

PROGRAMME OVERVIEW & IMPLEMENTATION

COST/FEES

*NZD est. based on exchange rate 9/15

RESEARCH-BASED EVIDENCE

<p>Arrowsmith Program</p>	<p>Aims to strengthen weak cognitive capacities underlying learning disabilities through specific cognitive exercises. Replaces regular school for 3 to 4 years. Students spend 4 periods per day, 5 days per week with specially-trained teachers in a 1:10 classroom performing computer, auditory, and pen and paper exercises. Claims a wide range of learning-disabled students will be able to participate in age-appropriate academic curriculum upon completion.</p>	<p>Annual Tuition: NZ\$15,000 per student</p> <p>Training workshop: NZ\$5,600 + travel to Toronto</p>	<p>No published, peer-reviewed evidence available evaluating the efficacy of the programme. Anecdotal evidence and unpublished research conducted by Arrowsmith company claims large academic gains, however, the present scientific literature does not provide support for the use of the Arrowsmith programme in the remediation of learning disabilities.</p>
<p>Brain Gym</p>	<p>System of “educational kinesiology” (learning through movement); based on the notion that learning difficulties arise from poor coordination between the brain and body. Uses 26 distinct exercises to improve integration of specific brain functions with body movements. Offered as intensive 2-3 day training courses, typically 8 hours per day. Targeted at all ages and abilities.</p>	<p>Introduction to Brain Gym course: NZ\$150</p> <p>One-on-one training: 8 sessions: NZ\$800 10 sessions: NZ\$1,000</p>	<p>Limited peer-reviewed research support; publications in self-funded “Brain Gym Journal” claim gains in cognition. Other peer-reviewed work has labeled Brain Gym as “pseudoscience,” due to invalid theoretical assumptions (neurological repatterning procedures invalidated, idea that cerebral dominance affects learning repeatedly refuted, and no demonstrated support for impacts of perceptual-motor training on learning).</p>
<p>Brain Time Interactive Metronome</p>	<p>Biometric technology that measures and improves timing with specialised computer equipment, targeting the ability to focus, accuracy and efficiency of information processing, executive functions, and motor coordination. Used with a wide range of neurological conditions in adults and children, as well as athletes enhancing sports performance. Private home training occurs 3-5 days per week for 5, 8, or 12 weeks (15-40 hours) with ongoing professional consultation. Also available for school-based implementation.</p>	<p>School package (training, support, and equipment): NZ\$12,000</p> <p>Home training: equipment: NZ\$625 5 week tuition: NZ\$325 8 week tuition: NZ\$800 12 week tuition: NZ\$1,200</p>	<p>Several published, peer-reviewed studies (about half of which are case studies) have reported varied significant positive effects of treatment with isolated clinical and nonclinical populations, including boys with ADHD, elementary math students, soldiers with blast-related traumatic brain injury, and golfers. However, each of these studies evaluated and reported on different cognitive and motor functions, with conflicting evidence regarding the overall efficacy of Interactive Metronome training as a general therapeutic treatment tool.</p>
<p>Cellfield</p>	<p>Aims to overcome dyslexia by targeting phonological and visual deficits, based on the theory that dyslexia arises from “anatomical flaws” in the brain. Employs computer-based phonological processing and decoding/encoding tasks in 10 one-hour sessions for 10 weeks (with supplementary guided reading) to transition dyslexic children into reading fluency.</p>	<p>Programme cost (pre/post tests, intervention, follow-up, and optometrist assessments): NZ\$2095 (incl. GST)</p>	<p>Only one peer-reviewed study about Cellfield available, which provides only limited support due to a lack of any control group and Cellfield’s founder being one of the authors. Underlying theory is magnocellular dysfunction in dyslexia, which has received notable support and criticism and is not yet a scientifically validated theory.</p>
<p>Cogmed Working Memory Training</p>	<p>Online programme designed to address attention problems and ADHD by increasing working memory capacity. Training planned and structured by Cogmed Coach in either private sessions or school settings. Standard implementation is 25 sessions (30-45 minutes long) 5 days per week for 5 weeks, with specialised variations available for pre-school, school-ages, adolescents, and adults.</p>	<p>Private tuition: NZ\$1475</p> <p>School price (10 students/4 teachers): NZ\$3,600</p>	<p>Large volume of peer-reviewed research; many studies found Cogmed increases working memory capacity in the short term, and some suggest that gains in visuospatial (though not necessarily verbal) working memory persist long-term. Conflicting evidence of improvements in reasoning ability and attentional processes. Insufficient evidence of applicability to dyslexia.</p>
<p>Coloured Overlays and Lenses</p>	<p>Set of prescribed overlays or lenses provided by the Irlen Institute and The Institute of Optometry (among others) designed to treat “Scotopic Sensitivity Syndrome” or “Irlen Syndrome,” described as a perceptual processing problem, which may be (mis)identified as dyslexia. Symptoms include light sensitivity, discomfort, word distortion, and problems with reading, writing, attention, comprehension, and depth perception. Specific colour for individual treatment is diagnosed by specialist.</p>	<p>Assessment & prescription: Irlen screening: NZ\$79 Colour overlays: NZ\$7 Tinting assessment: NZ\$159 Lenses (worst case): NZ\$260</p> <p>Irlen Screener training: NZ\$499</p>	<p>Existence of “Scotopic Sensitivity Syndrome” or “Irlen Syndrome” is not validated by sufficient scientific evidence. Numerous peer-reviewed studies suggest coloured overlays may have a beneficial effect on reading rate, accuracy, and comprehension, however, many of these have serious methodological limitations and/or conflicts of interest, and a large number of other studies report no significant benefits of overlays/lenses.</p>
