



NEUROLOGY

Vol.1 Issue 1.
December 2019

NOW

TRANSFORM YOUR CHILD'S LEARNING DIFFICULTIES INTO SUPERPOWERS

How a new way of looking
at ADHD is helping kids go
from:

- Frustrated to Focused
- Anxious to Calm
- Struggling to Sociable

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INTRODUCTION

So you think your child has, or indeed already has been diagnosed with some sort of 'personality' or 'learning' disorder? Perhaps you've left another awkward meeting with their teacher? Or you're worried because they are locked in their room after yet another tantrum or angry outburst?

If that's the case then right now you're probably feeling flooded with a combination of frustration and fear and concerned about the future and what difficulties await them.

Questions such as - are they going to be able to learn, go to university, get a job (at least a good one), make be in trouble, made fun of, or thought of as being 'stupid' all their life, despite them trying hard.

Or... you might be thinking 'Forget about the future... I just want to know how are we going to get through next week!'


I understand!

Firstly, let me assure you it's going to be alright. In fact, things are going to start changing for the better pretty quickly.

You see, being diagnosed correctly and having an expert by your side who can really explain what's going on and then give you the right tools and strategies that will work can lift a huge load off their, yours and your families shoulders.

When you find out that their 'bad behaviour', or inability to focus or make friends in school, isn't something they're doing on purpose, but rather is a result of a known condition. A treatable condition. You'll see your child in a whole new light.

More so, they'll see themselves in a whole new light when they learn that they're not lazy, stupid, out of control, the 'problem child or student', or all the things people have been calling them over the years.



THEY'RE NOT LAZY,
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So I would like to help you. In a moment, I'm going to give you some quick tools you can start using immediately, along with some longer term tools that are literally going to transform both your and your child's world. In fact, let's get started with one right now.

This will be especially useful if you're feeling a bit charged yourself. But even if you're not, do this with me. It's super quick and I guarantee you'll experience a difference. It's also really simple.

Take a slow, deep breath, inhaling for a count of 5. Then slowly exhale for another count of 5.

Do this right now for at least 5 breaths, slowing and letting go of your thoughts with each breath.

How does that feel? It's amazing how quickly we can start to change our thoughts, behaviours and emotions when we know how and have the right tools. That exercise is a form of well researched Neurocognitive Therapy. More about that in a moment, but first...

I want to set your mind at ease.

You see, I've been on the forefront of research and studies of ADHD, behavioural and learning disorders (along with a ton of related subjects that I won't go into here), for more than 33 years.

But more importantly, we've successfully treated thousands of kids through our cutting edge centre.

And I can tell you, you're going to look back at this moment as one of the best things that has ever happened to you and to them.

Now, that's a big statement. I know. But I speak from the same experience that almost every parent we work with has. You will be delighted to move forward discovering things about yourself and your child that you would have never otherwise discovered if your child was simply labeled as 'normal' and you never got this opportunity today to go deeper into how they work- and work very well.

In fact, you're going to discover that what was once labelled a disorder is actually a superpower when your child learns how to use it to their advantage. The only question is - How much of a superpower?

Here are just a few of the many famous names now and from history who have spoken about their ADHD, Aspergers, Dyslexia, Autism or other learning difficulties or disorders... or that many experts believe would have been diagnosed with had they been tested.

John F. Kennedy, Michael Phelps, Britney Spears, Jim Carrey, Bill Gates, Walt Disney, Richard Branson, John Lennon, Mozart, Pablo Picasso, Thomas Edison, Alexander Graham Bell, Liv Tyler, Leonardo da Vinci, Channing Tatum, Will.i.am, Justin Timberlake, Jamie Oliver, Erin Brockovich-Ellis, Emma Watson

Not a bad group of names to be associated with. And that's just the tip of the iceberg. So, let's get started looking at some of these tips, tools and strategies.

Dr. Jenny Blum BAppSc (SpPath) MAppSc(SpPath) PhD (Med) CPSP MSPA Uni Syd 1997 Principal Certified Practising Speech Language Pathologist, Cognitive Behaviour Therapist and Cognitive Neuroscientist (see Researchgate for publications).

FIND YOUR CHILD'S LEARNING STYLE

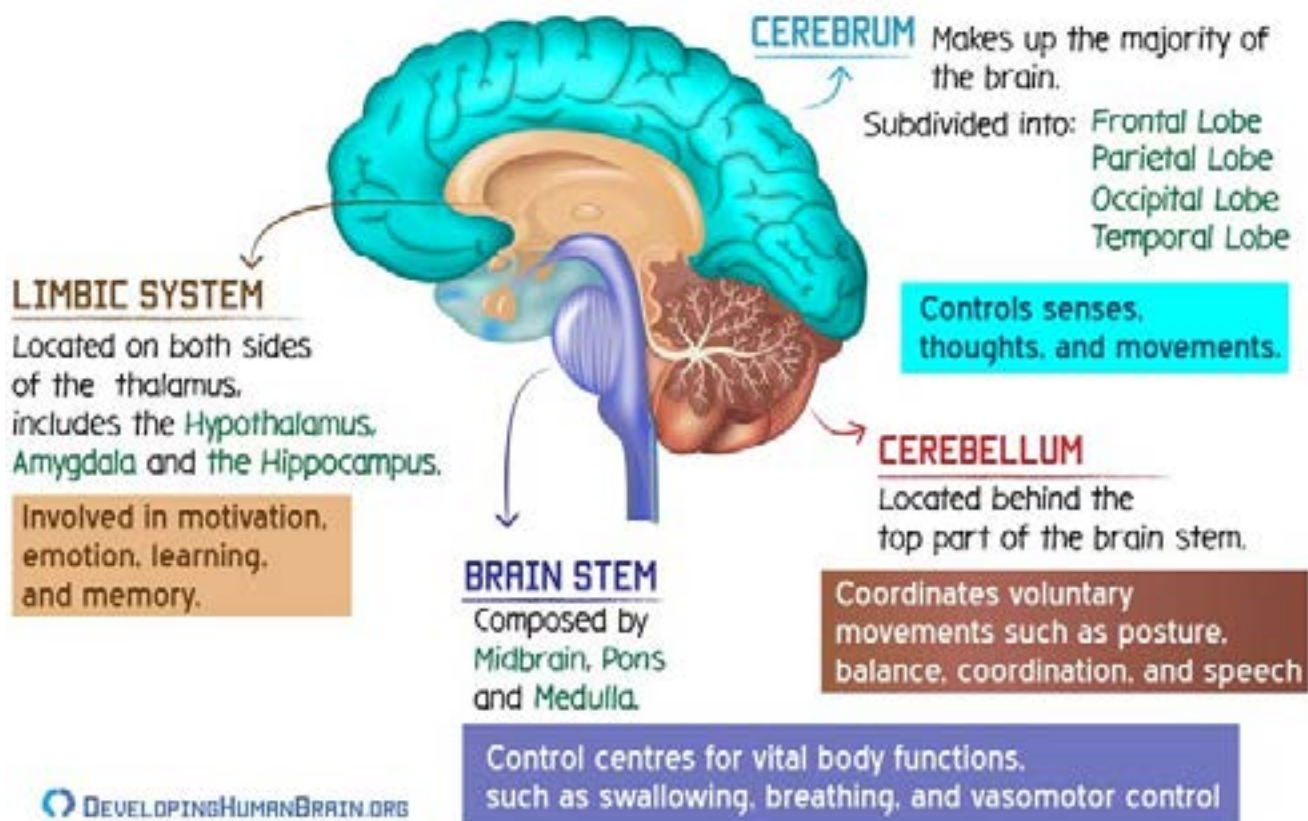
There's a great quote that says...

