# National Institute for Health and Care Excellence

# Antenatal care

## [E] Antenatal classes

*NICE guideline <number>*

*Evidence reviews underpinning recommendations 1.3.14 to 1.3.16*

*February 2021*

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# Contents

# 1 Antenatal classes

## 2 Review question

3 How effective are antenatal classes and groups in preparing pregnant women for labour?

## 4 Introduction

5 Antenatal classes and groups have formed a core part of maternity care for many years and
6 aim to help prepare women and their partners for birth. The content of such classes is
7 designed to help build confidence in women and expectant partners, empowering them
8 during labour and birth. The content of classes varies from region to region often with the
9 introduction of hypnosis, mindfulness and other holistic therapies. The aim of this review is to
10 assess the effectiveness of different types of antenatal classes and groups in preparing
11 pregnant women for labour.

## 12 Summary of the protocol

13 See Table 1 for a summary of the Population, Intervention, Comparison and Outcome
14 (PICO) characteristics of this review.

15 **Table 1: Summary of the protocol (PICO table)**

| Population | All pregnant woman |
|---|---|
| Intervention | The following types of interventions will be considered:<br>• Standard care (any antenatal class/group/workshop, or set thereof) whose aim is to prepare the woman for childbirth<br>• Standard care (any antenatal class/group/workshop, or set thereof) whose aim is to prepare the woman for childbirth) + Extra non-standard component, such as:<br>  ○ Hypnobirthing<br>  ○ Mindfulness<br>  ○ Physical activity (being active in labour; also referred to as 'active birth')<br>  ○ Yoga<br>• Interventions to improve emotional attachment between mother and baby:<br>  ○ Information provision (verbal, electronic, or paper) on the following topics:<br>    - being responsive to cues or small signals the baby may send<br>    - copying the baby's noises and gestures<br>    - cuddling the baby<br>    - getting enough sleep and having support<br>    - massaging the baby<br>    - providing comfort when the baby is upset<br>    - skin-to-skin contact<br>    - talking to the baby<br>  ○ Skills training (for example baby massage) |
| Comparison | • No antenatal class<br>• Standard care (as defined by study)<br><br>The following comparisons will be considered:<br>1. Standard care vs no antenatal class<br>2. Extra non-standard component + standard care vs no antenatal class |

| | |
|---|---|
| | 3. Extra non-standard component + standard care vs standard care<br>4. Extra non-standard component + standard care vs different extra non-standard component + standard care |
| **Outcome** | **Outcomes for women**<br>**Critical**<br><br>• Satisfaction with birth experience<br>**Important**<br>• Dilation of cervix on admission for labour<br>• Epidural use during labour<br>• Knowledge acquisition about childbirth<br>• Mode of birth<br>   o Elective caesarean birth<br>   o Emergency caesarean birth<br>   o Vaginal birth<br>• Self-efficacy regarding childbirth<br><br>**Outcomes for interventions whose primary aim is to improve maternal-baby attachment**<br>**Important**<br>• Mother-child attachment between 12 to 18 months after birth<br><br>**Outcomes for partner**<br>**Important**<br>• Feeling supported in role as support person<br>   o Feeling included in ANC classes/groups<br>   o Knowledge about one's own support role<br>   o Feeling recognised as partner |

1 For further details, see the review protocol in appendix A.

## Methods and process

3 This evidence review was developed using the methods and process described in Developing
4 NICE guidelines: the manual 2014. Methods specific to this review question are described in
5 the review protocol in appendix A.

6 Declarations of interest were recorded according to NICE's conflicts of interest policy.

## Clinical evidence

### Included studies

9 Six randomised controlled trials (RCTs) were included in this review (Cyna 2013, Downe
10 2015, Duncan 2017, Kimber 2008, Levett 2016 and Maimburg 2010).

11 The included studies are summarised in Table 2.

12 One study compared standard care to no formal antenatal classes (Maimburg 2010). Two
13 studies compared hypnosis training in addition to standard care to standard care alone (Cyna
14 2013, Downe 2015). One study compared mindfulness in addition to standard care to
15 standard care alone (Duncan 2017). One study compared a massage programme with
16 relaxation techniques plus standard care and standard care alone (Kimber 2008). One study
17 compared playing music during relaxation technique practice in addition to standard care to
18 standard care alone (Kimber 2008). One study compared multiple interventions such as yoga
19 postures, breathing techniques, massage and acupressure in addition to standard care to
20 standard care alone (Levett 2016). One study compared hypnosis training in addition to

1  standard care to hypnosis played on a CD in addition to standard care (Cyna 2013). One
2  study compared massage programme with relaxation techniques in addition to standard
3  care, to playing music during relaxation technique practice in addition to standard care
4  (Kimber 2008).

5  Two studies were conducted in Australia (Cyna 2013, Levett 2016); 1 study was conducted
6  in Denmark (Maimburg 2010); 2 studies were conducted in the UK (Downe 2015, Kimber
7  2008); 1 study was conducted in US (Duncan 2017).

8  One additional study (Thorstensson 2020**)** was identified in final update searches for the
9  review that met the protocol inclusion criteria but did not affect the evidence base or draft
10  recommendations. The searches were initially updated in May 2020 but due to the atypical
11  prolongation of guideline development due to COVID-19 pandemic, the searches were
12  updated again in September 2020. New evidence identified in this final update search which
13  did not impact on the conclusions was not fully included in the report but is referenced in
14  appendix M.

15  See the literature search strategy in appendix B and study selection flow chart in appendix C.

16  **Excluded studies**

17  Studies not included in this review with reasons for their exclusions are provided in appendix
18  K.

19  **Summary of studies included in the evidence review**

20  Summaries of the studies that were included in this review are presented in Table 2.

21  **Table 2:  Summary of included studies**

| Study | Population | Intervention | Comparison | Outcomes |
|---|---|---|---|---|
| Cyna 2013

RCT

Australia | N=448 pregnant women

Mean maternal age:
Intervention: hypnosis training + CD = 30.5 years
CD = 31.4 years
Control = 31.2 years

Number of nulliparous women:
Intervention: hypnosis training +CD = 124
CD = 110
Control = 114 | Hypnosis + CD:
• Group antenatal hypnosis session over 3 weeks, by a doctor qualified in hypnosis. CD on hypnosis given after each session for home practice.
• Participants asked to practice at home daily with the CD.
• A 4th CD given for use during labour.
CD:
• Group antenatal hypnosis session over 3 weeks, CD listened to during sessions.
• CD on hypnosis given after each session for home practice.
• A 4th CD given for use during labour.

