracy skills. But, let's remember that a lot of these skills actually start from home. We will go through different examples to help you know what to look out for in your children, whether you are raising them or teaching them. But before we do that, please keep in mind that pretty much every child shows these characteristics when they first learn the basics of numeracy and mathematics. It is good to remember that there is a difference between still being in the process of learning something new and getting stuck in that process.

One of the key challenges that a child with dyscalculia faces, is understanding the relationship between a number and a set of items. You see, numbers are symbols that we created to be able to communicate more easily, but they always represent something. If you see the number '5' and it doesn't have any meaning for you, then it becomes difficult to use it for anything, for example calculations. It is vital that children learn to understand that '5' always means '5 of something'. We don't always say it out loud, for example we just say '5+5', but a number always represents something. Children generally learn this when they are very young, with simple items at home, when they start learning how to count, like with cards, balls, or sticks. You simply cannot count 'nothing', there has to be something you can touch or see. For children with dyscalculia, learning to understand this relationship between numbers and sets of items doesn't come so easily, they need help with this.

Gulu, Uganda / Zwolle, The Netherlands
E-mail: info@backupuganda.org
Web: www.backupuganda.org
Tel: UG +256 7 72630078 **NL** +31 38 4604615

Gertrude: Another challenge that you see with children with dyscalculia, is that they struggle to put objects into groups. For example, if you give them different types of coins, it can be hard for them to organize them according to 100 shillings, 200 shillings, 500 shillings, et cetera. At school, in many cases they will have to do it with items that are drawn on the chalkboard or on papers, which makes it extra difficult for them.

If it is hard for you to understand what numbers really are, what they represent, it also becomes difficult to work with them. That is why children with dyscalculia often find it challenging to figure out which number is larger or smaller than the other. You can imagine this: if you are not sure what the number '5' stands for, then it is also not easy to decide if it is bigger or smaller than '7'. The numbers have to mean something to you before you can also do something with them.

Children with dyscalculia tend to mix up numbers as well, especially when they consist of more than 1 digit; like 36 for example. If they have to read this out loud, they may easily say 63 instead. The same thing may happen with them when they have to write down a number that is being said out loud, for example by the teacher. They may hear '36', but will start by writing down the 6, followed by the 3. This can even happen to them when they are copying numbers from the blackboard. One of the ways you can see this happen at home, is when your child finds it hard to learn how to read the time, for example from a phone.

Glades: As Gertrude mentioned earlier, children with dyscalculia can struggle with using basic mathematical operations as well. By that, we mean doing additions, subtractions, multiplications, divisions, and everything that goes beyond that. Let's think about how doing divisions works for example. For you to be able to do divisions, you have to understand a lot of different aspects, starting with what sharing means. You have to be aware that a larger number of items can be split up into smaller, equal groups, and that they will still add up to the same number you started with when you put them back together. This understanding doesn't come automatically, you have to learn this, for example by seeing how it works in real life. Like if you have 10 oranges, you can divide them into two groups of 5, and when you put them back together, they will still become 10. Until you understand this concept, you can try to memorize the answers to specific division questions, but you will not fully grasp what you are doing. This memorizing is something that children with dyscalculia will try sometimes: they will try to hold on to the 'correct answers', because they have not fully mastered how to get to these answers. If you don't understand how to do basic mathematical operations, then that will continue to cause you problems every time you try to learn a new math skill, because you need these basic operations to do almost anything else.

The confusing thing about math, is that we use so many different words to mean the same thing. We can say addition, we can say plus, add, total, sum, and it all means the same: we want everything to be put together. If we want something to be subtracted, we can say minus, deduct, take away - many different words that all lead to the exact same outcome. This isn't exactly

Gulu, Uganda / Zwolle, The Netherlands
E-mail: info@backupuganda.org
Web: www.backupuganda.org
Tel: UG +256 7 72630078 **NL** +31 38 4604615

helpful for children with dyscalculia, they like mixing up these different terms. They need enough guidance and a lot of reminders of what means what exactly.

Then, translating what we call a 'word problem' into a mathematical problem to solve can pose a challenge to a child who has dyscalculia. I'm sure most of us remember these stories from our math lessons when we were little: "John goes to the market to buy fruits. His mother sent him with 10,000 shillings. He buys bananas for 2,000 shillings, oranges for 3,000 shillings, and watermelon for 1,000 shillings. How much does he have left?" There is a math problem hidden in this story, and we want our children to be able to filter it out. Of course, these are everyday situations we are talking about, not just problems in a textbook. We have to learn how to figure out what we are expected to do. In this example, John goes to the market with money and he keeps spending some of it, so we subtract that from the total amount. But, if we change the story? What if we want to find out how many pieces of fruit he came home with? Are we still doing subtractions? No, we have switched to additions now. For a child with dyscalculia, turning word problems into math can be a real challenge.

Gertrude: Dyscalculia is not the same for every child. Some have mild versions that would even go unrecognized for a number of years, until they get stuck at some point and do not seem to be able to get past it. For others, it becomes obvious from a young age and it starts bothering them from the moment they need to start using numeracy skills. The biggest risk with dyscalculia is that basically all mathematical skills are built on a couple of standard basic numeracy skills, so if you don't master those basic skills, you can be left behind very fast if your challenge is not recognized.