"Everybody's a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid."

This sums up the idea of learning strengths & weaknesses and how different kids work differently to others. There are many factors that shape our learning strengths, some environmental (how you are raised and the environment and people around you) and others that are hard wired into us, many of which take place in the womb.

The bottom line is that we are all wired differently and means that we all have our superpowers and our kryptonite. Nostyle is right or wrong. However, trying to learn in a style you struggle with vs being in your 'zone' can mean the difference between night and day .

BRAIN PARTS EXPLAINED



SOURCES: <https://www.enkiverywell.com/parts-of-the-brain-and-their-functions.html>
<https://www.healthline.com/human-body-maps/cerebellum>
http://www.innerbody.com/image_nerv02/nerv41-new.html

HOW TO WORK IN A CONCENTRATED FLOW USING THE POMODORO TECHNIQUE



MANY KIDS WITH LEARNING DIFFICULTIES
HAVE TROUBLE FOCUSING FOR LONG
PERIODS OF TIME. THAT'S WHERE THE
POMODORO TECHNIQUE CAN WORK
WONDERS.

The Pomodoro Technique is a time management method developed by Francesco Cirillo (pomodoro, is the Italian word for 'tomato', which he named the technique after the tomato shaped kitchen timer that he used as a university student).

The idea is to use a timer to break down work or study into short intervals of 25 minutes each, separated by short breaks of 5 minutes. After 4 of these intervals, you take a longer break of 15 to 30 minutes.

The Pomodoro technique can make a huge difference to kids for several reasons.

Firstly, when you know you're only working for a set period of time, with a defined ending, it's easier to give it your all.

Compare that to sitting down with the idea that you're going to study for the next 5 hours... your mind starts wondering after the first few minutes.

Secondly, you're gamifying the process of study/work.

Have you ever been doing a repetitive task (like washing the dishes) and to make it more interesting, you challenge your self to beat the number of plates you can wash in a minute?

By the very nature of having a clock to beat, you'll find your child racing through their home working to see if they can get it done in a 25 minute session, or reading ferociously trying to beat the numbers of pages they read last session. Gamification is what makes video games so engaging and addictive... what if you were able to harness that power?

HERE ARE THE STEPS TO USING THE POMODORO TECHNIQUE:

SIMPLE AND EFFECTIVE

1. Get a timer (if you search Pomodoro timer, you'll find plenty online and in the app stores)
2. Decide on the task to be done (read x pages, write 600 words, answer 20 questions, etc)
3. Set a Pomodoro timer (traditionally 25 minutes with a 5 minute break)
4. Work on the task with total focus and energy for 25 minutes
5. When the timer goes off, stop working. Get up and walk around and move the body
6. After 5 minutes of rest, start the next 25 minute session. and repeat
7. After 4 sessions, take a longer 15 to 30 minute break

So the sessions will look like this...
25:5 25:5 25:5 25:30

Then repeat as many times as you want.

This technique doesn't just work for kids who have difficulties, it works well for all kids... and adults alike.

GIVE IT A GO.



CHUNKING AND USING THE POWER OF PRIMACY AND RECENCY TO SUPERCHARGE LEARNING



Two of the biggest challenges with kids with learning difficulties are:

- Getting Started
- Completing

Sometimes a subject, project or task seems too big. Too big that they don't know where to start. They know they have to, but it just seems too hard. The pressure builds and then procrastination and distraction kick as a way of relieving the pressure.

Or perhaps they get started, but the tasks seems to be dragging on. With no finish line in sight, progress slows and as soon as there's a distraction, they're off.

So, what's the best way to approach a big tasks or project? The same way you eat an elephant. One chunk at a time. This methodology goes hand in hand with the last tip, the Pomodoro Technique.

By chunking projects down into small, manageable tasks that can be done in 25 minutes or less, we create a specific start, gamified middle, and a specific end point. There is now a defined path from beginning to end. One that, as they start achieving each task and feeling the success that comes from each accomplishment, will create an unstoppable momentum.

You can think of each chunk as a level in a video game. This chunking is supercharged by the Primacy and Recency Effect.

The Primacy and Recency Effect says that the information presented at the beginning (Primacy) and end (Recency) of something (say a study session) tends to be retained better than information presented in the middle.

So, let's say there was a 3 hour study session. This would have 1 beginning point (primacy) and 1 end point (recency), where information would be retained better. However, by chunking down and using the Pomodoro Technique to have 6 intervals x 25 minutes, we now have 6 beginning points (primacy) and 6 end points (recency), where information would be retained better.

THE POWER OF BREATH

NEUROCOGNITIVE THERAPY IS SIMILAR TO MINDFULNESS AND MEDITATION PRACTICES (AND IT'S WHAT WE BRIEFLY PRACTISED EARLIER). I'M GOING TO SHARE WITH YOU A NEUROBEHAVIOURAL TECHNIQUE THAT ORIGINATED IN ANCIENT YOGIC AND BUDDHIST PRACTICES OF OVER 2000 YEARS AGO. SINCE THEN, IT HAS BEEN ADAPTED TOWARD A MODERN NEUROCOGNITIVE PRACTICE.

BREATHING 5X5

Your child is taught to become aware of their thoughts, emotions and inner responses.

Firstly, they slow their breathing by breathing in for a count of 5 and then out for 5.

They are then taught progressive relaxation exercises that systematically slow their thoughts, extreme emotional responses, anxiety or flight and fight responses or their constant vigilance and over alertness instead of these, they are taught to go inward and focus upon their breath and still their minds so that a deeper level of mindfulness and brain stillness is initiated and maintained.



NEUROLOGY NOW NEUROCOGNITIVE THERAPY CAN HAVE POWERFUL EFFECTS ON SELF ESTEEM BY CATCHING THE NEGATIVE STATEMENTS AND SELF TALK AND REPLACING IT WITH POSITIVE WORDS AND STATEMENTS SUCH AS "I AM RELAXING, I AM SAFE AND CALM AND WELL." "I AM SUCCESSFUL, I AM CONTENT" " I AM PROUD". ON TOP OF THESE AMAZING EFFECTS, NEUROSCIENCE STUDIES HAVE SHOWN THAT JUST 15 MINUTES OF THIS TYPE OF THERAPY OR SELF-PRACTICE CONDUCTED EVERYDAY CAN LENGTHEN A PERSON'S LIFE BY 5 YEARS .

