The DORE Program

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Introduction.
This brief document summarises the published information about the DORE program, which includes one original study, 7 published responses and 2 replies to these responses from the original authors. All were published in the journal *Dyslexia*. We have done our best to summarise the data in these publications. Any opinions expressed are our own on the basis of the available data.

The program
The DORE program was originally called DDAT (dyslexia dyspraxia attention deficit treatment). It is an exercise-based program founded by Mr. Dore who was not one of the publication’s authors. Although the program claims effective treatment of dyspraxia and ADD/ADHD, the only published evidence is for children with reading disability (dyslexia). Their website also claims it to be effective for ASD and other conditions.

The program is expensive (as far as we know, between $3000 and $5000 per child). The program (from published research) requires 2 sessions per day of 10 minutes each where children undertake the prescribed exercises. Duration of this may vary, with the research intervention time being 6 months. Because the exact nature of the program is ‘commercially sensitive’, it is not possible for other authors to study the benefit of this program. From their publication, the regime involves balance, eye-hand coordination and dual task performance, with exercises individualised to a child’s presenting symptoms and subsequent progress.

The theory behind the program
The authors articulate a ‘Cerebellar Deficit’ model as the theoretical basis for their intervention. Their argument is essentially that dyslexia, dyspraxia and ADD/ADHD are consequences of cerebellar-based impairments in automation, fluency and timing control. This model has been championed by one of the authors (Nicholson). The hypothesis examined in research was whether ‘retraining the cerebellum’ through motor activities led to improvements in reading for children with reading impairments.

The research
The population were 35 children in a single primary school who screened positive (score > 0.4) on the Dyslexia Screening Test (DST) for risk of literacy problems. This group were divided randomly into two groups matched for age and DST score (18 in intervention group, 17 in control group). Pre-treatment measures included standardised academic tests, and computerised tests of posture control and eye movement control. The same tests were used as post intervention measures, by an examiner blinded to the child’s group status. Intervention period was 6 months, during which the intervention group was regularly assessed, and had their exercises modified as seen necessary. Results reported were as follows:

1. The computer measures of posture and saccade control improved in both groups (presumably test-retest), but to a greater degree for the treatment group.
2. Reduction in dyslexic ‘risk’ (the DST risk quotient) was the same in both groups.
3. Standardised reading percentile rose from 30% to 35% in the intervention group. The control group’s reading percentile pre-test was 45% and did not change.
4. Standardised spelling results rose from 35% to 45% in the intervention group, and from 40% to 50% in the control group. Results for nonsense word reading were similar.
5. Screening tests of phonology showed greater improvements for the intervention group (32 to 48%) compared to control (35 to 45%)
6. School-based academic testing showed greater improvement in the treatment year than in the year prior to treatment. No comparison with the control group was given.
RESPONSES TO THE RESEARCH

Editorial decision to publish
Initially the reviewers could not agree about whether the journal Dyslexia should proceed to publication. The decision to publish followed the editor seeking further advice. (Miles T R, Peer L, Stein J. Dyslexia 2003). The decision to publish was acknowledged by the editors to be a controversial one, in order to stimulate discussion.

Published criticisms of the research

Subject Selection
1. The treated group of children had only minor reading problems (-0.5 SD). Their writing and semantic fluency were actually better than average so it is questionable whether it could be stated they had reading difficulties at all (Singleton and Stuart).
2. The control group were already almost average so over the 6 months treatment period they had less to catch up. Given this pre-treatment asymmetry, there are many possible explanations for the treatment group’s greater degree of improvement.
3. Prior to intervention, both groups scored average or greater for saccade latency and accuracy, or between the 35th and 45th percentile (posture and visual tracking).

Research Design.
1. The subject numbers are small, from one school only and comprise a group of volunteers who wanted the intervention (the control group were also given the intervention after the study period).
2. The study was not blinded, although they report that a blinded examiner obtained the post-test measures.
3. The intervention was not controlled, so that increased attention was given to the treatment group from the daily interventions. The children were not blinded either with possible motivational consequences from that knowledge.
4. The randomisation was poor as the control group read considerably better than the treatment group from the outset. This was not controlled for in their initial analyses.
5. There is no control group of normally developing children to examine the effect of intervention on either the cerebellar or the academic measures.
6. Changes in academic standardised results for the control group were not reported.
7. The screening test used to identify cases (DST) has poor psychometric properties, with results that are not normally distributed.
8. For some analyses, a significance level of 0.1 was used rather than the usual 0.05.
9. The scores for the reading test (NFER) were analysed as raw scores. One response (Richards and Moores et al) noted that if these were converted to standardised scores, the treatment effect may have been lost.
10. The schoolwide standardised test of reading (SATS) found that before and after treatment the intervention group read at the level expected for age. This finding has been discussed in detail (Singleton and Stuart)

Response from the authors.

The authors re-analysed their results controlling for initial differences (analysis of covariance). This showed the intervention group to have improved, compared to controls, on speed of bead threading, reading (number of words read in a minute) and semantic fluency (number of animal names that could be produced in a minute). All other results were not statistically significant.

In defence of the design problems, the authors rejected the use of a placebo-control group on the basis that it would have been unethical and would diminish rather than enhance the clarity of any findings (Nicolson Reynolds 2003). Many responses (e.g. McPhillips) point out that this stance is contrary to conventional evaluative procedures and standard ethical practice.
Conclusion

As with those whose responses to this published work have also been published, we conclude that this single study is scientifically unsound. The core hypothesis of their program, that poor reading is due to poor cerebellar findings, was not borne out by the findings. We are not convinced that the intervention improved either motor control or literacy to a clinically significant degree. Claims to help dyspraxia and ADD/ADHD clearly cannot be justified from this single study with reading as the outcome studied.

It is our feedback from parents that the program is ‘hard sell’. We are concerned that it exploits vulnerable parents in a manner that we believe to be unscrupulous. We cannot be sure that those employed have sufficient training in child development disorders, and the program in Brisbane operates in a manner disengaged from local professional groups. This raises questions of competence in detection and diagnosis of serious disorders in addition to the issues of cost and lost opportunities. Thus, there is no basis on which we could support the DORE program.

References:


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