Both intervention groups received standard care which was the usual antenatal classes and clinical appointments. | Standard care:
• Usual antenatal classes and clinical appointments. | • Satisfaction with birth experience
• Epidural use during labour
• Mode of birth |

| Study | Population | Intervention | Comparison | Outcomes |
|-------|-----------|--------------|-----------|----------|
| Downe 2015

RCT

UK | N=680 pregnant nulliparous women

Mean maternal age:
Intervention = 28.4 years
Control = 28.5 years | Self-hypnosis training + standard care:
• Two 90-minute group hypnosis sessions at 32 and 35 weeks' gestation, given by midwives with experience in hypnosis for childbirth.
• Could attend with or without a birth partner.
• Advised to listen to a 26-minute hypnosis CD daily until birth.
• Standard care which is usual NHS antenatal education. | Standard care:
• Usual NHS antenatal education.

In most study locations this includes 4/5 classroom sessions covering pregnancy, new baby care, feeding advice. | • Epidural use during labour
• Mode of birth |
| Duncan 2017

RCT

US | N=30 pregnant nulliparous women

No relevant population characteristics reported | Mindfulness + standard care:
• Intervention aimed at pregnant women and their partners.
• Mindfulness 18hr course held over 1 weekend. Delivered by certified instructors.
• Coping with labour pain and fear strategies taught.
• Participants provided with handouts and audio material to take home. | Standard care:
• Participants provided with a study approved list of childbirth education providers.
• These were similar in length and quality.
• They did not have a mindfulness component. | • Satisfaction with birth experience
• Epidural use during labour
• Self-efficacy regarding childbirth |
| Kimber 2008

RCT

UK | N=90 pregnant women with birth companion

Mean maternal age:
Intervention (massage) = 30
Placebo (music) = 28.8
Control = 30

Number of nulliparous women:
Intervention (massage)= 21
Placebo (music)= 21
Control= 21

Women without a birth companion were excluded. | Massage programme with relaxation techniques:
• 2.5 hr class at 35-37 weeks' gestation for women and birth partner.
• Massage techniques taught to birth partner by midwife/therapist.
• Woman and birth partner taught to synchronise massage and breathing.
• Visualisation/mind mapping taught - asking women to focus on massaging hands.
• Asked to practice for 30-45 minutes at least 3 evenings week until 39 weeks' gestation. Then every evening until labour.

Playing music during relaxation technique practice: | Standard care:
• The usual antenatal preparation classes at trial centre.
• Three 2.5-hr classes which had antenatal and labour sessions about labour, methods of pain relief and delivery types. | • Satisfaction with birth experience
• Dilation of cervix on admission
• Use of epidural analgesia
• Mode of birth
• Self-efficacy regarding childbirth |

| Study | Population | Intervention | Comparison | Outcomes |
|---|---|---|---|---|
| | | • Usual antenatal preparation classes at trial centre.<br>• Breathing and visualisation techniques taught.<br>• Woman and birth partner chose their favourite music to play during relaxation.<br><br>Massage and music interventions included standard care which was the usual antenatal preparation classes at trial centre. | | |
| Levett 2016<br><br>RCT<br><br>Australia | N=176 pregnant nulliparous women and their birth partners<br><br>Mean maternal age:<br>Intervention = 30.41<br>Control = 28.87 | Multiple interventions: Complementary medicine techniques:<br>• Hospital based, two-day course conducted over one weekend.<br>• Various tools taught to women and partners. Including visualisations with a CD to take home, yoga postures, breathing techniques, massage (shown to partners), acupressure and facilitated partner support.<br>• Standard care with usual hospital antenatal education included. | Standard care: Hospital based antenatal education course:<br>• Topics of classes include: Changes in pregnancy, exercise and back care in pregnancy, signs of labour, unexpected labour and birth outcomes, pharmacological pain management, managing labour and birth, post birth information on baby and parenthood.<br>• Weekly classes over 6-7 weeks, or over 1-2 weekends. | • Epidural use during labour<br>• Mode of birth<br>• Self-efficacy regarding childbirth |
| Maimburg 2010<br><br>RCT<br><br>Denmark | N=1193 pregnant nulliparous women<br><br>Mean maternal age:<br>Intervention = 28.9<br>Control = 29.2 | Standard antenatal classes:<br>• Midwife led antenatal training sessions between 30-35 weeks' gestation.<br>• Partner was invited.<br>• 3 modules lasting 3 hours each. Taught as lectures and discussions.<br>• Birth module: labour onset, birth, pain relief.<br>• Newborn module: caring for newborn, breastfeeding, vaccination<br>• Parent module. | No antenatal classes:<br>• Standard care which does not include antenatal training programmes.<br><br>45% of the control group took part in antenatal training outside of the trial. | • Satisfaction with birth experience<br>• Dilation of cervix on admission<br>• Epidural use during labour<br>• Mode of birth |

| Study | Population | Intervention | Comparison | Outcomes |
|-------|-----------|--------------|------------|----------|
|       |           |              |            |          |

1  *CD: compact disc; RCT: randomised controlled trial*

2  See the full evidence tables in appendix D and forest plots in appendix E.

3  **Quality assessment of studies included in the evidence review**

4  See the evidence profiles in appendix F.

5  **Economic evidence**

6  **Included studies**

7  A systematic review of the economic literature was conducted but no economic studies were
8  identified which were applicable to this review question.

9  A single economic search was undertaken for all topics included in the scope of this
10  guideline. See supplementary material 2 for details.

11  **Excluded studies**

12  Economic studies not included in this review are listed, and reasons for their exclusion are
13  provided in appendix K.

14  **Summary of studies included in the economic evidence review**

15  No economic studies were identified which were applicable to this review question.

16  **Economic model**

17  No economic modelling was undertaken for this review because the committee agreed that
18  other topics were higher priorities for economic evaluation.