NEUROBEHAVIOURAL TECHNIQUES

Elaborated Behavioural Support Plan:

The following emotional and relational skill acquisition and self regulation activities were trialled with very good success:

Use of positive behaviour learning program with reinforcers that had been identified by parents such as giving him dollars that can be accumulated towards saving and your child's choice of what he buys with this money (helping with self esteem as well with him showing great maths skills, writing numbers, adding up for curriculum skills).

An example of this would be the statement "Wow, you are following instructions so well. Add three dollars (or 6 points if at school) to your tally. How much do you have now?" And allowing your child to express himself clearly with a follow up statement: "Can I use the money to buy what I want. Not just get a new iPad?" Your child appeared to love being understood and speaking clearly. Make sure you reflect back to show that you understand what he says before answering. "You're asking if you can use the money for something else not an iPad? Have I got that right?"

Use of neurobehavior alliance communication techniques (psychodynamic therapeutic alliance approach) to help your child communicate using appropriate means and therefore be able to calm down and self regulate. This works as your child feels as though he is being heard and understood. An example of this is when your child is given the "talking pen/pencil". He is then listened to for as long as he needs to talk without interruption. Once he is finished his carer reflects back to him what he says and asks: "Am I understanding you correctly? You want to be able to use the money you've earned on something different other than an iPad. Is that right? The main thing that is important to you is? Is there anything else you want me to understand.?" Then the carer would reinforce your child's good behaviour by commenting something along the lines of "Great expressing what you are feeling. That was a really complicated thing to explain and you did



such good speech. Very emotionally mature. I'm very proud of you. Another 5 dollars (or 20c cents or 5 points into the communication book)."

Use of 'Have to' and 'Rules' therapy: This is the explanation to your child that everyone, including the police and his parents have to do things: dad "has to" pay tax, Mum "has to" wear clothes or they will get in trouble with the police. Dr Jenny "Has to not" go through red lights even if she's running late or she will lose her permission (license) to drive. All people have to follow the rules. Even the prime minister the head of the country. Then your child had input into the rules of the household and school which we wrote out. This needs to be done each day. Your child's carer can write them down and your child can get cents as he remembers each rule or "have to" each: put them positively "We keep our hands and feet to ourselves. We speak kindly and respectfully, we use a kind voice, we express our feelings if we are upset, we go away to calm down or use the calm counter if we are starting to turn into the angry hulk and we talk about it what is upsetting with us with the "talking stick". We always follow our teachers and parent's instructions, if someone is doing something we don't like we say "Stop doing that I don't like it and put up our hand and then calm down." These can change from day to day as needed and it's important that your child begins to write them himself understand each rule. Again, use a positive behavioural learning program to reward him as he talks about and accepts the rules.

Use of the self-regulation technique of calming down/breathing meditation with use of Medtech app calm counter. Sometimes your child will find himself emotionally in "the red zone" or like hulk. The following technique is to use the calm counter app and social story when he is getting into the "orange zone" and starting to turn into Hulk. Remembering that sometimes he will move from green calm zone to hulk in a microsecond.

Use of the 5 minutes reflection time when he displays the undesirable behaviour: Immediately stop talking to, looking at or touching your child. Making sure you stay with him and keep him and his peers and teachers safe by moving items away from him and removing people away from him. This is so he cant hurt himself or his peers. Don't remove or touch your child. Don't respond in any way to him until the five minutes is up. You can look at your watch and give an updated time e.g 3 minutes to go. He has been calming himself through this reflection time and it appears to be working well. However, at the end of the reflection time calmly praise him.

"Good reflecting and calming yourself. Im really proud of you" and draw his attention to adding dollars onto his tally and doing a fun distracting activity together like counting the points in his communication book to give to his parents or asking to show you the latest science he has completed in Minecraft. Don't be negative with him or talk about what he had done wrong (just riles him up again). You can even use calm touch (this is allowed under dept of education guidelines to soothe or guide a child). However, if he starts getting challenging behaviours of concern again immediately go into another reflection time for 5 minutes and do it again. This technique appears to be working well with your child particularly when paired with a really good positive activity immediately after the reflection time to distract him and keep himself regulating. Be aware that these behaviours may get worse first as they have always provided him with a lot of release and also attention before.

Finally make sure that positive behaviours are those we provide huge amounts of specific verbal reflection, eg "I like how you calmed yourself then" and hugs and a sense of closeness with your child. Other behaviours are best extinguished by calm lack of reactions making sure that he and others are safe first and foremost by moving others and things out of his reach. Do not move your child or touch him.

WRITING A NEW NARRATIVE ABOUT YOURSELF



Narrative therapy is a form of psychotherapy that helps the child identify their values... and the internal resources they have to live these values, so they can effectively confront whatever problems they face.

For example, the child listens to a story about a particular difficulty they are facing (such as making friends or coping with being bullied). The child then repeats back the narrative back with their input into the settings, characters described, the problems faced and a resolution.

Through this, the therapist helps the child coauthor a new narrative or story about themselves.

Stories can then be written down and/or even typed up and published to remind them of their new personal narrative and the resources they have inside.

The stories can help the child begin to become aware of their inner monologue and any negative statements they are making to themselves and of any self-sabotage.

Furthermore, neurocognitive writing therapy can help them tap into positive visualisation and writing about the positive aspects of themselves and their lives.

Such positive visualisation and positive written and visualisation have been shown to improve entrenched neurocognitive patterns and move them toward a more positive mindset and set of emotions.

ABOUT DR. JENNY BLUM

BAPPSC (SPPATH) MAPPSC(SPPATH) PHD (MED) CPSP MSPA UNI SYD 1997
PRINCIPAL CERTIFIED PRACTISING SPEECH LANGUAGE PATHOLOGIST,
COGNITIVE BEHAVIOUR THERAPIST AND COGNITIVE NEUROSCIENTIST (SEE
RESEARCHGATE FOR PUBLICATIONS).



Dr. Jenny Blum has countless years of experience

As a caring mother she is also keenly aware of the importance of practical and effective solutions for busy families whilst maintaining a positive environment rewarding hard with love.

She received many awards including:

- Elizabeth Usher for Australian Academic Research
- Cambridge Bibliography Society
- Top 2000 Living Scientists of the 21st century

She has also been featured on the TV show, Catalyst (ABC) relating to research findings on the brain and is frequently referenced in both articles and books, e.g. Steve Biddulph's 'Bringing up Boys'. Jenny is also responsible for writing many papers for peer-reviewed scientific journals.

A LITTLE ABOUT US

WHAT WE OFFER FOR YOU AND YOUR CHILD

Child & Adult Think are a loving, family run practice that have over 20 years experience in Speech, Language, Learning and Developmental and Neurological disorders. We are the oldest and largest paediatric practice in Australia. We are very experienced with many difficult cases. Our practice will be able to help you with the slightest concern. We are professional and very cost-effective. We provide the latest and best programmes which are thoroughly researched and work!

