Parent implemented early intervention for young children with autism spectrum disorder: a systematic review
McConachie H, Diggle T

CRD summary
This review investigated the effectiveness of parent-implemented early intervention for young children with autism spectrum disorder. The authors concluded that parent training can successfully contribute to early intervention, though better quality research is required. While the authors' conclusions seem reasonable, it needs to be kept in mind that there is also contradictory evidence about parent training programmes.

Authors' objectives
To investigate the effectiveness of parent-implemented early intervention for young children with autism spectrum disorder (ASD).

Searching
MEDLINE, EMBASE, PsycINFO, CINAHL, ERIC, the Cochrane Library, Dissertation Abstracts International, Social Sciences abstracts, Sociological Abstracts, Linguistics and Language Behavior Abstracts, National Research Register and LILACS were searched without language restrictions. The search end date was not provided. In addition, the reference lists of reviews and other key articles were checked, experts in the field were contacted, and key journals handsearched. Published and unpublished studies were sought.

Study selection
Study designs of evaluations included in the review
Only studies with a concurrent control or comparison group were eligible for inclusion. The length of follow-up in the included studies ranged from 12 weeks to 4 years 10 months; in the majority the length of follow-up was 1 year or less.

Specific interventions included in the review
Studies of interventions where parents or carers were the main mediators of the intervention, and where there was a significant focus on parent-implementation of the intervention, were eligible for inclusion. The included studies evaluated several different parent training programmes of varying intensity and duration. The comparators included routine care, Treatment and Education of Autistic and Related Communication Handicapped children (TEACCH) and Applied Behaviour Analysis (ABA). In some of the studies comparison was with an intensive child intervention (which also included parent training) or between different training approaches.

Participants included in the review
Studies of children aged between 1 year and 6 years 11 months, with a diagnosis of autism, ASD, Asperger syndrome, pervasive developmental disorder (PDD) or PDD not otherwise specified, were eligible for inclusion.

Outcomes assessed in the review
Inclusion criteria for the outcomes were not specified. The included studies reported directly tested and parent/teacher reported child outcomes (e.g. social-communication skills, IQ, adaptive skills and problem behaviour) and parent outcomes (e.g. knowledge about autism and teaching strategies, observed communication behaviours with their child and stress levels).

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

Assessment of study quality
The following criteria were assessed: randomisation; allocation concealment; independent diagnosis and assessment; the use of multiple outcome measures across different domains of functioning; assessment of family or parent as well as child outcomes; length of follow-up; the use of standardised tests and diagnostic instruments; and whether the sample
was representative. Two reviewers carried out the quality appraisal, although it is not clear whether this was done independently.

**Data extraction**

Post intervention means and standard deviations were extracted, and the standardised mean difference (using Hedges adjusted $g$) and 95% confidence interval (CI) were calculated. For outcomes that were pooled in a meta-analysis, the weighted mean difference (WMD) and 95% CI were calculated. The authors did not state how many reviewers performed the data extraction.

**Methods of synthesis**

How were the studies combined?
The studies were predominantly reported in a narrative synthesis and child, parent and parent-child interaction outcomes were grouped separately. Two studies were pooled in a meta-analysis for some outcomes.

How were differences between studies investigated?
Differences between the studies were reported in a table and in the narrative.

**Results of the review**

Ten studies (reported in 12 papers) were included: seven randomised controlled trials (RCTs; $n=171$) and three non-randomised controlled studies ($n=96$).

The authors stated that the designs of the included RCTs had many shortcomings. All of the included studies had small sample sizes.

Child outcomes.

In one RCT children in the parent training group had (statistically significant) less severe social communication impairments and better social interaction post-intervention compared with those who received routine care. In one RCT children in the Intensive ABA group had a statistically significant higher IQ post-intervention than the parent training group. In one controlled study parent-reported general behaviour problems and obsessions and rituals were lower amongst children in the parent training group than the control group, though the level of child play was higher in the control group. In another controlled study children receiving routine care were rated by parents as higher in terms of response to their parents, to other adults and to peers compared with the parent training group. Based on two pooled studies there was a benefit in favour of parent training groups on words understood by children ($\text{WMD} 75.84$, 95% CI: $10.95, 140.72$, $p=0.02$) and words said ($\text{WMD} 69.66$, 95% CI: $2.39, 136.94$, $p=0.04$). There was no statistically significant difference between groups on several other child outcome measures.

Parental outcomes.

In one RCT parents and child careworkers in the parent training group had a statistically significant greater knowledge of autism than the control group post-intervention, though the authors suggest this was of limited clinical significance. In one RCT stress and workload during the intervention was rated as higher in the parent training group than in the Intensive ABA group. There was no statistically significant difference between parent training and control groups in any of the other studies assessing parental stress ($n=3$). In one controlled study information given from mothers, praise, correct responses, direct responses and maternal utterances were greater in the parent training group than in the control group. In one controlled study mothers in the parent training group had lower levels of depression than controls.

Interaction outcomes.

There were (statistically significant) better parent interaction strategies with their child in the parent training group compared with the control group in one RCT. There were statistically significant benefits in favour of the pivotal response training group compared with individual target behaviour group on the observed interaction outcomes of happiness, low stress and communication style, though the authors questioned the clinical significance of these. In one controlled study there was less disruptive behaviour during play in the parent training group than in the control group, but poorer interaction between mothers and children during unoccupied periods.
Authors' conclusions
Parent training can successfully contribute to intervention for young children with ASD, though there is a need for improved research in this area.

CRD commentary
The review addressed a clear review question using defined inclusion criteria. Several relevant databases were searched for studies and attempts were made to locate unpublished data. The methodological quality of the studies was assessed and their limitations discussed. Some aspects of the review methodology were not described, therefore it was unclear whether appropriate methods were used to reduce the potential for error and bias in the study selection and data extraction processes. The decision to conduct a primarily narrative synthesis seems appropriate given the clinical variability of the studies. While the authors' conclusions seem reasonable in that they only suggest that parent training 'can' contribute to intervention for children with ASD, it needs to be kept in mind that there was also contradictory evidence from the included studies.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that large studies with at least 1 year' follow-up of participants and that use standardised outcome assessment tools are required. A full economic evaluation is also needed. Consideration should be given to what components are required in an intervention to ensure an appropriate package of care for families.

Funding
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Bibliographic details

Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
Autistic Disorder /therapy /psychology; Child; Child, Preschool; Early Intervention (Education) /methods; Parents /education; Randomized Controlled Trials as Topic; Treatment Outcome

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.