

WHY WE DO WHAT WE DO

AT EATON ARROWSMITH CENTER FOR NEUROEDUCATION

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Life is challenging for us. We are given precious moments of joy and happiness in our journey. We often seek these experiences and desperately avoid conflicts and hardships. Our brain is wired to keep our body safe. Thus, we tend to think constantly about potential life experiences that can cause us harm. Dr. Rick Hanson, author and speaker, describes this well when he says, “The brain is like Velcro for negative experiences and Teflon for positive ones” (Hanson).

This is why individuals with disabilities whether it be a result of learning disabilities, ADHD, Autism Spectrum Disorder (ASD) and even brain injury have much higher rates of anxiety and depression than the general population (Cree, Okoro, Zack, & Carbone, 2020). Their neurological challenges result in significantly more negative experiences as they manage the world around them day to day. For decades, the field of Special Education and healthcare have tried to find solutions for this suffering. The approaches have been finding accommodations, technology, strategies, and even pharmaceutical solutions to ease this pain. But with each of these solutions the underlying neurological cause of their conflict with life experiences and in many cases resulting mental health crisis is not addressed.

Research has now highlighted for many years that a common neurological network problem exists amongst the diagnoses noted above (Bressler & Menon, 2010). That is, brain imaging data shows that atypical large scale brain network connectivity exists amongst all these populations. The neuroscience research is extensive on this point (Uddin, Supekar, & Menon, 2010) (Twait, Farah, & Horowitz-Kraus, 2018) (Qian, et al., 2019) (Roy & Uddin, 2021) (Souza, et al., 2020) (Farah, Ionta, & Horowitz-Kraus, 2021) (Botchway, et al., 2022).

Again, it is clear that atypical large scale brain network connectivity is the reason comorbidity exists amongst learning disabilities, ADHD and ASD (Rommelse, Buitelaar, & Hartman, 2016) (Horowitz-Kraus, Hersehy, Kay, & DiFrancesco, 2019). That is, if someone is diagnosed with a learning disability statistically there is a 30% likelihood that the individual has ADHD. If you are diagnosed with ASD there is a 50% to 70% likelihood of also having ADHD. In most of these cases there is an underlying atypical large scale brain network issue that is impacting executive functioning, planning, organizing and executing on tasks (Weng, Wang, Li, & Wang, 2018) (Kershner, 2021) (Wang, Li, & Niu, 2021).

Eaton Arrowsmith Center for Neuroeducation is aware of this research and understands how to implement a comprehensive and targeted cognitive enhancement program to improve large scale brain network connectivity. Our mission is to improve the neurological functioning of individuals with these diagnoses so that their lives are no more challenging than others in their lives who do not have these labels. We cannot remove eventual life obstacles, but we can increase the opportunities for more moments of joy and happiness by improving cognitive functions that assist us in navigating them. This is why we do what we do.

How do we improve large scale brain network connectivity and move it from atypical to typical? The brain imaging research conducted on the Arrowsmith Program at the University of Southern Illinois and University of British Columbia now published in scientific research journals and presented at national neuroscience conferences has focused on exactly this topic. Essentially, the cognitive training that takes place activates these atypical large scale brain networks. Networks that were either previously hyperconnected or hypoconnected, through repetitive and challenging tasks, get the right level of engagement to affect neuroplastic change.



Over time, these atypical networks begin to show typical functioning. That is the remarkable fact about the human brain. As well, once reset these large-scale brain networks can now engage in the world with smooth functionality allowing the individual to absorb information from the world with improved fluency. In turn, neurological functions responsible for executive functioning (memory, processing speed, attention, and organization) improve and the individual's behaviour shifts. The need for parent support, tutors, strategies, accommodations and even technology lessens as now their own brain can perform these tasks without outside assistance.

Special education professionals and advocates tend to operate in groups. Thus, those focused on dyslexia or learning disabilities work to support their needs, while those focused on ADHD or ASD do the same for their causes. The reality is that these disabilities have a lot in common as noted above. Even as we age our large-scale brain networks can weaken in connectivity and thus this is a common concern for all humans (Varangis, Habeck, Razlighi, & Stern, 2019).

Life is challenging for us. Why not give an individual the opportunity to reduce these challenges? Why not tackle the root cause of so many of the problems faced by those with learning disabilities, ADHD, ASD and brain injury? The facts and research are in front of us. The intervention to improve the root cause of the issue is known. It is up to us as parents, educators, counselors, psychiatrists, medical doctors, occupational therapist, speech therapists and all the other professions in education and healthcare to pay attention to this intervention and let our friends and colleagues know. Our vision at Eaton Arrowsmith Center for Neuroeducation is to see a future where comprehensive and targeted cognitive enhancement training becomes the first line of intervention for many disabilities.

To learn more about the comprehensive research on the Arrowsmith Program visit: <https://eatonarrowsmith.com/brain-research>

Connect with us to learn more.



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