Our services include assessment and therapy for:

- Children from the ages of 6 months with speech or developmental delays or specific learning difficulties
- Children at Primary & Secondary school including Special Provisions Assessment • Dyslexia assessment, e.t.c.
- Students at University with attention and learning difficulties
 - Adults with Speech and Learning issues
- Children + literacy adults with motor and sensory difficulties

Specifically our practice has core competencies in assessing and providing intervention and detailed reports for: • Dyslexia • Gifted Children • ADHD • Adolescents finding it hard to cope • Special Provisions • Autism Spectrum Disorder • High Functioning Autism Disorder • Learning Difficulties

Our lovely staff provide a mobile service to your location including rural areas, we visit schools and homes as needed.

Staff include many experienced and effective Speech and Language Pathologists and Occupational therapists, who provide clinic-based services in easy to reach locations such as Rose Bay, Sydney; South Yarra, Melbourne; Toowong, Brisbane; Glenelg, Adelaide, e.t.c.



NEUROLOGY NOW

WHAT TO DO NOW?

I hope this quick little book has given you some ideas, tools and strategies for not only dealing with learning and behavioural difficulties, but will also help you turn these challenges into superpowers.

Of course, these are only the tip of the iceberg compared to working with an experienced therapist.

If you'd like to know how we can help you and your child, then I invite you to get in contact by either phone or email.

PHONE: 0419 636 613

EMAIL: ENQUIRIES@THINKCHILDADULT.NET

REFERENCES:

Cognitive content specificity in anxiety and depressive disorder symptoms: a twin study of cross-sectional associations with anxiety sensitivity dimensions across development.

ABSTRACT

BACKGROUND:

The classification of anxiety and depressive disorders has long been debated and has important clinical implications. The present study combined a genetically sensitive design and multiple time points to investigate cognitive content specificity in anxiety and depressive disorder symptoms across anxiety sensitivity dimensions, a cognitive distortion implicated in both disorders.

METHOD:

Phenotypic and genetic correlations between anxiety sensitivity dimensions, anxiety and depressive disorder symptoms were examined at five waves of data collection within childhood, adolescence and early adulthood in two representative twin studies (n pairs = 300 and 1372).

RESULTS:

The physical concerns dimension of anxiety sensitivity (fear of bodily symptoms) was significantly associated with anxiety but not depression at all waves. Genetic influences on physical concerns overlapped substantially more with anxiety than depression. Conversely, mental concerns (worry regarding cognitive control) were phenotypically more strongly associated with depression than anxiety. Social concerns (fear of publicly observable symptoms of anxiety) were associated with both anxiety and depression in adolescence. Genetic influences on mental and social concerns were shared to a similar extent with both anxiety and depression.

CONCLUSIONS:

Phenotypic patterns of cognitive specificity and broader genetic associations between anxiety sensitivity dimensions, anxiety and depressive disorder symptoms were similar at all waves. Both disorder-specific and shared cognitive concerns were identified, suggesting it is appropriate to classify anxiety and depression as distinct but related disorders and confirming the clinical perspective that cognitive therapy is most likely to benefit by targeting cognitive concerns relating specifically to the individual's presenting symptoms across development.

CITATION

Brown, H., Waszczuk, M., Zavos, H., Trzaskowski, M., Gregory, A., & Eley, T. (2014). Cognitive content specificity in anxiety and depressive disorder symptoms: A twin study of cross-sectional associations with anxiety sensitivity dimensions across development. *Psychological Medicine*, 44(16), 3469-3480. doi:10.1017/S0033291714000828

Impact of pharmacological and psychological treatment methods of depressive and anxiety disorders on cognitive functioning

Abstract

Anxiety and depressive disorders are characterized by a number of clinical symptoms like decreased mood, apathy, anhedonia and anxiety. An important element of the clinical picture is also neurocognitive impairment. The most common treatment methods for depression and anxiety are pharmacology, psychotherapy or a combination of both methods. The data from literature show that those treatment methods lead to an improvement of clinical symptoms, but they exert a possible impact on cognitive functions. However the study results referring both to the role of pharmacological treatment and psychotherapy in this domain are still inconsistent. There is an increasing number of accessible data confirming the positive effects of those clinical interventions on cognitive functioning of anxiety and depressive patients, but the interpretation is complicated because of differences in methodology as well as examined sample size and their characteristics. More studies are then needed to describe this phenomenon.

Keywords: Pharmacotherapy, Psychotherapy, Depression, Anxiety, Cognitive functions

CITATION:

Krysta, K., Krzystanek, M., Janas-Kozik, M., Klasik, A., & Krupka-Matuszczyk, I. (2015). Impact of pharmacological and psychological treatment methods of depressive and anxiety disorders on cognitive functioning. *Journal of neural transmission* (Vienna, Austria : 1996), 122 Suppl 1(Suppl 1), S101-S110. doi:10.1007/s00702-014-1282-3

Hypnosis for Procedure-Related Pain and Distress in Pediatric Cancer Patients: A Systematic Review of Effectiveness and Methodology Related to Hypnosis Interventions

Abstract

The aim of this study was to systematically review and critically appraise the evidence on the effectiveness of hypnosis for procedure-related pain and distress in pediatric cancer patients. A comprehensive search of major biomedical and specialist complementary and alternative medicine databases was conducted. Citations were included from the databases' inception to March 2005. Efforts were made to identify unpublished and ongoing research. Controlled trials were appraised using predefined criteria. Clinical commentaries were obtained for each study. Seven randomized controlled clinical trials and one controlled clinical trial were found. Studies report positive results, including statistically significant reductions in pain and anxiety/distress, but a number of methodological limitations were identified. Systematic searching and appraisal has demonstrated that hypnosis has potential as a clinically valuable intervention for procedure-related pain and distress in pediatric cancer patients. Further research into the effectiveness and acceptability of hypnosis for pediatric cancer patients is recommended.

CITATION

Hypnosis for Procedure-Related Pain and Distress in Pediatric Cancer Patients: A Systematic Review of Effectiveness and Methodology Related to Hypnosis Interventions

Richardson, Janet et al.

Journal of Pain and Symptom Management, Volume 31, Issue 1, 70 – 84

The Efficacy, Safety and Applications of Medical Hypnosis

A Systematic Review of Meta-analyses

Abstract

Background

The efficacy and safety of hypnotic techniques in somatic medicine, known as medical hypnosis, have not been supported to date by adequate scientific evidence.

Methods

We systematically reviewed meta-analyses of randomized controlled trials (RCTs) of medical hypnosis. Relevant publications (January 2005 to June 2015) were sought in the Cochrane databases CDSR and DARE, and in PubMed. Meta-analyses involving at least 400 patients were included in the present analysis. Their methodological quality was assessed with AMSTAR (A Measurement Tool to Assess Systematic Reviews). An additional search was carried out in the CENTRAL and PubMed databases for RCTs of waking suggestion (therapeutic suggestion without formal trance induction) in somatic medicine.

