A systematic review of randomised controlled trials evaluating the effect of mother/baby skin-to-skin care on successful breast feeding

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CRD summary
This review concluded that methodological limitations within the identified studies prohibited firm conclusions being reached on the effect of early maternal/baby skin-to-skin contact on the duration of breast-feeding, timing of first breast-feed, or baby physiological factors. This was a well-conducted systematic review and the conclusions seem reliable.

Authors' objectives
To assess the effectiveness of early skin-to-skin contact between mother and baby on the initiation and duration of breast-feeding in healthy full-term babies.

Searching
The authors searched MEDLINE and EMBASE (from inception to October 2002) and the British Nursing Index and CINAHL (from inception to January 2001); the search terms were reported. The MIDIRS quarterly digest was handsearched (from 1992), as were the references of identified studies. The authors also contacted other researchers in the field for additional published or unpublished studies. No language restrictions were applied to the search.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) or quasi-randomised trials were eligible for inclusion in the review.

Specific interventions included in the review
Studies of maternal/baby skin-to-skin contact were eligible for inclusion. This was defined as the mother holding the baby naked (or covered with a warm towel or blanket) against her skin between the breasts as soon as possible after birth and left undisturbed for an unrestricted period of time. Studies of skin-to-skin contact with someone other than the mother were not eligible for inclusion in the review. The average duration of skin-to-skin contact in the included studies ranged from 15 to 90 minutes. The comparators included cot care, babies being placed in a cot for 90 minutes post delivery, separation of the mother and baby for 12 or 24 hours, wrapped baby having brief contact with the mother then separation for 12 to 24 hours, and baby cleaned, dressed and held by the mother.

Participants included in the review
Studies of healthy full-term newborn babies and their mothers were eligible for inclusion. Five studies included only primiparous mothers. Four studies were carried out in developed countries, while three were conducted in a developing country. Six studies specified that mothers had an uncomplicated vaginal delivery. Three studies specified the gestational age range was between 37 and 42 weeks, while one specified a gestational age of over 38 weeks.

Outcomes assessed in the review
The primary outcomes of interest were the success of the first breast-feeding experience and the duration of breast-feeding. The authors stated that there were no validated tools to assess the success of first breast-feeding experience, therefore, the primary study authors' definition of success would be accepted. The secondary outcomes of interest were the timing of the first breast-feed and baby factors, such as temperature and behaviour. The outcomes assessed in the included studies were duration of breast-feeding, the proportion of mothers breast-feeding at discharge and at 2 months, the temperature of the baby at 90 minutes post delivery, the proportion of babies crying at 90 minutes post delivery, and the amount of crying during 90 minutes post delivery. No studies reporting on the initiation of breast-feeding were identified.

How were decisions on the relevance of primary studies made?
Two authors independently assessed studies for inclusion in the review. Any discrepancies were resolved in consultation with the third author.

**Assessment of study quality**
The quality assessment tool was based on criteria presented in the Cochrane Collaboration Handbook. Such criteria included the assessment of selection bias, performance bias, attrition bias and detection bias. Two authors independently assessed the validity of the included studies. This was not carried out in a blinded fashion. Any discrepancies were resolved in consultation with the third author.

**Data extraction**
Two authors independently abstracted the data from the included studies, and these were then cross-checked. In some studies the difference in outcome between groups was not given, and was therefore calculated. Where possible, the 95% confidence intervals around the differences were calculated.

**Methods of synthesis**
How were the studies combined?
The authors stated that differences between the studies in terms of the reporting of outcomes and delivery of skin-to-skin contact precluded a statistical meta-analysis. A narrative synthesis of the studies was therefore undertaken, and the authors attempted to identify trends.

How were differences between studies investigated?
The authors discussed differences between the studies in the text.

**Results of the review**
Seven RCTs, reported in five papers, were included in the review. The total number of participants in six of the studies was 277. The other study included 95 participants in total; however, one treatment arm was excluded from the review.

Three of the 7 studies had adequate concealment of allocation, whilst it was not possible to ascertain the adequacy in 4 studies. Blinding of the care-givers in the delivery room to treatment allocation was not possible. Only one study reported blinding of the outcome assessors to treatment allocation for one of the outcomes measured. All studies reported that the care provided was equal except for the intervention being studied. All of the studies were small (where stated, the number of participants in the groups ranging from 14 to 34) with loss to follow-up ranging from 0 to 40%.

In 2 studies there was a statistically significantly higher mean duration of breast-feeding in mother/baby pairs who had early skin-to-skin contact than in mother/baby pairs who did not. Another study also found a higher mean duration of breast-feeding in the skin-to-skin contact group than the control group, although the difference was not statistically significant. However, one study found a statistically significantly lower mean duration of breast-feeding in mother/baby pairs who had early skin-to-skin contact than in mother/baby pairs who did not. One study found a statistically significantly higher proportion of mothers breast-feeding at 2 months in the skin-to-skin contact group than in the control group, although the difference in the proportion of mothers breast-feeding at discharge was not significantly different.

Two studies found an increase in baby temperature at 90 minutes in the skin-to-skin group; however, the difference was only statistically significant in one of the studies. Two studies also reported less baby crying in the skin-to-skin group.

**Authors' conclusions**
The widespread advocacy of skin-to-skin contact was currently unsupported, and methodological limitations within the studies prohibited firm conclusions being reached with regard to the effect of skin-to-skin contact on the duration of breast-feeding, timing of first breast-feed, or baby physiological factors. The authors stated that further primary research is needed to assess the effect of skin-to-skin contact on the breast-feeding experience.
CRD commentary
The review question was clear in terms of the study design, population, intervention and outcomes of interest. Several relevant electronic databases were searched without language restrictions and attempts were made to obtain unpublished research, thus reducing the possibility of language and publication bias. The study selection, data extraction and quality assessment processes were carried out in duplicate, which helps reduce errors and reviewer bias. The quality of the included studies was assessed using appropriate criteria.

Sufficient details of the individual studies were presented. The narrative synthesis appears to have been appropriate, owing to the small number of included studies and differences between the studies. This was a well-conducted systematic review and the authors' tentative conclusions are appropriate.

Implications of the review for practice and research
Practice: The authors stated that the strength of the evidence identified prohibits them from making recommendations for practice.

Research: The authors stated that further primary research is needed to assess the effect of skin-to-skin contact on the breast-feeding experience. They stated that they had initiated an RCT to assess the effect of skin-to-skin care on the quality of the first breast-feeding experience and the duration of breast-feeding.

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