19  **Evidence statements**

20  **Clinical evidence statements**

21  ***Comparison 1: Standard care vs no formal antenatal classes***

22  **Critical outcomes**

23  **Satisfaction with birth experience**

24  • Low quality evidence from 1 RCT (N=1068) showed that there is no clinically important
25  difference between standard care and no formal antenatal classes on satisfaction with
26  birth experience (assessed with number reporting that birth was good or great): RR 0.99
27  (95% CI 0.93 to 1.06).

28  **Important outcomes**

29  **Dilation of cervix on admission to labour**

30  • Low quality evidence from 1 RCT (N=1162) showed that there is a clinically important
31  difference between standard care and no formal antenatal classes on the dilation of
32  cervix on admission to labour, favouring standard care (assessed as number presenting
33  with >3cm cervix dilation on arrival): RR 1.43 (95% CI 1.23 to 1.66).

1 **Epidural use during labour**

2 • Low quality evidence from 1 RCT (N=1162) showed that there is no clinically important
3 difference between standard care and no formal antenatal classes on epidural use during
4 labour: RR 0.84 (95% CI 0.73 to 0.98).

5 **Knowledge acquisition about childbirth**

6 No evidence was identified to inform this outcome.

7 **Mode of birth**

8 • Moderate quality evidence from 1 RCT (N=1162) showed that there is no clinically
9 important difference between standard care and no formal antenatal classes on
10 spontaneous vaginal delivery: RR 1.03 (95% CI 0.94 to 1.13).
11 • Very low quality evidence from 1 RCT (N=1162) showed that there is no clinically
12 important difference between standard care and no formal antenatal classes on elective
13 caesarean section: RR 0.98 (95% CI 0.57 to 1.68).
14 • Low quality evidence from 1 RCT (N=1162) showed that there is no clinically important
15 difference between standard care and no formal antenatal classes on emergency
16 caesarean section: RR 0.90 (95% CI 0.69 to 1.17).

17 **Self-efficacy regarding childbirth**

18 No evidence was identified to inform this outcome.

19 **Feeling supported in the role as a support person (outcome for the partner)**

20 No evidence was identified to inform this outcome.

21 ***Comparison 2: Hypnosis training plus standard care vs standard care alone***

22 **Critical outcomes**

23 **Satisfaction with birth experience**

24 • Low quality evidence from 1 RCT (N=432) showed that there is no clinically important
25 difference between hypnosis training plus standard care and standard care alone on
26 satisfaction with birth experience (assessed with number reporting a positive birth): RR
27 0.90 (95% CI 0.81 to 1.00).

28 **Important outcomes**

29 **Dilation of cervix on admission to labour**

30 No evidence was identified to inform this outcome.

31 **Epidural use during labour**

32 • Moderate quality evidence from 2 RCTs (N=1118) showed that there is no clinically
33 important difference between hypnosis training plus standard care and standard care
34 alone on epidural use during labour: RR 0.96 (95% CI 0.82 to 1.13).

35 **Knowledge acquisition about childbirth**

36 No evidence was identified to inform this outcome.

37 **Mode of birth**

38 • Moderate quality evidence from 2 RCTs (N=1120) showed that there is no clinically
39 important difference between hypnosis training plus standard care and standard care
40 alone on spontaneous vaginal delivery: RR 0.97 (95% CI 0.87 to 1.08).

1 • Low quality evidence from 2 RCTs (N=1120) showed that there is no clinically important
2 difference between hypnosis training plus standard care and standard care alone on total
3 caesarean section: RR 1.09 (95% CI 0.87 to 1.36)

4 **Self-efficacy regarding childbirth**

5 No evidence was identified to inform this outcome.

6 **Feeling supported in the role as a support person (outcome for the partner)**

7 No evidence was identified to inform this outcome.

8 *Comparison 3: Mindfulness plus standard care vs standard care alone*

9 **Critical outcomes**

10 **Satisfaction with birth experience**

11 • Very low quality evidence from 1 RCT (N=29) showed that there is no clinically important
12 difference between mindfulness plus standard care and standard care alone on
13 satisfaction with birth experience (assessed with number of women scoring 8 or above
14 out of 10): RR 0.82 (95% CI 0.40 to 1.65)

15 **Important outcomes**

16 **Dilation of cervix on admission to labour**

17 No evidence was identified to inform this outcome.

18 **Epidural use during labour**

19 • Low quality evidence from 1 RCT (N=27) showed that there is no clinically important
20 difference between mindfulness plus standard care and standard care alone on epidural
21 use during labour: RR 1.01 (95% CI 0.74 to 1.39).

22 **Knowledge acquisition about childbirth**

23 No evidence was identified to inform this outcome.

24 **Mode of birth**

25 No evidence was identified to inform this outcome.

26 **Self-efficacy regarding childbirth**

27 • Low quality evidence from 1 RCT (N=29) showed that there is a clinically important
28 difference between mindfulness plus standard care and standard care alone on self-
29 efficacy regarding childbirth (measured using CBSEI pre-birth, range of scores 31-310;
30 better indicated by higher values), favouring mindfulness: MD 31.30 (95% CI 3.25 to
31 59.35).

32 **Feeling supported in the role as a support person (outcome for the partner)**

33 No evidence was identified to inform this outcome.

34 *Comparison 4: Massage programme with relaxation techniques plus standard care vs*
35 *standard care alone*

36 **Critical outcomes**

37 **Satisfaction with birth experience**

1 • Low quality evidence from 1 RCT (N=60) showed that there is no clinically important
2   difference between massage programme with relaxation techniques plus standard care
3   and standard care alone on satisfaction with birth experience (assessed with number
4   reporting very satisfied): RR 1.22 (95% CI 0.85 to 1.76).

5 **Important outcomes**

6 **Dilation of cervix on admission to labour**

7 • Moderate quality evidence from 1 RCT (N=60) showed that there is no clinically important
8   difference between massage programme with relaxation techniques plus standard care
9   and standard care alone on dilation of cervix on admission to labour (measured in cm,
10   range of scores 0-10; better indicated by higher values): MD -0.30 (95% CI -1.82 to 1.22).

11 **Epidural use during labour**

12 • Low quality evidence from 1 RCT (N=60) showed that there is no clinically important
13   difference between massage programme with relaxation techniques plus standard care
14   and standard care alone on epidural use during labour: RR 1.25 (95% CI 0.57 to 2.73).