Results

Out of the 391 publications retrieved, five were reports of meta-analyses that met our inclusion criteria. One of these meta-analyses was of high methodological quality; three were of moderate quality, and one was of poor quality. Hypnosis was superior to controls with respect to the reduction of pain and emotional stress during medical interventions (34 RCTs, 2597 patients) as well as the reduction of irritable bowel symptoms (8 RCTs, 464 patients). Two meta-analyses revealed no differences between hypnosis and control treatment with respect to the side effects and safety of treatment. The effect size of hypnosis on emotional stress during medical interventions was low in one meta-analysis, moderate in one, and high in one. The effect size on pain during medical interventions was low. Five RCTs indicated that waking suggestion is effective in medical procedures.

Conclusion

Medical hypnosis is a safe and effective complementary technique for use in medical procedures and in the treatment of irritable bowel syndrome. Waking suggestions can be a component of effective doctor–patient communication in routine clinical situations.

CITATION

Häuser, W., Hagl, M., Schmierer, A., & Hansen, E. (2016). The Efficacy, Safety and Applications of Medical Hypnosis. *Deutsches Arzteblatt international*, 113(17), 289–296. doi:10.3238/arztebl.2016.0289

Hypnosis as mental health therapy

Published: March, 2008

Although myths about it abound, this form of therapy is often helpful.

Hypnosis is one of the oldest forms of psychotherapy in the Western world, and it may also be the most misunderstood. Although long associated with charlatans or performers, all true hypnosis is, by definition, self-hypnosis. In spite of the prevailing myth, nobody can be hypnotized against his or her will. Instead, hypnosis is generally induced by focusing attention on positive mental imagery.

A spate of papers on the topic have urged clinicians to remember that this therapy is an option when treating patients.

When to consider hypnosis

A number of hypnotic techniques exist, combining relaxation with imagery. People who undergo hypnosis may achieve a trancelike state, similar to what happens when they daydream or meditate. But hypnosis is actually a heightened state of concentration. The aim is to focus the mind to eliminate distractions and make someone more open to suggestions, such as those that promote the aims of treatment.

The American Medical Association approved hypnosis as a therapy in 1958, and the American Psychiatric Association followed in 1961. Since then, reviews have provided evidence about when this therapy is effective.

Pain relief. A meta-analysis published in 2000 concluded that hypnosis offered moderate to major relief for many types of pain. And a 2003 analysis found that hypnosis was at times more effective than other pain relief methods.

Hypnosis may be used as an adjunct to various types of sedation during surgery. A 1999 review concluded that hypnosis combined with conscious sedation might also reduce length of stay in the hospital by speeding recovery. A 2007 study found that women who were hypnotized before undergoing a breast biopsy or lumpectomy required less sedation during the procedure, and experienced less pain, nausea, and emotional distress afterward.

Studies also report that hypnosis can be effective for alleviating pain caused by chronic tension headaches and migraine headaches.

Anxiety. Hypnosis also helps to alleviate anxiety. It has been studied most as a treatment for anxiety related to surgery. Many studies have reported that hypnosis reduced anxiety levels and lowered blood pressure in patients before surgery, and enhanced recovery afterward by shortening hospital stays and reducing complications like nausea and vomiting.

In a 2006 study, for example, patients who underwent hypnosis received suggestions of well-being before surgery. Upon entering the operating room, they reported anxiety levels 56% lower than anxiety levels before hypnosis. Patients in a comparison group, who received the normal presurgical standard of care, reported a 47% increase in anxiety.

Where questions remain

For other conditions, the evidence about the effectiveness of hypnosis is mixed or insufficient.

Depression. One study involving 84 people with depression, who were randomly assigned to 16 weeks of treatment with either hypnosis or cognitive behavioral therapy (CBT), found that both groups improved with treatment. The hypnosis group made greater improvements than the CBT group when symptoms were rated on scales such as the Beck Depression Inventory and the Beck Anxiety Inventory, but the gains were small.

Eating disorders. An analysis found that many studies provided so few specifics that the hypnotic intervention could not be replicated nor evaluated. Further research in this area is needed.

Schizophrenia. Some researchers question whether people with this disease are capable of being hypnotized, while others worry that hypnosis might trigger a psychotic episode. Although case reports suggested that hypnosis may help some patients improve concentration, attention, and cognitive function, a comprehensive review concluded that the available studies were too small, poorly designed, and outdated to provide any guidance.

Smoking cessation. Some studies suggested that hypnosis might help people stop smoking by reducing cravings, bolstering willpower, or increasing focus on healthier choices. But a comprehensive review found that most evidence to date consisted of case reports or poorly designed studies, and it concluded that hypnosis is no better than other interventions — or even no treatment at all — on six-month quit rates.

CITATION:

Publishing, H. (2019). Hypnosis as mental health therapy - Harvard Health. Retrieved 14 September 2019, from https://www.health.harvard.edu/newsletter_article/Hypnosis_as_mental_health_therapy

EXTRA CITATIONS FOR ABOVE ARTICLE

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Przybyła, T. & Klichowski, M. (2019). Neuro-Edu-Techno (NET) Approach in Studies on Educational Therapy for Developmental Delays: A Case of Focal Cortical Dysplasia. *Studia Edukacyjne*, 52, 97-106. DOI: 10.14746/se.2019.52.7., 2019
https://www.academia.edu/40241916/Neuro-edu-techno_NET_approach_in_studies_on_educational_therapy_for_developmental_delays_A_case_of_focal_cortical_dysplasia

2. Working Memory Impairments in Children with Specific Arithmetic Learning Difficulties
Janet F.McLeanGraham J.Hitch
Lancaster University, Lancaster, United Kingdom
Received 22 June 1998, Revised 12 July 1999, Available online 25 May 2002.
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3. Developmental Dyscalculia and the Brain
Development of Mathematical Cognition,
KarinKucian Volume 2: Neural Substrates and Genetic Influences
Mathematical Cognition and Learning
2016, Pages 165-193
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4. Esmeralda Zerafa,
Helping Children with Dyscalculia: A Teaching Programme with three Primary School Children,
Procedia - Social and Behavioral Sciences, Volume 191, 2015, Pages 1178- 1182, ISSN 1877-0428, <https://doi.org/10.1016/j.sbspro.2015.04.516>.
<http://www.sciencedirect.com/science/article/pii/S1877042815027767>

Abstract: Dyscalculia is a specific learning difficulty which hinders learners from developing the basic number concepts which are needed for the acquisition of mathematics. The aim of this study was to explore strategies which would help children with dyscalculia overcome some of their barriers. After initial assessment of 15 children using the Dyscalculia Screener (Butterworth, 2003), three children were identified with dyscalculia. These children, two 10-year-olds and one 7-year-old, were selected as the participants for the study. Their parents were questioned to confirm the Screener's assessment. Consequently, the children were formatively assessed using the Catch Up++ Catch Up is a not-for-profit UK registered charity (1072425). Catch Up Ltd is an endorsed charitable institute ABN: 62154644498. Catch Up is a registered trademark. Numeracy (2009) assessment tools. Twenty 15-minute sessions were carried out with each child, using the Catch Up Numeracy programme. Post-assessment was then carried out. Results suggested that appropriate intervention can allow dyscalculic learners to succeed at acquiring the basic number concepts needed for mathematics learning. Additionally, it was noted that such intervention could greatly impact the affective domain of children, raising self-esteem and developing a more positive attitude to the learning of mathematics.