<p>Danks Davis Dyslexia Tutoring</p>	<p>Uses spelling as a tool to teach children with dyslexia to read and write based on individual learning styles. Multi-step process includes assessment, multisensory instruction, auditory perception remediation, Brain Gym exercises (see above), and testing. Implemented in weekly one-on-one tutoring sessions (one hour), which can be led by teachers, tutors, or parents.</p>	<p>Danks Davis manual/DVD: NZ\$3,000 (+GST)</p>	<p>No published, peer-reviewed evidence available to support efficacy of programme.</p>
<p>Davis Dyslexia</p>	<p>Based on the theory that dyslexia arises from disorientation/ confusion and a predominantly visual thought process; teaches students with dyslexia to control this mental state and think about problem words nonverbally. Implemented as an intensive week-long programme (30 hours) of one-on-one work with licensed facilitator, plus up to 3 follow-up reviews.</p>	<p>Programme tuition: NZ\$2,500-3,000</p>	<p>Few peer-reviewed studies on programme, almost all of which are case studies. Most of these case studies seem to demonstrate gains in word recognition through training, but there is insufficient evidence of improvements on general reading abilities.</p>
<p>Dore Programme (previously DDAT)</p>	<p>Physical stimulation approach supposed to improve cerebellar underperformance in dyslexia, dyspraxia, and ADHD, based on the theory that this is the underlying cause of learning and attention disorders. Specific physical exercises aimed to stimulate and improve cerebellar efficiency are practiced twice daily for 10 minutes for 12-18 months with regular consultation.</p>	<p>Programme cost: estimated NZ\$5,000-6,000</p>	<p>Limited support of efficacy. Only two published studies available; though these found gains in reading skills and standardised test scores (some of which were maintained or improved at 18-month follow-up), these studies were highly controversial with serious methodological limitations and inappropriate statistical treatment.</p>
<p>Fast ForWord</p>	<p>Computer-based series for students reading below age-appropriate level that slows and amplifies specific hard-to-process English sounds. Adaptive game-like tasks target development of working and long-term memory, attention, listening accuracy, processing speed, phonological awareness, and sequencing skills. Claim a reading gain of 1-2 grade levels is possible in 8-12 weeks of 30, 40, 50, or 90-minute sessions, 3-5 days per week.</p>	<p>Single license for Language Series: NZ\$1430* (quantity discount available)</p> <p>Single license for Reading Series: NZ\$800*</p>	<p>Most peer-reviewed studies available authored by Fast ForWord researchers. These report significant improvements in reading and writing skills, comprehension, and oral language ability, as well as increased brain activation in both typical language areas and compensatory cortical areas. However, comparative studies found no specific advantages over other similar programmes, and no evidence of long-term maintenance of gains. Current redesigned Language Series has yet to be sufficiently analysed.</p>
<p>Feuerstein's Instrumental Enrichment</p>	<p>Not-for-profit mediated intervention based on Feuerstein’s theories of mediated learning experiences and structural cognitive modifiability. Designed to identify and modify deficient cognitive functions in disadvantaged learners through a metacognitive approach to the processes of thinking, learning, and problem solving; i.e., “learning to learn.” Conceived of as a supplement to normal classroom curriculum; recommended implementation can be 3-5 one-hour sessions per week for 2-3 years (200-400 hours).</p>	<p>IE Standard or IE Basic: NZ\$35 per student</p> <p>Training cost: NZ\$1265 (incl. GST) per mediator</p>	<p>Large body of published, peer-reviewed research demonstrates consistent findings of significant enhancement of cognitive performance for disadvantaged learners, despite large variance in research methods. More limited research indicates potential for similar benefits with other clinical populations and academic levels. Insufficient evidence of long-term gains in subject-based academic achievement.</p>
<p>Lexia Reading</p>	<p>Computerised activities of progressive difficulty based on Common Core that address 6 areas of reading: phonics, structural analysis, phonological awareness, automaticity/fluency, vocabulary, and comprehension. Allows independent development of reading skills through personalised learning paths in a structured and sequential manner. Provides teachers with individual end-of-year trajectories. Available for purchase as a school-based license.</p>	<p>One-year license: NZ\$50* per student</p> <p>Unlimited license: NZ\$14,910*</p> <p>On-site training: NZ\$1,920*</p>	<p>No independent, peer-reviewed research available. Studies by company researchers show mixed findings; some indicate no significant effect of treatment at post-test, though at-risk students made significant gains after training. Two other studies found significant improvements on only one specific measure of reading/language-related skills.</p>