15 **Knowledge acquisition about childbirth**

16 No evidence was identified to inform this outcome.

17 **Mode of birth**

18 • Low quality evidence from 1 RCT (N=60) showed that there is no clinically important
19   difference between massage programme with relaxation techniques plus standard care
20   and standard care alone on spontaneous vaginal delivery: RR 1.18 (95% CI 0.79 to
21   1.76).
22 • Low quality evidence from 1 RCT (N=60) showed that there is no clinically important
23   difference between massage programme with relaxation techniques plus standard care
24   and standard care alone on elective caesarean section: RR 3.00 (95% CI 0.13 to 70.83).
25 • Low quality evidence from 1 RCT (N=60) showed that there is no clinically important
26   difference between massage programme with relaxation techniques plus standard care
27   and standard care alone on emergency caesarean section: RR 0.71 (95% CI 0.25 to
28   2.00).

29 **Self-efficacy regarding childbirth**

30 • Low quality evidence from 1 RCT (N=60) showed that there is a clinically important
31   difference between massage programme with relaxation techniques plus standard care
32   and standard care alone on self-efficacy regarding childbirth, favouring the massage
33   programme (measured using labour agentry scale, range of scores 10-70; better
34   indicated by lower values): MD -6.10 (95% CI -11.49 to -0.71).

35 **Feeling supported in the role as a support person (outcome for the partner)**

36 No evidence was identified to inform this outcome.

37 *Comparison 5: Playing music during relaxation technique practice plus standard care*
38 *vs standard care alone*

39 **Critical outcomes**

40 **Satisfaction with birth experience**

41 • Low quality evidence from 1 RCT (N=60) showed that there is no clinically important
42   difference between playing music during relaxation technique practice plus standard care

1 and standard care alone on satisfaction with birth experience (assessed with number
2 reporting very satisfied): RR 1.22 (95% CI 0.85 to 1.76).

3 **Important outcomes**

4 **Dilation of cervix on admission to labour**

5 • High quality evidence from 1 RCT (N=60) showed that there is no clinically important
6   difference between playing music during relaxation technique practice plus standard care
7   and standard care alone on dilation of cervix on admission to labour (measured in cm,
8   range of scores 0-10; better indicated by higher values): MD 0 (95% CI -1.47 to 1.47).

9 **Epidural use during labour**

10 • Low quality evidence from 1 RCT (N=59) showed that there is no clinically important
11   difference between playing music during relaxation technique practice plus standard care
12   and standard care alone on epidural use during labour: RR 1.29 (95% CI 0.59 to 2.81).

13 **Knowledge acquisition about childbirth**

14 No evidence was identified to inform this outcome.

15 **Mode of birth**

16 • Low quality evidence from 1 RCT (N=59) showed that there is no clinically important
17   difference between playing music during relaxation technique practice plus standard care
18   and standard care alone on spontaneous vaginal delivery: RR 1.10 (95% CI 0.72 to
19   1.67).
20 • Low quality evidence from 1 RCT (N=59) showed that there is no clinically important
21   difference between playing music during relaxation technique practice plus standard care
22   and standard care alone on elective caesarean section: RR 3.10 (95% CI 0.13 to 73.14).
23 • Low quality evidence from 1 RCT (N=59) showed that there is no clinically important
24   difference between playing music during relaxation technique practice plus standard care
25   and standard care alone on emergency caesarean section RR 0.44 (95% CI 0.13 to
26   1.55).

27 **Self-efficacy regarding childbirth**

28 • Low quality evidence from 1 RCT (N=59) showed that there is a clinically important
29   difference between playing music during relaxation technique practice plus standard care
30   and standard care alone on self-efficacy regarding childbirth, favouring playing music
31   (measured using labour agentry scale, range of scores 10-70; better indicated by lower
32   values): MD -6.10 (95% CI -11.49 to -0.41).

33 **Feeling supported in the role as a support person (outcome for the partner)**

34 No evidence was identified to inform this outcome.

35 *Comparison 6: Multiple interventions (yoga postures, breathing techniques, massage*
36 *and acupressure) plus standard care vs standard care alone*

37 **Critical outcomes**

38 **Satisfaction with birth experience**

39 No evidence was identified to inform this outcome.

40 **Important outcomes**

41 **Dilation of cervix on admission to labour**

1    No evidence was identified to inform this outcome.

2    **Epidural use during labour**

3    • Moderate quality evidence from 1 RCT (N=171) showed that there is a clinically important
4    difference between multiple interventions (yoga postures, breathing techniques, massage
5    and acupressure) plus standard care vs standard care alone on epidural use during
6    labour, favouring multiple interventions: RR 0.35 (95 % CI 0.23 to 0.52).

7    **Knowledge acquisition about childbirth**

8    No evidence was identified to inform this outcome.

9    **Mode of birth**

10    • Low quality evidence from 1 RCT (N=171) showed that there is a clinically important
11    difference between multiple interventions (yoga postures, breathing techniques, massage
12    and acupressure) plus standard care vs standard care alone on spontaneous vaginal
13    deliveries, favouring multiple interventions: RR 1.45 (95% CI 1.11 to 1.90).
14    • Low quality evidence from 1 RCT (N=171) showed that there is a clinically important
15    difference between multiple interventions (yoga postures, breathing techniques, massage
16    and acupressure) plus standard care vs standard care alone on total caesarean sections,
17    favouring multiple interventions:  RR 0.56 (95% CI 0.33 to 0.96).

18    **Self-efficacy regarding childbirth**

19    • Very low evidence from 1 RCT (N=124) showed that there is no clinically important
20    difference between multiple interventions (yoga postures, breathing techniques, massage
21    and acupressure) plus standard care vs standard care alone on self-efficacy regarding
22    childbirth (measured using labour agentry scale, range of scores 29-203; better indicated
23    by lower values): MD 14.05 (95% CI 3.77 to 24,33).