5. Roderick I Nicolson, Angela J Fawcett, Emma L Berry, I Harri Jenkins, Paul Dean, David J Brooks,
Association of abnormal cerebellar activation with motor learning difficulties in dyslexic adults,
The Lancet, Volume 353, Issue 9165, 1999, Pages 1662-1667, ISSN 0140-6736, [https://doi.org/10.1016/S0140-6736\(98\)09165-X](https://doi.org/10.1016/S0140-6736(98)09165-X).
<http://www.sciencedirect.com/science/article/pii/S014067369809165X>

Abstract: Summary
Background

In addition to their impairments in literacy-related skills, dyslexic children show characteristic difficulties in phonological skill, motor skill, and balance. There is behavioural and biochemical evidence that these difficulties may be attributable to mild cerebellar dysfunction. We wanted to find out whether there was abnormal brain activation when dyslexic adults undertook tasks known normally to involve cerebellar activation.

Methods

Brain activation was monitored by positron emission tomography in matched groups of six dyslexic adults and six control adults as they carried out either a prelearned sequence or learned a novel sequence of finger movements

Findings

Brain activation was significantly lower ($p < 0.01$) for the dyslexic adults than for the controls in the right cerebellar cortex and the left cingulate gyrus when executing the prelearned sequence, and in the right cerebellar cortex when learning the new sequence.

Interpretation

The results provided direct evidence that, for this group of dyslexic adults, the behavioural signs of cerebellar abnormality reflect underlying abnormalities in cerebellar activation.

6. Travis A. Alvarez, Julie A. Fiez,

Current perspectives on the cerebellum and reading development,

Neuroscience & Biobehavioral Reviews, Volume 92, 2018, Pages 55-66, ISSN 0149-7634, [https://doi.org/10.1016/j.](https://doi.org/10.1016/j.neubiorev.2018.05.006)

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Abstract: The dominant neural models of typical and atypical reading focus on the cerebral cortex. However, Nicolson et al. (2001) proposed a model, the cerebellar deficit hypothesis, in which the cerebellum plays an important role in reading. To evaluate the evidence in support of this model, we qualitatively review the current literature and employ meta-analytic tools examining patterns of functional connectivity between the cerebellum and the cerebral reading network. We find evidence for a phonological circuit with connectivity between the cerebellum and a dorsal fronto-parietal pathway, and a semantic circuit with cerebellar connectivity to a ventral fronto-temporal pathway. Furthermore, both cerebral pathways have functional connections with the mid-fusiform gyrus, a region implicated in orthographic processing. Consideration of these circuits within the context of the current literature suggests the cerebellum is positioned to influence both phonological and word-based decoding procedures for recognizing unfamiliar printed words. Overall, multiple lines of research provide support for the cerebellar deficit hypothesis, while also highlighting the need for further research to test mechanistic hypotheses.

7. Catherine J. Stoodley, John F. Stein, The cerebellum and dyslexia, Cortex, Volume 47, Issue 1, 2011, Pages 101-116,

ISSN 0010-9452, <https://doi.org/10.1016/j.cortex.2009.10.005>. <http://www.sciencedirect.com/science/article/pii/S0010945209002809>

8. Guinevere F. Eden, Olumide A. Olulade, Tanya M. Evans, Anthony J. Krafnick, Diana R. Alkire, Chapter 65 -

Developmental Dyslexia, Editor(s): Gregory Hickok, Steven L. Small, Neurobiology of Language, Academic Press, 2016, Pages 815-826,

ISBN 9780124077942, <https://doi.org/10.1016/B978-0-12-407794-2.00065-1>.

<http://www.sciencedirect.com/science/article/pii/B9780124077942000651>

Abstract: Dyslexia is associated with less gray and white matter volume and altered white matter integrity in left temporoparietal areas. Functional neuroimaging studies have revealed abnormal activity of brain regions known to subserve reading (and its constituent processes), including left ventral occipitotemporal, temporoparietal, and inferior frontal cortices. Further, functional and structural connectivity between these areas is disrupted. These findings are considered to be consistent with the behavioral phonological and orthographic processing deficits manifested by individuals with dyslexia. Brain imaging studies are contributing to our understanding of the neural correlates of successful reading intervention, as well as the link between dyslexia-associated genes and brain-based measures. Studies suggest an age-dependent neurobiological profile of dyslexia, and there is uncertainty regarding which brain differences are attributed to dyslexia per se rather than altered reading experience concomitant with dyslexia, together emphasizing the need for more longitudinal brain-based investigations into dyslexia.

9. Guinevere F. Eden, Olumide A. Olulade, Tanya M. Evans, Anthony J. Krafnick, Diana R. Alkire, Chapter 65 -

Developmental Dyslexia, Editor(s): Gregory Hickok, Steven L. Small, Neurobiology of Language, Academic Press, 2016, Pages 815-826,

ISBN 9780124077942, <https://doi.org/10.1016/B978-0-12-407794-2.00065-1>

<http://www.sciencedirect.com/science/article/pii/B9780124077942000651>

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10. H. Branch Coslett, Peter Turkeltaub, Chapter 63 - Acquired Dyslexia, Editor(s): Gregory Hickok, Steven L. Small,

Neurobiology of Language, Academic Press, 2016, Pages 791-803, ISBN 9780124077942, [https://doi.org/10.1016/B978-0-12-407794-](https://doi.org/10.1016/B978-0-12-407794-2.000638)

[2.000638](http://www.sciencedirect.com/science/article/pii/B9780124077942000638) <http://www.sciencedirect.com/science/article/pii/B9780124077942000638>

Abstract: Disorders of reading are frequently encountered in patients with acquired cerebral lesions. Although these disorders were first investigated in the 19th century, investigations in the past few decades have greatly improved our understanding of the dyslexias. In this chapter, we start with a discussion of the "peripheral" dyslexias that are attributable to disorders of the processing of words as a visual stimulus. We then turn to a discussion of the "central" dyslexias, including deep, surface, and phonological dyslexia that are typically associated with impairments in basic language faculties such as semantics and phonology. Mechanistic accounts of the dyslexias,

including well-described computational accounts of the central dyslexias, are discussed. Finally, we briefly describe the reading tasks that serve to differentiate the different reading disorders.

