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[Intervention Review]

Phonics training for English-speaking poor readers

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ABSTRACT

Background

Around 5% of English speakers have a significant problem with learning to read words. Poor word readers are often trained to use letter-sound rules to improve their reading skills. This training is commonly called phonics. Well over 100 studies have administered some form of phonics training to poor word readers. However, there are surprisingly few systematic reviews or meta-analyses of these studies. The most well-known review was done by the National Reading Panel (Ehri 2001) 12 years ago and needs updating. The most recent review (Suggate 2010) focused solely on children and did not include unpublished studies.

Objectives

The primary aim of this review was to measure the effect that phonics training has on the literacy skills of English-speaking children, adolescents, and adults whose reading was at least one standard deviation (SD), one year, or one grade below the expected level, despite no reported problems that could explain their impaired ability to learn to read. A secondary objective was to explore the impact of various factors, such as length of training or training group size, that might moderate the effect of phonics training on poor word reading skills.

Search methods

We searched the following databases in July 2012: CENTRAL 2012 (Issue 6), MEDLINE 1948 to June week 3 2012, EMBASE 1980 to 2012 week 26, DARE 2013 (Issue 6), ERIC (1966 to current), PsycINFO (1806 to current), CINAHL (1938 to current), Science Citation Index (1970 to 29 June 2012), Social Science Citation Index (1970 to 29 June 2012), Conference Proceedings Citation Index - Science (1990 to 29 June 2012), Conference Proceedings Citation Index - Social Science & Humanities (1990 to 29 June 2012), ZETOC, Index to Theses-UK and Ireland, ClinicalTrials.gov, ICTRP, the metaRegister of Controlled Trials, ProQuest Dissertations and Theses, DART Europe E-theses Portal, Australasian Digital Theses Program, Education Research Theses, Electronic Theses Online System, Networked Digital Library of Theses and Dissertations. Theses Canada portal, www.dissertation.com, and www.thesisabstracts.com. We also contacted experts and examined the reference lists of published studies.

Selection criteria

We included studies that use randomisation, quasi-randomisation, or minimisation to allocate participants to either a phonics intervention group (phonics alone, phonics and phoneme awareness training, or phonics and irregular word reading training) or a control group (no training or alternative training, such as maths). Participants were English-speaking children, adolescents, or adults whose word reading was below the level expected for their age for no known reason (that is, they had adequate attention and no known physical, neurological, or psychological problems).

Data collection and analysis

Two review authors independently selected studies, assessed risk of bias, and extracted data.

Main results

We found 11 studies that met the criteria for this review. They involved 736 participants. We measured the effect of phonics training on eight outcomes. The amount of evidence for each outcome varied considerably, ranging from 10 studies for word reading accuracy to one study for nonword reading fluency. The effect sizes for the outcomes were: word reading accuracy standardised mean difference (SMD) 0.47 (95% confidence interval (CI) 0.06 to 0.88; 10 studies), nonword reading accuracy SMD 0.76 (95% CI 0.25 to 1.27; eight studies), word reading fluency SMD -0.51 (95% CI -1.14 to 0.13; two studies), reading comprehension SMD 0.14 (95% CI -0.46 to 0.74; three studies), spelling SMD 0.36 (95% CI -0.27 to 1.00; two studies), letter-sound knowledge SMD 0.35 (95% CI 0.04 to 0.65; three studies), and phonological output SMD 0.38 (95% -0.04 to 0.80; four studies). There was one result in a negative direction for nonword reading fluency SMD 0.38 (95% CI -0.55 to 1.32; one study), though this was not statistically significant.

We did five subgroup analyses on two outcomes that had sufficient data (word reading accuracy and nonword reading accuracy). The efficacy of phonics training was not moderated significantly by training type (phonics alone versus phonics and phoneme awareness versus phonics and irregular word training), training intensity (less than two hours per week versus at least two hours per week), training duration (less than three months versus at least three months), training group size (one-on-one versus small group training), or training administrator (human administration versus computer administration).

Authors' conclusions

Phonics training appears to be effective for improving some reading skills. Specifically, statistically significant effects were found for nonword reading accuracy (large effect), word reading accuracy (moderate effect), and letter-sound knowledge (small-to-moderate effect). For several other outcomes, there were small or moderate effect sizes that did not reach statistical significance but may be meaningful: word reading fluency, spelling, phonological output, and reading comprehension. The effect for nonword reading fluency, which was measured in only one study, was in a negative direction, but this was not statistically significant.

Future studies of phonics training need to improve the reporting of procedures used for random sequence generation, allocation concealment, and blinding of participants, personnel, and outcome assessment.

PLAIN LANGUAGE SUMMARY

Phonics training for English-speaking poor readers

Around 5% of English speakers have a significant problem with learning to read words. Poor word readers are often trained to use letter-sound rules to improve their reading skills. This training is commonly called phonics. The primary aim of this review was to determine the effectiveness of phonics training for improving eight literacy skills in English-speaking poor word readers. A secondary objective was to explore the impact of various factors, such as training duration and training group size, that might moderate the effect of phonics training on poor word reading skills.

We found 11 studies that met the criteria for this review. These studies involved a total of 736 people. The amount of evidence for each literacy skill varied considerably, ranging from around 10 studies for word reading accuracy to just one study for nonword reading fluency.

The outcomes suggests that phonics training may be effective for improving some reading skills. Specifically, it seems to have a large effect on nonword reading accuracy, a moderate effect on word reading accuracy, and a small-to-moderate effect on letter-sound knowledge. For some outcomes (word reading fluency, spelling, phonological output, and reading comprehension), phonics training may have a small or moderate effect but it is difficult to be sure as the results found could also be due to chance. Results for nonword reading fluency, which was measured in only one study, were in a negative direction but again, this may be a chance finding.

Future studies of phonics training need to improve how they report the procedure used to put participants into groups and how they try to ensure participants do not know whether they are part of the 'experimental' group or the 'control' group. Studies should also report clearly how they ensure those measuring children's reading progress do not know if they have been part of the phonics training group or not.