

## Dealing With Dyscalculia

By Lisa Harp

Dyscalculia is a big word, a mouth full, really. Most people are aware of it and aware that it has to do with problems doing math. But this syndrome encases so much more than simple math inefficiencies. Dyslexia is so common that everybody knows what it is, and reading and writing problems seem to get all of the attention. But what about math problems? Is it just math anxiety, or is there a real underlying problem?

So, what is dyscalculia? Dyscalculia is a term which means "specific learning disability in mathematics". Following is a list of symptoms of dyscalculia:

- Poor mental math abilities
- Inconsistencies with basic computation of addition, multiplication, division, and subtraction
- Difficulty understanding money and credit concepts
- Fails to understand how small steps add up
- May use number additions, substitutions, transpositions, and reversals (this is similar to the dyslexia that we are all familiar with except it is with numbers)
- Almost always unaware of mistakes
- May do well on book work but fails math tests
- May do well with reading, writing and other subjects but cannot seem to understand mathematical concepts

By now you may have a general idea that you or your child might be suffering from dyscalculia. It is often more frustrating than any other learning disability, because usually these kids do so well in other subjects. "Just try harder," parents lament. Or, parents will bring out the trusty old flash cards and force the child to go over them time and again. By the next day it is new information to the child, and the frustration goes on. Parents are convinced that the child is just being lazy and trying to not do math, when nothing could be further from the truth.

After the immense pressure of performing well in math and trying hard, these kids really do develop a math anxiety on top of dyscalculia. They do have processing disorders and are being made to perform with intense pressure to do well. This math is like a foreign language to them, and we are asking them to speak it fluently in front of a large group of people.

Generally, once dyscalculia is diagnosed, the student is given modifications to help. Modifications are great. The best modification for dyscalculia is to arrange to have the student re-take a math test that was failed. This sure takes the pressure off. There are other modifications that can help, but it is most beneficial to get to the root of the problem. The left and right side of the brain must be

considered. The processing must be dealt with. The anxiety must be calmed. Then, and only then, will the student succeed.

First, the left and right sides of the brain must become balanced. It is common knowledge that the left hemisphere of the brain is where we process math and logic. Most kids with dyscalculia are right hemisphere dominant. They are simply not using the left sides of their brains. They need taught how to do this. There are many brain building exercises available that will do this. The brain needs to be balanced for efficient use. The student needs to be able to access the left side of his brain as easily as the right, and then math can be learned. The brain must be taught how to access the left side of the brain. In addition, it is always best to have these kids use colored pencils and blank sheets of paper when doing math. Color is what keeps the right side of the brain focused. These right brain dominant kids see colors and pictures. As they work on their math, the color keeps them focused. The blank paper keeps them from getting distracted.

Most kids start doing better in math after a few weeks of brain balancing exercises. The magic eights activity with numbers is truly magic for these kids. It is also a good idea to have them count by 2's, 3's, 4's, etc. This orders their world and helps their brains work in a more systematic way. Have them write their 2's one day, 3's the next, and so forth. Cross crawls, martial arts, baseball, and golf are all good brain building exercises, too. These alone won't cure dyscalculia, but they all will help.

Next, let's deal with processing disorders. These kids just can't keep three or four images in their minds. And we ask them to do long division. Boy, division is long for these kids. While the ace math student is on number 24, these kids are still on number 1. Their pages are a mess after all of their erasing, and they just can't remember what  $5 \times 6$  is. By the time they figure out what the answer to  $5 \times 6$  is, they forgot where they were on their page and which step they were on. Was it the multiply part or subtract? And it goes on. Of course they don't get the right answers and they come home with 40 math problems to do. (OK, here is a modification that is good, too. Have the student's problems shortened until success is met.) Throw in fractions, and these kids are convinced they can't do math and that they are dumb.

The problem really isn't the math. The problem is that they are weak in visual memory and they have a difficult time processing more than one step at a time. So, work on visual memory skills first with these kids. The weak visual memory is why they can't remember their math facts. I have yet to meet a kid with dyscalculia who knew all of his math facts. The best way to do this is to hold up a card with a few numbers and shapes on it. Here is an example:



Hold this card up to the child for about 5 seconds and take it away. The child then copies the shapes and numbers from memory. As the child gets better at this, add more shapes and numbers. A few minutes of this every day helps. Eventually, you can move on to a math fact done in the same manner. Did you notice the use of color again? Black and white does very little for these kids. We want to meet them half way and give them some tools for success. Color is one of these tools. Don't use purchased flash cards for these kids. You may have noticed by now that they don't work. Give them a math fact in color and use it in the above mentioned manner. Do about 2 or 3 a day. Don't overload them. Have them recall the facts from yesterday before moving on. If they are still having trouble, they need pictures and stories to help them remember. If this doesn't work, then they need a tactile method. Have them write their facts in shaving cream. Soon, all of the facts are learned, and math becomes much easier.

Next, you need to make sure these kids are able to do more than a couple of steps at a time. Practice with commands such as walk, jump, skip. Keep adding on to the list of commands. Do this on paper. Say two numbers. The student is to write them. Add another number. The student must write it and the previous numbers. Play with pattern blocks. You and the student both have a matching set. Make a shape with yours, show it to the student and then cover your set. The student must remember the order the shapes were in a place his in the matching order. Give the student a number. Have him add another number to it. Then have him remember that number and multiply a number with that new number, and so on. You see, these are games that build on processing.

Card games are wonderful. Board games help, too. Let your kid be the banker, even if he messes it up. It's only a game. Help him give change back. I have noticed that kids who play a lot of board games with their families do better in math than those that don't. Kids who play a lot of video games seem to do worse. Do you see the connection? I use the game Blink a lot with my students with dyscalculia. They must be thinking of many things at one time, just like you need to with long division. Kids love games and will play them longer.

Finally, the math anxiety must be dealt with. This is the most difficult part of dyscalculia for many people. After all is said and done and the student is performing better, he still keeps the anxiety. Every test can cause his palms to sweat and his heart to beat fast. He is basically in fight or flight, and we know that we can't learn and think in this mode. We simply react. With the new math standards going to more and more reasoning and problem solving instead of computation, this is not the best method for a struggling math student.

Take the pressure of the student to start with. If he fails a math test, so what? See if the teacher will let him take it over. Practice the night before the test to assure confidence. Don't berate the child for doing poorly. Don't punish because of his grades. He really is doing the best he can. If the student is in high school and needs credits, you will have to be very actively involved in the student's life. Teachers must be aware of the problem and be willing to help. Go over daily work with the student. Have practice tests with the students. Pretend that it is test day at school. You may even have to have the student tested in a separate room so they are not watching what other kids are doing. My daughter has math anxiety. We found out last year that if she went to the back of the room to a separate table that she did much better. She was judging herself against the other kids who were whipping through the test and she had herself convinced that she would fail because they were smarter than her. The mind is truly amazing, isn't it?

These are just some basic tips to help you with a child with dyscalculia. There are so many more things to do to help these children. Just be sure that they do get help. It is lonely and scary to be in a math world that you just don't understand.