11. Denes Szucs, Amy Devine, Fruzsina Soltesz, Alison Nobes, Florence Gabriel, Developmental dyscalculia is related to visuo-spatial memory and inhibition impairment, *Cortex*, Volume 49, Issue 10, 2013, Pages 2674-2688, ISSN 0010-9452, <https://doi.org/10.1016/j.cortex.2013.06.007>. <http://www.sciencedirect.com/science/article/pii/S0010945213001688>

Abstract: Developmental dyscalculia is thought to be a specific impairment of mathematics ability. Currently dominant cognitive neuroscience theories of developmental dyscalculia suggest that it originates from the impairment of the magnitude representation of the human brain, residing in the intraparietal sulcus, or from impaired connections between number symbols and the magnitude representation. However, behavioral research offers several alternative theories for developmental dyscalculia and neuro-imaging also suggests that impairments in developmental dyscalculia may be linked to disruptions of other functions of the intraparietal sulcus than the magnitude representation. Strikingly, the magnitude representation theory has never been explicitly contrasted with a range of alternatives in a systematic fashion. Here we have filled this gap by directly contrasting five alternative theories (magnitude representation, working memory, inhibition, attention and spatial processing) of developmental dyscalculia in 9–10-year-old primary school children. Participants were selected from a pool of 1004 children and took part in 16 tests and nine experiments. The dominant features of developmental dyscalculia are visuo-spatial working memory, visuo-spatial short-term memory and inhibitory function (interference suppression) impairment. We hypothesize that inhibition impairment is related to the disruption of central executive memory function. Potential problems of visuo-spatial processing and attentional function in developmental dyscalculia probably depend on short-term memory/working memory and inhibition impairments. The magnitude representation theory of developmental dyscalculia was not supported.

12. Esmeralda Zerafa, Helping Children with Dyscalculia: A Teaching Programme with three Primary School Children, *Procedia - Social and Behavioral Sciences*, Volume 191, 2015, Pages 1178-1182, ISSN 1877-0428, <https://doi.org/10.1016/j.sbspro.2015.04.516>. <http://www.sciencedirect.com/science/article/pii/S1877042815027767>

Abstract: Dyscalculia is a specific learning difficulty which hinders learners from developing the basic number concepts which are needed for the acquisition of mathematics. The aim of this study was to explore strategies which would help children with dyscalculia overcome some of their barriers. After initial assessment of 15 children using the Dyscalculia Screener (Butterworth, 2003), three children were identified with dyscalculia. These children, two 10-year-olds and one 7-year-old, were selected as the participants for the study. Their parents were questioned to confirm the Screener's assessment. Consequently, the children were formatively assessed using the Catch Up+ Catch Up is a not-for-profit UK registered charity (1072425). Catch Up Ltd is an endorsed charitable institute ABN: 62154644498. Catch Up is a registered trademark. Numeracy (2009) assessment tools. Twenty 15-minute sessions were carried out with each child, using the Catch Up Numeracy programme. Post-assessment was then carried out. Results suggested that appropriate intervention can allow dyscalculic learners to succeed at acquiring the basic number concepts needed for mathematics learning. Additionally, it was noted that such intervention could greatly impact the affective domain of children, raising self-esteem and developing a more positive attitude to the learning of mathematics.

13. Lynn S. Fuchs, Douglas Fuchs, Amelia S. Malone, Pamela M. Seethaler, Caitlin Craddock, Chapter 12 - The Role of Cognitive Processes in Treating Mathematics Learning Difficulties This research was supported by 2 R01 HD053714 from the Eunice Kennedy Shriver National Institute of Child Health & Human Development to Vanderbilt University and by Grant R324C100004 from the Institute of Education Sciences in the U.S. Department of Education to the University of Delaware with a subcontract to Vanderbilt University. The content is solely the responsibility of the authors and does not necessarily represent the official views of the Eunice Kennedy Shriver National Institute of Child Health & Human Development, the National Institutes of Health, the National Center on Special Education Research, or the Institute of Educational Sciences., Editor(s): David C. Geary, Daniel B. Berch, Kathleen Mann Koepke, In *Mathematical Cognition and Learning*, Cognitive Foundations for Improving Mathematical Learning, Academic Press, Volume 5, 2019, Pages 295-320, ISSN 22142568, ISBN 9780128159521, <https://doi.org/10.1016/B978-0-12-815952-1.00012-8>. (<http://www.sciencedirect.com/science/article/pii/B9780128159521000128>)

Abstract: Cognitive, linguistic, and socioemotional processes have been identified as important predictors of individual differences in mathematics development. Yet attempts to strengthen such processes often fail to result in improved mathematics performance for students with math difficulties. In this chapter, we discuss two alternative approaches by which such processes may play a role in ameliorating mathematics learning difficulties. The first approach involves embedding instruction on cognitive, linguistic, or socioemotional processes within direct skills intervention. The second approach involves allocating different forms of direct skills intervention to subgroups of learners with different profiles of cognitive, linguistic, or socioemotional processes. For each approach, we provide background information and describe a relevant research study taking that approach to illustrate its potential for expanding the efficacy of intervention for students with mathematics learning difficulties.

14. Amalija Žakelj, Support to Pupils with Learning Difficulties in Mathematics, *Procedia - Social and Behavioral Sciences*, Volume 159, 2014, Pages 506-511, ISSN 1877-0428, <https://doi.org/10.1016/j.sbspro.2014.12.414>. (<http://www.sciencedirect.com/science/article/pii/S1877042814065446>)

Abstract: In this paper we present a model of assistance to pupils with learning difficulties in mathematics - Implementation of modifications for pupils with learning difficulties in mathematics (hereinafter – the model LDMAT) and LDMAT model's contribution to the teachers' competence to implement the support measures to pupils with learning difficulties in terms of the empirical study. The conceptual platform of the model LDMAT is based on the following principles: giving sense to mathematical knowledge, instruction as mutual activity of pupils and teachers, the principle of participation. The results of the study have shown that LDMAT model's contribution to the qualification of teachers to assist pupils with learning difficulties is very positive and represents a significant contribution to the improvement of teaching practices in overcoming learning difficulties in mathematics. Among the teachers, the model LDMAT was evaluated the highest in the field of selection, planning and use of appropriate didactic tools; they also highlighted the key factors for raising pupils' learning achievements: an individualized approach, promotion of the use of multi-sensory learning, timely support, cooperation with parents, encouragement for continuous work, discussion between teachers, pupils and parents, early involvement of pupils and parents in the preparation of the assistance plan, encouraging pupils to self-learning, etc.