Before we go to the causes of this mathematical disability, let's talk about one of the most basic math skills we learn in life: counting. Counting seems something so automatic, but it has a couple of principles that you need to follow if you want to do the right thing. If your child is just learning to count, or perhaps your child is in one of the lower primary classes, and he or she is finding math difficult, you could try to find out if they have understood the basic principles of counting:

- First of all, when you count, every object you count only gets one count word. You cannot count the same object twice, if you do that, you will not get the accurate total when you are done.
- Second, you have to make sure you use the count words in the fixed order. A long time ago, we all agreed that we go from 1, to 2, to 3, etc. If we start mixing up the order of the count words, like 3, 5, 1, for example, we will not get where we want to be.
- Third, the last count word we use always represents the total number of objects. So, if we count 1, 2, 3, 4 bananas, then 4 has to be the total number. You can see why it is so important to use count words in the right order, right? If you mix these up, then the last count word does not represent the total.

Gulu, Uganda / Zwolle, The Netherlands
E-mail: info@backupuganda.org
Web: www.backupuganda.org
Tel: UG +256 7 72630078 **NL** +31 38 4604615

- Fourth, any collection of objects can be counted. It's not like we can say, we can count bananas, but not oranges. As long as it is a collection of separate objects, it can be counted.
- Finally, the order in which we count objects, does not change the outcome of the counting. Whether I count bananas from left to right, or from right to left doesn't matter, the outcome will always be the same, as long as I follow the other counting principles.

So, you can see the statement 'my child is not being able to count' can mean different things. Which aspect of counting exactly, that is difficult for them? Is it the order of the count words? Do they know that you don't have to start counting from the same object every time? If you can figure this out, you can try to find a way of helping them.

- **Causes**

Glades: The causes of dyscalculia are actually similar to the causes of dyslexia. Remember how we talked about how different parts of your brain have different tasks they perform, and how they also work together to complete specific tasks? When we are talking about dyscalculia, it comes from the parts of your brain that are related to numeracy and mathematical thinking that can be a different size or shape than they are supposed to be, or they work differently than for most people. This can happen for several reasons, because the way your brain develops is influenced by many factors. For example, you could inherit this from your parents, or even your grandparents. Then, a lot of things have an impact on how the brain of an unborn child develops as well. If the mother drinks alcohol, for example, or uses specific medication that affects the baby, then that can change how the baby's brain is built, so to speak. In rare cases, someone can even develop dyscalculia after getting in an accident that affects the brain. We call that an 'acquired dyscalculia'.

Even though we know more or less what causes dyscalculia, it cannot be cured, not even with a surgery on the brain. It stays with someone throughout their life. The good news is, dyscalculia does not prevent a child from learning numeracy and math. They may take longer to learn specific skills, but that does not mean they can never learn. They may find it harder to get to a point where some of the math becomes 'automatic', like knowing the answer without having to actually do the calculation, but they can still learn. To help them learn, there are a lot of things we can do from home, at school, and sometimes with the help of specific experts.

- **How to help**

Gertrude: Let's continue on this positive note: how can we help children who have been dealing with dyscalculia? It is good to keep in mind that there are ways of helping that are more general, that can help children with nearly every type of difficulty, and there are ways to support that are specific for challenges that come with dyscalculia. Both can be used by teachers at school and by parents at home.

Here are some of the favorite tips:

Gulu, Uganda / Zwolle, The Netherlands
E-mail: info@backupuganda.org
Web: www.backupuganda.org
Tel: UG +256 7 72630078 **NL** +31 38 4604615

- Be patient. Time pressure, other types of pressure and punishment do not help a child with dyscalculia to improve. They are not making mistakes because of their choice, they are making mistakes because they find it hard to understand something. Being stressed because of having limited time, or because a punishment is waiting when the answer is wrong, does not mean that your brain works better; in fact, it usually does the opposite, and it may even make you start hating what you are trying to learn. If your child knows that it is okay to take the time they need to try, and try again, they are more likely to keep trying.

- Keep motivating and encouraging. We have said this before: a child with a learning difficulty generally works 10 times harder and gets only half of the result. Try to put yourself in their shoes: would it make you excited to keep making a lot of effort, when you see all your friends doing less work and getting better results? I know I would probably get tired of that at some point… So, if you want your child to keep going, they need you in their corner. They need to know that it is okay to make mistakes, it is all part of learning, and that you are there to support them. You would do this through words, through small rewards when they have worked on a task, anything that you know works for your children. Rewards do not have to be big, expensive things at all. It could be a sweet, a pen, or even an activity that the child really likes doing. And remember, rewarding a child's efforts can be at least as effective as rewarding their results. Even if they make a lot of mistakes, we want them to keep trying, so it is the trying part that we need to keep encouraging. If they are in an encouraging environment both at home and at school, they are much less likely to give up.

