

Research on Reflexes

This research from the past 30 years highlights the impact of unintegrated reflexes on learning and behavior, as well as movement's power to correct unintegrated reflexes.

Summaries excerpted from Sally Goddard Blythe's book *Reflexes, Learning and Behavior: A Window into the Child's Mind*. Emphasis added.

Clinical Research Summaries

1970

Gustafsson, an occupational therapist, carried out a study in which she compared the reflex levels of two groups of children: one group had been identified as having neurological impairment, the other group had no known neurological impairment. Reflex testing revealed a profile of abnormal reflexes in all of the group with neurological impairment. Eight out of the "normal" group, which comprised 19 children, also had some reflex abnormalities. Of these eight, it was subsequently found that one had behavior problems and the remainder had either reading or writing problems.

1971

Barbara Rider, an associate professor at the University of Kansas, who also was an occupational therapist, carried out a study in which she set out to assess the incidence of abnormal reflex responses in two groups of second-grade children: the first group had learning disabilities, the second had no

identified learning problems. ***She found significantly more abnormal reflexes in the learning-disabled group than the normal group.*** She then compared scores on the Wide Range Achievement Tests (WRAT) to see if there was a correlation with a child's abnormal reflex responses. ***Children whose reflexes fell within the normal range scored consistently higher on the WRAT tests than those who had abnormal reflexes.***

EARLY 1970s

At the University of Purdue, Dr. Miriam Bender examined the effect of just one reflex, the Symmetrical Tonic Neck Reflex (STNR), on education. ***She found the STNR to be present in 75 percent of a group of children with learning disabilities but not present in any of the children without a history of learning disabilities.*** She then went on to develop a series of exercises designed to help inhibit [integrate] the STNR and found that many of the children improved as the STNR declined. This was later published as the Bender-Purdue Reflex Test (1976).

1994

At the University of Newcastle-upon-Tyne, Wilkinson, a former student at Institute for Neuro-Physiological Psychology, carried out a replica study of Rider's 1971 research. **Wilkinson also found a link between abnormal primitive reflexes and learning disability. She also was able to detect underachievement from the reflex profile.** Detailed analysis of her results suggested that a retained Tonic Labyrinthine Reflex was a central factor. There also seemed to be a relationship between a retained Moro Reflex and specific problems with mathematical skills.

1997

O'Dell and Cook, who had founded the Bender Institute in Indianapolis, found that Miriam Bender's **exercises to inhibit the Symmetrical Tonic Neck Reflex were of value in overcoming hyperactivity.**

Research into the Impact of Reflex Stimulation/Inhibition Programs

1982

The Dala Clinic Report published the results of a small study of fifteen children in Gothenburg, Sweden, who had failed to respond to previous standard remedial intervention. All were given reflex stimulation/inhibition exercises. Five children failed to complete the program. **Of the ten children who followed the program to the end, not one was any longer classified as having specific learning disabilities.** There were also additional improvements. Those children who had been unable to swim had learned to swim, and those children who had formerly suffered from regular, severe

headaches no longer had headaches (Bernhardsson and Davidson).

1988

Faulkner presented the findings of a small study carried out in a Buckinghamshire school in the United Kingdom. She took a group of children who had reading difficulties and divided them into three groups: Groups A and B had reading difficulties. Group C were normal readers.

Over a three-month period the following intervention was given:

- A—[Group members] Received conventional remedial help on five days of the week for three months
- B—[Group members] **Received no other remedial help, but went on a reflex inhibition program four days of the week for three months**
- C—[Group members] Received no intervention

At the end of the three months, a final reading test was given:

- A—[Group members] Had improved by five months
- B—[Group members] **Had improved by nine months**
- C—[Group members] Had improved by three months and two weeks

2000

McPhillips, Hepper and Mulhern assessed the efficacy of an intervention program based on replicating the movements generated by the primary-reflex system during fetal and neonatal life. They assigned a group of children who had both a persistent Asymmetrical Tonic Neck Reflex and a poor standard of reading to three treatment groups:

- A—Experimental group (children were given a specific movement sequence)
- B—Placebo control (children were given non-specific movements)
- C—Control (no movements given)

The experimental group A showed a significant decrease in the level of persistent reflex over the course of the study whereas the changes in the placebo and control groups were not significant. **Retesting of reading ability using the Neale analysis showed that all groups had improved over time but the greatest improvement occurred in the experimental group. Writing speed also improved in the experimental group.** (The movements used with the experimental group were based upon the reflex stimulation/inhibition movements originally devised at Institute for Neuro-Physiological Psychology.)