24    **Feeling supported in the role as a support person (outcome for the partner)**

25    No evidence was identified to inform this outcome

26    ***Comparison 7: Hypnosis training plus standard care vs hypnosis CD plus standard***
27    ***care***

28    **Critical outcomes**

29    **Satisfaction with birth experience**

30    • Low quality evidence from 1 RCT (N=288) showed that there is no clinically important
31    difference between hypnosis training plus standard care and hypnosis CD plus standard
32    care on satisfaction with birth experience (assessed with number reporting a positive
33    experience): RR 0.96 (95% CI 0.84 to 1.10).

34    **Important outcomes**

35    **Dilation of cervix on admission to labour**

36    No evidence was identified to inform this outcome.

37    **Epidural use during labour**

38    • Low quality evidence from 1 RCT (N=297) showed that there is no clinically important
39    difference between hypnosis training plus standard care and hypnosis CD plus standard
40    care on epidural use during labour: RR 1.15 (95% CI 0.90 to 1.46).

41    **Knowledge acquisition about childbirth**

1    No evidence was identified to inform this outcome.

2    **Mode of birth**

3    •   Low quality evidence from 1 RCT (N=297) showed that there is no clinically important
4        difference between hypnosis training plus standard care and hypnosis CD plus standard
5        care on spontaneous vaginal delivery: RR 0.94 (95% CI 0.77 to 1.15).
6    •   Low quality evidence from 1 RCT (N=297) showed that there is no clinically important
7        difference between hypnosis training plus standard care and hypnosis CD plus standard
8        care on total caesarean sections: RR 1.41 (95% CI 0.90 to 2.21).

9    **Self-efficacy regarding childbirth**

10   No evidence was identified to inform this outcome.

11   **Feeling supported in the role as a support person (outcome for the partner)**

12   No evidence was identified to inform this outcome.

13   *Comparison 8: Massage programme with relaxation techniques plus standard care vs*
14   *playing music during relaxation techniques plus standard care*

15   **Critical outcomes**

16   **Satisfaction with birth experience**

17   •   Very low quality evidence from 1 RCT (N=60) showed that there is no clinically important
18       difference between a massage programme with relaxation techniques plus standard care
19       and playing music during relaxation techniques plus standard care on satisfaction with
20       birth experience (assessed with number reporting very satisfied): RR 1.00 (95% CI 0.74
21       to 1.36).

22   **Important outcomes**

23   **Dilation of cervix on admission to labour**

24   •   Moderate quality evidence from 1 RCT (N=60) showed that there is no clinically important
25       difference between massage programme with relaxation techniques plus standard care
26       and playing music during relaxation techniques plus standard care on dilation of cervix on
27       admission to labour (measured in cm, range of scores 0-10; better indicated by higher
28       values): MD -0.30 (95% CI -1.77 to 1.17).

29   **Epidural use during labour**

30   •   Low quality evidence from 1 RCT (N=59) showed that there is no clinically important
31       difference between massage programme with relaxation techniques plus standard care
32       and playing music during relaxation techniques plus standard care on epidural use during
33       labour: RR 0.97 (95% CI 0.47 to 1.97).

34   **Knowledge acquisition about childbirth**

35   No evidence was identified to inform this outcome.

36   **Mode of birth**

37   •   Low quality evidence from 1 RCT (N=59) showed that there is no clinically important
38       difference between massage programme with relaxation techniques plus standard care
39       and playing music during relaxation techniques plus standard care on spontaneous
40       vaginal delivery: RR 1.07 (95% CI 0.73 to 1.57).
41   •   Low quality evidence from 1 RCT (N=59) showed that there is no clinically important
42       difference between massage programme with relaxation techniques plus standard care

1     and playing music during relaxation techniques plus standard care on elective caesarean
2     section: RR 0.97 (95% CI 0.06 to 14.74).
3     • Low quality evidence from 1 RCT (N=59) showed that there is no clinically important
4     difference between massage programme with relaxation techniques plus standard care
5     and playing music during relaxation techniques plus standard care on emergency
6     caesarean section: RR 1.61 (0.42 to 6.14).

7 **Self-efficacy regarding childbirth**

8     • Moderate quality evidence from 1 RCT (N=59) showed that there is no clinically important
9     difference between massage programme with relaxation techniques plus standard care
10    and playing music during relaxation techniques plus standard care on self-efficacy
11    regarding childbirth (measured using labour agentry scale, range of scores: 10-70; better
12    indicated by lower values): MD 0 (95% CI -5.90 to 5.90).

13 **Feeling supported in the role as a support person (outcome for the partner)**

14 No evidence was identified to inform this outcome.

15 **The committee's discussion of the evidence**

16 **Interpreting the evidence**

17 *The outcomes that matter most*

18 The committee considered satisfaction with the birth experience as the critical outcome, as
19 one of the aims of antenatal education is to prepare women and their partners for labour. The
20 outcomes identified as important were dilation of the cervix on admission for labour, epidural
21 use during labour, knowledge acquisition about childbirth, mode of birth and self-efficacy
22 regarding childbirth. These were chosen by the committee as they may have a secondary
23 impact on the woman's birth experience.

24 For outcomes for interventions whose primary aim was to improve maternal-baby
25 attachment, the outcome identified as important was mother-child attachment between 12 to
26 18 months after birth. For outcomes for the partner, the outcome identified as important was
27 the partner feeling supported in the role as a support person.

28 *The quality of the evidence*

29 The quality of the evidence ranged from very low to high. Most of the evidence was of low
30 quality, with only 1 outcome rated at high quality. The main issues were due to imprecision
31 around the estimate of effects in many outcomes. Some outcomes (such as satisfaction with
32 birth experience, and self-efficacy regarding childbirth) were also downgraded for risk of bias
33 as they were subjective and the studies assessing them were un-blinded. The other reason
34 for downgrading was high risk of bias due to deviations from the intended interventions in
35 some outcomes.

36 Satisfaction with birth experience was identified in all comparisons, apart from multiple
37 interventions compared with standard care.

38 No studies on interventions to promote emotional attachment were identified for mother-child
39 attachment between 12-18 months after birth. No evidence was identified for the outcome
40 knowledge acquisition about childbirth. No evidence was identified for the outcome for the
41 partner of feeling supported in the role as a support person.

42 There was little evidence, only a single trial, comparing the efficacy of standard antenatal
43 classes against no antenatal class. The committee noted that this may reflect the fact that
44 antenatal classes in some form are standard practice currently and therefore it is unlikely that
45 further research would seek to assess their impact versus no class.