Glades: - Help build their confidence. Your child needs to know that their value as a person, as a human being does not depend on their performance in school - or in this case, in mathematics. This is not the same as pretending to your child that they are good at everything. It is not useful to anyone to tell a child 'wow, you are so good at mathematics' when this is not the case. Instead, you could be honest and realistic with your child about their abilities and their progress, but in a way that does not stigmatize them. Teach them that they are important no matter what, emphasize their talents and help them grow in those areas too. There will likely be a lot of judgment coming their way at some point, even from their peers in class. There will always be this child who says "haha, you are stupid, you cannot even solve this simple math problem". You know how children can be very honest, they still need to learn what is appropriate to say and what isn't. Children with dyscalculia will need their own confidence to deal with this, both by standing up to their peers, and by reminding themselves that their difficulty does not mean they do not matter as human beings.

- Give your child plenty of time and opportunities to practice. A child with dyscalculia will simply need to keep trying over and over again, without too much pressure from their parents or their teachers that they should learn a new skill faster. Remember, a child cannot change the way he or she learns, but we can adjust the opportunities we give them to learn. The more practical, or tangible their moments of learning are, the more helpful they usually become. Let children

Gulu, Uganda / Zwolle, The Netherlands
E-mail: info@backupuganda.org
Web: www.backupuganda.org
Tel: UG +256 7 72630078 **NL** +31 38 4604615

practice with objects they can see and touch, for example to learn more about weight, distance and shapes. Let them use beads or counting sticks or anything like that when they are practicing multiplications. Everything that makes math more real, will help make it come to life in their minds. As a parent, you can easily try to integrate this in daily activities at home: if your child is helping you cook beans, let them organize the beans in groups of 10, see what the total is when you put 3 groups together, or 6 groups, and all of a sudden your child will be practicing multiplications. If you need to buy a few things from the shop, make a list from home, help your child calculate how much money is needed, go there together, help your child figure out how to use the money, how much balance they need to receive, anything you can think of to make math real. You can definitely guide them in the process of learning new skills, but try to avoid giving them the correct answers. They need to learn the steps to get to that correct answer, and they need to learn how to do this independently.

Gertrude: - Parents who are listening: apart from everything you do with and for your child at home, I want to encourage you to communicate and even meet with your child's teachers regularly. Dyscalculia can be a complicated challenge for a child to deal with, and guess what: every child with dyscalculia is different, so their teachers will need to find ways to teach them that fit your unique child. As a parent, you know your child better than anyone, so you will be able to give the teachers what we call 'inside information' that they may never get without you. You know what your child likes, what he or she does not like, what motivates him, et cetera. If you can work together with the teachers, to set up a plan to help your child at school and at home, then your child will experience consistency and support everywhere. Teachers who are listening: I know teaching children with learning difficulties in general can be tough. You have a lot on your plate, you may have many learners in your class who all need something from you, and then there are a few children who need even more of your help. Let's try to remember that none of these children choose the difficulties they are facing. They badly want to learn just like everybody else, and you are the key to make that happen. You have an incredible opportunity to make a difference in the lives of so many generations of children. What is crucial when it comes to children with dyscalculia, is to find out where exactly they got stuck.

For example, if we have a child who finds it hard to calculate the surface area of a rectangle, like we had discussed before, this may not be the actual problem they are facing. What skill do you need to calculate the surface area? Exactly, multiplication. And what do you need to be able to do if you want to use multiplication? Grouping of objects, even counting. This child could have got stuck at any of these skills, before they even reached the point of having to calculate the surface area of that rectangle. If you can figure out what the point is for this particular child, then you will be able to help them to get past that point. And remember: just because a child is in Primary 6, for example, does not mean you shouldn't help them with a skill they should have learned in Primary 2. If you don't help them with it, then who will? You can encourae your learner's parents for this as well, especially if this child needs more practice outside the usual lesson hours. As I said, come up with a plan together, and you will be able to complement each other's efforts.

Gulu, Uganda / Zwolle, The Netherlands
E-mail: info@backupuganda.org
Web: www.backupuganda.org
Tel: UG +256 7 72630078 **NL** +31 38 4604615

- The key to all of this, is learning to listen to children. We like talking about them a lot, but how about we start talking with them? If we offer a safe space to share what they are struggling with, we might just learn to understand them a whole lot better. If your child, or your learner, is convinced that you are there to help them, they may lose their fear of sharing their weaknesses and asking for support. Let's be honest with ourselves: our children hide their challenges, because they want us to think well of them. They would rather avoid our judgment, or even our punishment. In the end, we all want the same thing: our children to reach their full potential in life. How about we start working together to make this happen?

- **Closing**

Glades: Thank you for listening to our 3rd podcast discussing how every child can learn, where we do our best to help you understand the different learning difficulties and how they can be managed well. We hope you keep track of our next episodes to get all the details on these difficulties one by one. In the next episode, we will be talking about ADHD, which has everything to do with concentration and being overly active, so make sure you don't miss it. See you there!

- **Outro**

Glades: Thank you for listening to Every Child Can Learn. Please share your thoughts with us! Join the conversation on Facebook or send your questions to 0772630078. Do you want to learn more about Backup Uganda and stay updated about our activities? Check our website on www.backupuganda.org and follow us on Facebook, Instagram, Twitter and Linkedin.