15. Helping Children with Dyscalculia: A Teaching Programme with three Primary School Children, *Procedia - Social and Behavioral Sciences*, Volume 191, 2015, Pages 1178-1182, ISSN 1877-0428, <https://doi.org/10.1016/j.sbspro.2015.04.516>. (<http://www.sciencedirect.com/science/article/pii/S1877042815027767>)

Abstract: Dyscalculia is a specific learning difficulty which hinders learners from developing the basic number concepts which are needed for the acquisition of mathematics. The aim of this study was to explore strategies which would help children with dyscalculia overcome some of their barriers. After initial assessment of 15 children using the Dyscalculia Screener (Butterworth, 2003), three children were identified with dyscalculia. These children, two 10-year-olds and one 7-year-old, were selected as the participants for the study. Their parents were questioned to confirm the Screener's assessment. Consequently, the children were formatively assessed using the Catch Up++ Catch Up is a not-for-profit UK registered charity (1072425). Catch Up Ltd is an endorsed charitable institute ABN: 62154644498. Catch Up is a registered trademark. Numeracy (2009) assessment tools. Twenty 15-minute sessions were carried out with each child, using the Catch Up Numeracy programme. Post-assessment was then carried out. Results suggested that appropriate intervention can allow dyscalculic learners to succeed at acquiring the basic number concepts needed for mathematics learning. Additionally, it was noted that such intervention could greatly impact the affective domain of children, raising self-esteem and developing a more positive attitude to the learning of mathematics.

16. Kelly Burgoyne, Arne Lervag, Stephanie Malone, Charles Hulme, *Speech difficulties at school entry are a significant risk factor for later reading difficulties*, *Early Childhood Research Quarterly*, Volume 49, 2019, Pages 40-48, ISSN 0885-2006, <https://doi.org/10.1016/j.ecresq.2019.06.005>. (<http://www.sciencedirect.com/science/article/pii/S0885200619300882>)

Abstract: This study examined the relationship between speech difficulties at school entry and problems learning to read. We test the hypothesis that phonological skills explain the relationship between speech and reading difficulties. Speech skills were assessed in a large (N = 569) unselected sample of 5-year old children just after school entry. Children also completed a wide range of tasks measuring oral language (expressive vocabulary, receptive grammar and listening comprehension), reading and reading-related skills (single word reading, letter-sound knowledge, phoneme awareness, rapid automatized naming) and non-verbal IQ. Assessments were repeated six months later. Speech difficulties were identified in 6.88% of children. Speech difficulties were associated with poorer non-verbal IQ, oral language and reading relative to children without speech difficulties. A mediation model demonstrated that the relationship between speech difficulties and later reading was entirely mediated by phoneme awareness. Speech difficulties at school entry are related to problems in acquiring phoneme awareness which in turn are associated with problems in learning to read. Clinically, our results imply that any child who has a speech difficulty at school entry should be assessed and monitored for broader oral language difficulties and for delays in reading development with a view to providing early intervention to ameliorate such difficulties.

17. Saloni Krishnan, Kate E. Watkins, Dorothy V.M. Bishop, *Neurobiological Basis of Language Learning Difficulties*, *Trends in Cognitive Sciences*, Volume 20, Issue 9, 2016, Pages 701-714, ISSN 1364-6613, <https://doi.org/10.1016/j.tics.2016.06.012>. (<http://www.sciencedirect.com/science/article/pii/S1364661316300833>)

Abstract: In this paper we highlight why there is a need to examine subcortical learning systems in children with language impairment and dyslexia, rather than focusing solely on cortical areas relevant for language. First, behavioural studies find that children with these neurodevelopmental disorders perform less well than peers on procedural learning tasks that depend on corticostriatal learning circuits. Second, fMRI studies in neurotypical adults implicate corticostriatal and hippocampal systems in language learning. Finally, structural and functional abnormalities are seen in the striatum in children with language disorders. Studying corticostriatal networks in developmental language disorders could offer us insights into their neurobiological basis and elucidate possible modes of compensation for intervention.

18. Daniela Jeder, *Practical Aspects of the Continuous Training Activities Regarding the Learning Difficulties*, *Procedia - Social and Behavioral Sciences*,

Volume 116,
2014,
Pages 2125-2130,
ISSN 1877-0428,
<https://doi.org/10.1016/j.sbspro.2014.01.531>.
(<http://www.sciencedirect.com/science/article/pii/S1877042814005485>)

Abstract: The poor performance at school are often triggered by the inability of schools to accommodate to the individual differences, in case of poor conditions, even a small learning disability can transform into a major one, with dramatic impact on the child's entire life. The learning difficulties, most often, occur subtly, so that some children are not identified in time or are mislabeled as slow, lazy, etc. without assimilation capacity. As the information about this issue are insufficiently presented to trainers, there is a risk of confusion, labeling, frustration resulting in school failure, and especially in developing children's/students' emotional and social problems. The proposal and implementation of training programs is therefore imperative to train teachers about the necessary skills to identify and intervene effectively to improve and even eliminate the learning difficulties. This paper focuses on presenting practical aspects of training activities on this issue and on training/practicing skills necessary to support a quality education focused on the needs and each child's potential.

19. Florentin-Remus Mogonea, Florentina Mogonea,
The Specificity of Developing Metacognition at Children with Learning Difficulties,
Procedia - Social and Behavioral Sciences,
Volume 78,
2013,
Pages 155-159,
ISSN 1877-0428,
<https://doi.org/10.1016/j.sbspro.2013.04.270>.
(<http://www.sciencedirect.com/science/article/pii/S1877042813008392>)

Abstract: In this study, we intend to analyse the issue concerning the specificity of the development of the children with learning difficulties. The objectives aimed to identify the methods and instruments for developing the metacognitive skills at children with learning difficulties, to stimulate the mental operations of these children and to involve the non-cognitive factors in learning activities, to involve self-reflection, as a premise for the development of metacognition, to test the abilities of self-knowledge, self-analysis, self-appreciation and self-evaluation of the students with learning difficulties. The methods used were based on constructivist approaches, which lay special stress on the students' construction of learning. The results obtained highlighted the improvement of school results of the students from the experimental group, in comparison with those from the control group.

20. Pirjo Aunio,
Chapter 8 - Early Numeracy Skills Learning and Learning Difficulties—Evidence-based Assessment and Interventions,
Editor(s): David C. Geary, Daniel B. Berch, Kathleen Mann Koepke,
In Mathematical Cognition and Learning,
Cognitive Foundations for Improving Mathematical Learning,
Academic Press,
Volume 5,
2019,
Pages 195-214,
ISSN 22142568,
ISBN 9780128159521,
<https://doi.org/10.1016/B978-0-12-815952-1.00008-6>.
(<http://www.sciencedirect.com/science/article/pii/B9780128159521000086>)

Abstract: Early numeracy development is essential for later mathematics learning in school and important for successful careers. Early childhood education and schools are important places for children to learn and practice the foundational mathematical knowledge they will need as adults. In this chapter, I describe our work in producing evidence-based knowledge, assessment scales, and intervention materials for educators to identify children at risk for learning difficulties in mathematics and to support them in their learning. As there are several skills developing in early childhood, our first aim is to describe the model of core numerical skills for 5- to 8-year-olds and how it can support educators in their work. The model is important for selecting assessment methods to identify children at risk for learning difficulties and designing educational support for these children. The second aim is to describe our research work on evidence-based assessment and intervention materials that are designed to be used by educators with children who struggle with math learning (websites: www.lukimat.fi, ThinkMath global) in Finland, Norway, and South Africa.

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