1 **Benefits and harms**

2 Only one study compared standard care (antenatal classes) with no formal antenatal
3 classes. The evidence showed an important difference favouring standard care on dilation of
4 the cervix on admission for labour. There was no important difference for any of the other
5 outcomes identified (satisfaction with birth experience, epidural use during labour or mode of
6 birth).

7 Overall the evidence suggests that antenatal classes may help women present for labour
8 with greater dilation of the cervix. The committee discussed offering antenatal classes to
9 nulliparous women to prepare them for labour based on the evidence that showed antenatal
10 classes, when compared to no formal antenatal classes, had a favourable outcome in terms
11 of dilation of the cervix on presentation for labour. A more dilated cervix on presentation to
12 labour can reduce the need for interventions at the hospital. It may also be an indication that
13 women have better coping strategies and the confidence to deal with pain and the early
14 stages of labour at home, which can be attributed to the antenatal classes.

15 Although the evidence on antenatal classes (versus not) is limited both in terms of quality
16 and quantity, the committee agreed that a strong recommendation was necessary based on
17 their knowledge and experience about how much antenatal classes are valued by women
18 and their partners. The committee discussed that the implications of a weak recommendation
19 could mean nulliparous women are not offered antenatal classes via the NHS, as there are
20 various non-NHS organisations, such as the National Childbirth Trust, that offer antenatal
21 classes at a cost. These may be accessible for some women, however, there are many
22 families that rely on NHS services. Therefore, the committee agreed it was essential that all
23 nulliparous women have the opportunity to attend antenatal classes.

24 The evidence on non-standard components of antenatal classes was somewhat mixed.

25 Hypnosis seems to have little effect. One study compared hypnosis training plus standard
26 care with standard care alone. The evidence showed that there was no important difference
27 between the 2 groups for any of the outcomes identified (satisfaction with birth experience,
28 epidural use during labour or mode of birth). One study compared hypnosis training plus
29 standard care with a hypnosis CD plus standard care. The evidence showed that there was
30 no important difference between the 2 groups on any of the outcomes identified (satisfaction
31 with birth experience, epidural use during labour or mode of birth).

32 Interventions aimed at relaxation like mindfulness, massage and breathing and relaxation
33 techniques may improve self-efficacy, though this did not necessarily translate into better
34 overall satisfaction or other downstream outcomes.

35 One study compared mindfulness plus standard care with standard care alone. The evidence
36 showed an important difference favouring mindfulness on self-efficacy regarding childbirth.
37 There was no important difference for any of the other outcomes identified (satisfaction with
38 birth experience or epidural use during labour). The committee recognised that despite the
39 intensive structure of the programme, there was an important difference in only one outcome.
40 They also felt that the structure of the mindfulness programme, an 18-hour course over 1
41 weekend, would not be feasible in practice.

42 One study compared a massage programme with relaxation techniques plus standard care
43 with standard care alone. The evidence showed there was an important difference favouring
44 the massage programme on self-efficacy regarding childbirth. There was no important
45 difference for any of the other outcomes identified (satisfaction with birth experience, dilation
46 of cervix on admission to labour, epidural use during labour or mode of birth).

47 One study compared playing music during relaxation technique practice plus standard care
48 and standard care alone. The evidence showed there was an important difference favouring
49 playing music on self-efficacy regarding childbirth. There was no important difference for any

1  of the other outcomes identified (satisfaction with birth, dilation of cervix on admission to
2  labour epidural use during labour or mode of birth).

3  One study compared a massage programme with relaxation techniques plus standard care,
4  with playing music during relaxation technique practice plus standard care. The evidence
5  showed that there was no important difference between the 2 groups on any of the outcomes
6  identified (satisfaction with birth experience, dilation of cervix on admission to labour,
7  epidural use during labour, mode of birth or self-efficacy regarding childbirth).

8  The committee agreed that these interventions are likely roughly equivalent to each other
9  although when combined into a larger programme that also includes yoga and acupressure
10  may have additional benefits in terms of epidural use and mode of delivery based on a study
11  which compared multiple interventions (yoga postures, breathing techniques, massage and
12  acupressure) plus standard care with standard care alone. The evidence showed an
13  important difference favouring multiple interventions on epidural use during labour and mode
14  of birth. There was no important difference for any of the other outcomes identified (self-
15  efficacy regarding childbirth).

16  However, the committee concluded that majority of the evidence on non-standard
17  components of antenatal classes came from relatively small (hypnosis was an exception)
18  and un-blinded trials. The committee agreed that the evidence was not strong enough to
19  make specific recommendations on the extra standard components of antenatal care. They
20  discussed that the implications of making recommendations for some of the extra
21  components, such as hypnosis, would have a large resource impact, in particular ensuring
22  the availability of skilled staff.

23  The committee discussed the importance of identifying which topics should be covered in
24  antenatal classes, as they recognised there is a variation across trusts in this area. They
25  used their expertise to make a recommendation outlining the important topics of antenatal
26  care and made reference to the NICE guidance on postnatal care which covers some of the
27  topics.

28  The committee discussed that the evidence on antenatal classes (versus no antenatal
29  classes) was from a trial conducted in nulliparous women. The committee noted that there
30  are multiparous women who may also benefit from antenatal classes, and recognised the
31  importance of not excluding these women from having the opportunity to attend antenatal
32  classes. Some examples of multiparous women that may benefit from antenatal classes may
33  include: those who have never attended antenatal classes before, women who have
34  previously given birth overseas, women who have had a pregnancy loss or women who have
35  had a long interval since their last pregnancy.

36  This review did not assess differential access rates to antenatal classes in subgroups of
37  women, however the committee felt that this was an important area to highlight and
38  recognised that there are inequalities among different groups, such as women with different
39  socioeconomic backgrounds and women from minority ethnic groups. Therefore, the
40  committee made a recommendation to ensure antenatal classes are inclusive for all women,
41  including pregnant women with complex social factors, covered by the NICE guideline:
42  Pregnancy and complex social factors: a model for service provision for pregnant women
43  with complex social factors.