<p>Lindamood-Bell</p>	<p>Targets students struggling to read or comprehend with five different remedial programmes, designed to establish an imagery-language connection, develop symbol imagery, improve understanding, memory, and thought expression, and discover and label the oral-motor components of phonemes. One-to-one clinical treatment involves intensive, 2-4 hour sessions 5 days per week for 6-8 weeks. School-based children work in homogenous ability groups of 2-5 students, 5 days per week for 45-120 minute sessions.</p>	<p>Training (<15 teachers): virtual: NZ\$11-22,000 onsite: NZ\$14-30,000</p> <p>School partnership: virtual: NZ\$187-257,000* onsite: NZ\$289-476,000*</p> <p>Learning centre: NZ\$130* per hour NZ\$500* per testing</p>	<p>Large body of published, peer-reviewed research provides consistent evidence of significant improvements in phonological awareness/decoding and single-word reading skills. Evidence of generalisation to reading comprehension and long-term maintenance of gains is more limited, but shown in studies with adequate bridging practice. Neuroimaging found significantly stronger functional connectivity and gray matter volume changes in known language areas. However, one comparative study found no specific advantages of this programme over another phonemic-based intervention.</p>
<p>Lumosity</p>	<p>Online training/game programme for the general public (ages 18-89), with 56 discrete adaptive games requiring the use of cognitive functions such as memory, attention, speed, flexibility, and problem solving. Provides continuous feedback and periodic reminders based on performance and personalised goals.</p>	<p>Individual: monthly: NZ\$19*/month yearly: NZ\$8*/month two year: NZ\$6*/month lifetime: NZ\$475*</p> <p>Yearly group package: NZ\$13*/month (up to 5)</p>	<p>Several published, peer-reviewed studies on various populations point to evidence of significant gains on some cognitive measures, including processing speed, cognitive flexibility, and visual-spatial processing. However, a comparative study with an entertainment-based video game found cognitive performance gains in favour of the video game.</p>
<p>Orton-Gillingham</p>	<p>Instructional approach to assist students with dyslexia and reading difficulties by directly and systematically sorting, recognising, and organising the raw materials of language. Method is meant to be flexible and adaptable and primarily one-on-one with a certified instructor, but can be adapted for small groups and classrooms.</p>	<p>Level 1 Certification: (30 hours coursework, 45 hours practicum, and 5 observations)</p> <p>NZ\$1550* course fee; NZ\$120* application fee; NZ\$320*/hour + travel expenses for practicum; NZ\$120* Annual renewal fee</p>	<p>Several published, peer-reviewed studies, with inconsistent intervention methods and mixed findings. One study with children at-risk for reading problems showed significant gains on all measures tested; another found gains in only one of three grade levels. Two comparison studies with Fast ForWord (see above) and a Houghton-Mifflin programme showed significantly greater phonological skill gains with this programme, but another found better performance with traditional reading instruction.</p>
<p>The Slingerland Approach</p>	<p>Classroom adaptation of Orton-Gillingham approach (see above), designed for students with dyslexia and reading difficulties. Lessons are multisensory, incorporating auditory, visual, and kinaesthetic elements. Focuses on basic units of phonics with progressive complexity. Generally implemented for two years.</p>	<p>Varies; different prices for individual tutoring versus school teachers becoming “Slingerland Trained” or “Slingerland Certified”</p>	<p>Only one peer-reviewed study available; small-scale comparison of Slingerland and Sullivan programmes found both to be equally effective, however, no significance tests reported in study. Insufficient evidence to support efficacy of programme.</p>
<p>Steps (The Learning Staircase)</p>	<p>Structured, multisensory computer-game approach to developing phonological awareness, visual perception, sequencing, memory, and motor development through literacy knowledge, processing skills, and cognitive efficiency. Can be completed at home, through tutors and tutoring centres, or in school. Customisable for dyslexia, ADHD, and English language learners.</p>	<p>Steps Home software: NZ\$195 (incl. GST)</p> <p>Steps Tutor software: NZ\$279.45 (incl. GST)</p> <p>Steps Network software: NZ\$483 (incl. GST)</p>	<p>No published, peer-reviewed evidence available to support efficacy of programme.</p>
<p>The Tomatis Method for Auditory Retraining</p>	<p>Designed to remediate disrupted analysis of auditory messages in learning difficulties and language disorders. Therapy focuses on two middle-ear muscles that enable integration of acoustic information. Music and speech are filtered through an “electronic ear” and listened to through headphones attached to a “bone conductor.” Treatment involves blocks of 10-13 days (intensives) for up to two hours each day, separated by rest periods of 3-8 weeks (90 hours total).</p>	<p>Training cost (80 hours): NZ\$1,500 to NZ\$7,200, depending on complexity of programme and support</p> <p>Tomatis Professional Education (4 workshops): NZ\$6,150</p>	<p>Limited published, peer-reviewed research available; a meta-analysis showed significant gains in several skill domains, but assessed only small-scale/case studies with serious methodological limitations, some of which found no effect of therapy. No consistent evidence that auditory retraining therapy is more effective than placebo.</p>