Research into the Impact of Reflex Integration on Vision

If eyesight is found to be normal but there is a cluster of abnormal reflexes, a reflex stimulation/inhibition program can make a profound difference to both oculo-motor and visual-perceptual skills. A vision therapist working in the Netherlands found that he achieved the greatest success if he delayed vision therapy until a child had at least six months on a reflex stimulation/inhibition program. In many cases, vision therapy was not required after the reflexes

had matured. In those cases where residual oculo-motor problems remained, the time needed on a vision therapy program was halved (Ten Hoopen 1995).

In 2001, Bein-Wierzbinski, a former post-graduate student at Institute for Neuro-Physiological Psychology, presented the findings of a study of 52 elementary school children in Germany. She had investigated whether disturbances in oculo-motor function and visual perception could be corrected by means of an appropriate motor training program which focused on early motor development and primitive reflexes. All of the children were examined for abnormal reflexes, and eye movements were assessed using an infra-red computerized eye-tracking machine. One half of the children who had abnormal reflexes were given a reflex stimulation/inhibition program. The other half were examined both at the beginning and the end of the program but were not included in any training. A further six children who had reading and writing problems but no abnormal reflexes were also assessed at the beginning and the conclusion of the study to document any developmental improvements which might have occurred normally during the intervening time. **She found improvement in oculo-motor functioning and reading skills as persistent reflexes were corrected. Oculo-motor defects continued to persist in the control group, who had not received specific motor-training exercises.**

Research Study on Reflexes and Academic Performance

Excerpt from Dr. Julie-Anne Jordan-Black's "The effects of the Primary Movement programme on academic performance of children attending ordinary primary school" (*The Journal of Research in Special Education Needs*, vol. 5, issue 3, 101–11, Nov. 11, 2005)

Dr. Jordan-Black investigated whether the presence of the Asymmetrical Tonic Neck Reflex (ATNR) in grade-school children related to academic attainments. She also studied whether using a movement-based intervention to reduce the prevalence of ATNR would improve academic performance.

"A comparative study of the progress of 683 children over a two-year period from Years 3 and 5, who completed an intervention programme known as Primary Movement, was carried out using the relative attainments of children at the same schools and standardized scores as baseline and follow-up measures. A second, quasi-experimental study followed the progress of four parallel groups in each of two large schools with the experimental side completing the movement intervention programme while the other side acted as the control.

"It was found that ATNR persistence was significantly associated with level of attainments in reading, spelling and mathematics and that boys were more at risk than girls for ATNR persistence. In both studies, it

was found that the movement intervention programme had a very significant impact on reducing the levels of ATNR persistence in children and that this was associated with very significant improvements in reading and mathematics, in particular.

"This research provides further evidence of a link between the attainment of core educational skills and the interference that may result from an underlying developmental deficit. The effectiveness of the intervention programme in reducing ATNR persistence and in increasing academic attainments suggests that this programme could be used to complement other strategies that have been shown to have a positive effect on children's learning."

Research Study on Reflexes and ADHD

Excerpt from University of Western Australia researchers Myra Taylor, Stephen Houghton and Elaine Chapman's "Primitive Reflexes and Attention-Deficit/Hyperactivity Disorder: Developmental Origins of Classroom Dysfunction" (*The International Journal of Special Education*, vol. 19, no. 1, 2004)

"The present research studied the symptomatologic overlap of AD/HD behaviours and retention of four primitive reflexes (Moro Reflex, Tonic Labyrinthine Reflex [TLR], Asymmetrical Tonic Neck Reflex [ATNR], Symmetrical Tonic Neck Reflex [STNR]) in 109 boys aged 7–10 years. Of these, 54 were diagnosed with AD/HD, 34 manifested sub-syndromal coordination, learning, emotional and/or behavioural symptoms of AD/HD, and 21 had no (or near to no) symptoms of AD/HD. Measures of AD/HD symptomatology and of the boys' academic performance were also

obtained using the Conners' rating scale and the WRAT-3, respectively. Results indicated that, in general, boys diagnosed with AD/HD had significantly higher levels of reflex retention than non-diagnosed boys. Results also indicated both direct and indirect relationships between retention of the Moro, ATNR, STNR and TLR reflexes with AD/HD symptomatology and mathematics achievement. The pattern of relationships between these variables was also consistent with the notion of the Moro acting as a gateway for the inhibition of the other three reflexes."