44  **Cost effectiveness and resource use**

45  A systematic review of the economic literature was conducted but no relevant studies were
46  identified which were applicable to this review question.

47  Nearly all centres providing antenatal classes will already be offering such classes at a
48  similar manner and intensity to those in the recommendations. These recommendations will

1 reinforce best practice and improve consistency of such classes. It is not anticipated there
2 will be any resource impact arising from these recommendations.

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35

# 1 Appendices

## 2 Appendix A - Review protocol

**3 Review protocol for review question: How effective are antenatal classes and groups in preparing pregnant women for
4 labour?**

5 **Table 3: Review protocol**

| ID (to be deleted in final version) | Field (based on PRISMA-P) | Content |
|---|---|---|
| I | Review question | How effective is the support provided by antenatal classes and groups? |
| II | Type of review question | Intervention |
| III | Objective of the review | The aim of this review is to examine the effectiveness of antenatal classes and groups in preparing women for childbirth, preparing their partners to support them, and to establish whether there are any harms to the mother associated with them. In addition, this review also aims to examine if interventions in the antenatal classes may have an impact on the emotional attachment between the mother and the baby. |
| IV | Eligibility criteria – population | All pregnant women |
| V | Eligibility criteria – intervention(s) | The following types of interventions will be considered:<br>• Standard care (any antenatal class/group/workshop, or set thereof) whose aim is to prepare the woman for childbirth<br>• Standard care (any antenatal class/group/workshop, or set thereof) whose aim is to prepare the woman for childbirth) + Extra non-standard component<br>Note: Definition of standard care used by study will be used but GC will pay close attention to differences in content. Antenatal classes are also sometimes referred to as 'prenatal education', whilst in the US the term 'parentcraft' is also used. Extra non-standard component must be aimed at preparing woman for childbirth and may include (but is not limited to) classes/groups that have content about:<br>    • Interventions to improve emotional attachment between mother and baby<br>    • Hypnobirthing<br>    • Mindfulness<br>    • Physical activity (i.e. being active in labour; also referred to as 'active birth')<br>    • Yoga<br><br>Notes: Studies that include classes intended to prepare women for parenthood will be excluded; Studies that involve partner will be analysed separately to those that do not.<br><br>**Interventions to improve emotional attachment between mother and baby** |

| ID (to be deleted in final version) | Field (based on PRISMA-P) | Content |
|---|---|---|
|  |  | To be eligible, these must be conducted in the antenatal period only. Interventions to improve maternal-baby attachment that begin either in the antenatal period and continue into the postnatal period or in the postnatal period only are reviewed in the NICE guideline CG37 Postnatal care up to 8 weeks after birth (update). Interventions whose primary aim is to improve maternal-baby emotional attachment may include:<br>• Information provision (verbal, electronic, or paper) on the following topics:<br>　○ being responsive to cues or small signals the baby may send<br>　○ copying the baby's noises and gestures<br>　○ cuddling the baby<br>　○ getting enough sleep and having support<br>　○ massaging the baby<br>　○ providing comfort when the baby is upset<br>　○ skin-to-skin contact<br>　○ talking to the baby<br>• Skills training (e.g. baby massage) |
| VI | Eligibility criteria – comparator(s) | • No antenatal class<br>• Standard care (as defined by study)<br><br>The following comparisons will be considered:<br>5. Standard care vs no antenatal class<br>6. Extra non-standard component + standard care vs no antenatal class<br>7. Extra non-standard component + standard care vs standard care<br>8. Extra non-standard component + standard care vs different extra non-standard component + standard care |
| VII | Outcomes and prioritisation | **Outcomes for women**<br>**Critical**<br>• Satisfaction with birth experience<br><br>**Important**<br>• Dilation of cervix on admission for labour<br>• Epidural use during labour<br>• Knowledge acquisition about childbirth<br>• Mode of birth<br>　○ Elective caesarean birth<br>　○ Emergency caesarean birth<br>　○ Vaginal delivery<br>• Self-efficacy regarding childbirth<br><br><br>**Outcomes for interventions whose primary aim is to improve maternal-baby attachment**<br>**Important** |

| ID (to be deleted in final version) | Field (based on PRISMA-P) | Content |
|---|---|---|
| | | • Mother-child attachment between 12 to 18 months after birth<br><br>**Outcomes for partner**<br>**Important**<br>• Feeling supported in role as support person<br> ○ Feeling included in ANC classes/groups<br> ○ Knowledge about one's own support role<br> ○ Feeling recognised as partner<br>Note: The outcomes of the partner above will be analysed separately. |
| VIII | Eligibility criteria – study design | INCLUDE:<br>• Systematic reviews<br>• Randomised or quasi-randomised controlled trials (individual or cluster)<br>If no evidence of these types is found, the following types of non-randomised studies in order of priority will be considered:<br>• Non-randomised controlled trials<br>• Prospective cohort studies<br>• Retrospective cohort studies<br>Note: For further details, see the algorithm in appendix H, Developing NICE guidelines: the manual. |
| IX | Other inclusion exclusion criteria | **Exclusion**<br>STUDY DESIGN:<br>• Case-control studies<br>• Cross-over studies<br>• Cross-sectional studies<br>• Epidemiological reviews or reviews on associations<br>• Non-comparative studies<br><br>PUBLICATION STATUS:<br>• Conference abstract<br><br>LANGUAGE:<br>• Non-English<br><br>**Inclusion**<br>COUNTRY:<br>• Only studies conducted in high income countries as defined by the World Bank will be included. For a list of these countries, see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups.<br>Note: The use of the World Bank definitions of low-, middle- and high-income countries in this guideline is consistent with its use in the Postnatal care up to 8 weeks after birth (update) NICE guideline CG37. |

| ID (to be deleted in final version) | Field (based on PRISMA-P) | Content |
|---|---|---|
| | | |
| X | Proposed sensitivity/sub-group analysis, or meta-regression | Subgroup analysis according to parity status (nulliparous; multiparous). In the presence of heterogeneity, the following sub-group analyses will also be conducted:<br>• Size of antenatal class<br>• Age (<18 years-old; ≥18 years-old)<br>• Ethnicity<br>These subgroup factors will be used as confounding factors when data from cohort studies are analysed. Other confounding factors that will be considered when including cohort studies are<br>• Socioeconomic status<br>Statistical heterogeneity will be assessed by visually examining the forest plots and by calculating the $I^2$ inconsistency statistic (with an $I^2$ value≥50% indicating serious heterogeneity, and ≥80% indicating very serious heterogeneity). |
| XI | Selection process – duplicate screening/selection /analysis | Studies included in the 2008 NICE guideline on antenatal care for uncomplicated pregnancies (CG62) that satisfy the review protocol will be included in this review. Review questions selected as high priorities for health economic analysis (and those selected as medium priorities and where health economic analysis could influence recommendations) will be subject to dual weeding and study selection; any discrepancies above 10% of the dual weeded resources will be resolved through discussion between the first and second reviewers or by reference to a third person. All data extraction will quality assured by a senior reviewer.<br>Draft excluded studies and evidence tables will be circulated to the Topic Group for their comments. Resolution of disputes will be by discussion between the senior reviewer, Topic Advisor and Chair. |
| XII | Data management (software) | NGA STAR software will be used for generating bibliographies/citations, study sifting and data extraction. Pairwise meta-analyses, if possible, will be performed using Cochrane Review Manager (RevMan5). For details please see Supplement 1: methods. 'GRADEpro' will be used to assess the quality of evidence for each outcome. |
| XIII | Information sources – databases and dates | Sources to be searched: Medline, Medline In-Process, CCTR, CDSR, DARE, HTA, Embase. Limits (e.g. date, study design):<br>• Date limit: 2006 (date of last search for the 2008 NICE guideline on antenatal care for uncomplicated pregnancies (CG62))<br>• Apply standard animal/non-English language exclusion<br>• Limit to RCTs and systematic reviews in first instance but download all results. |
| XIV | Identify if an update | This antenatal care update will replace the 2008 NICE guideline on antenatal care for uncomplicated pregnancies (CG62) which will be taken down in due course. The following relevant recommendations on antenatal classes in the 2008 NICE guideline on antenatal care for uncomplicated pregnancies (CG62) were made:<br>1.1 Women-centred care and informed decision-making<br>1.1.1.6 Pregnant women should be offered opportunities to attend participant-led antenatal classes, including breastfeeding workshops. |
| XV | Author contacts | Developer: National Guideline Alliance. |
| XVI | Highlight if amendment to previous protocol | For details please see section 4.5 of Developing NICE guidelines: the manual. |
| XVII | Search strategy – for one database | For details please see appendix B. |

| ID (to be deleted in final version) | Field (based on PRISMA-P) | Content |
|---|---|---|
| XVIII | Data collection process – forms/duplicate | A standardised evidence table format will be used, and published as appendix D (clinical evidence tables) or H (economic evidence tables). |
| XIX | Data items – define all variables to be collected | For details please see evidence tables in appendix D (clinical evidence tables) or H (economic evidence tables). |
| XX | Methods for assessing bias at outcome/study level | Quality assessment of individual studies will be performed using the following checklists:<br>• ROBIS for systematic reviews<br>• Cochrane RoB tool v.2 for randomised or quasi-randomised controlled trials<br>• ROBINS-I tool for non-randomised controlled trials and cohort studies<br>For details please see section 6.2 of Developing NICE guidelines: the manual. The risk of bias across all available evidence will be evaluated for each outcome using an adaptation of the 'Grading of Recommendations Assessment, Development and Evaluation (GRADE) toolbox' developed by the international GRADE working group: http://www.gradeworkinggroup.org/ |
| XXI | Criteria for quantitative synthesis (where suitable) | For details please see section 6.4 of Developing NICE guidelines: the manual. |
| XXII | Methods for analysis – combining studies and exploring (in)consistency | For details please see Supplement 1: methods. |
| XXIII | Meta-bias assessment – publication bias, selective reporting bias | For details please see Supplement 1: methods and section 6.2 of Developing NICE guidelines: the manual. If sufficient relevant RCT evidence is available, publication bias will be explored using RevMan software to examine funnel plots. Trial registries will be examined to identify missing evidence: Clinical trials.gov, NIHR Clinical Trials Gateway. |
| XXIV | Assessment of confidence in cumulative evidence | For details please see sections 6.4 and 9.1 of Developing NICE guidelines: the manual<br>Explain rationale and alternative methods if not using GRADE approach. |
| XXV | Rationale/context – Current management | For details please see the introduction to the evidence review. |
| XXVI | Describe contributions of authors and guarantor | A multidisciplinary committee developed the guideline. The committee was convened by the National Guideline Alliance and chaired by Kate Harding in line with section 3 of Developing NICE guidelines: the manual. Staff from the National Guideline Alliance undertook systematic literature searches, appraised the evidence, conducted meta-analysis and cost-effectiveness analysis where appropriate, and drafted the guideline in collaboration with the committee. For details please see Supplement 1: methods. |

| ID (to be deleted in final version) | Field (based on PRISMA-P) | Content |
|---|---|---|
| XXVII | Sources of funding/support | The National Guideline Alliance is funded by NICE and hosted by the Royal College of Obstetricians and Gynaecologists. |
| XXVIII | Name of sponsor | The National Guideline Alliance is funded by NICE and hosted by the Royal College of Obstetricians and Gynaecologists. |
| XXIX | Roles of sponsor | NICE funds the National Guideline Alliance to develop guidelines for those working in the NHS, public health, and social care in England. |
| XXX | PROSPERO registration number | This protocol is not registered with PROSPERO. |

1 *CCTR: Cochrane Controlled Trials Register; CDSR: Cochrane Database of Systematic Reviews; CENTRAL: Cochrane Central Register of Controlled Trials; CG: clinical guideline; DARE: Database*
2 *of Abstracts of Reviews of Effects; GRADE: Grading of Recommendations Assessment, Development and Evaluation; HTA: Health Technology Assessment; NGA: National Guideline Alliance;*
3 *NICE: National Institute for Health and Care Excellence; NIHR: National Institute for Health Research; RCT(s): randomised controlled trial(s); RoB: risk of bias; ROBIS: Risk Of Bias In*
4 *Systematic reviews tool; ROBINS-I: Risk Of Bias In Non-randomized studies – of Interventions tool.*
5

# Appendix B - Literature search strategies

**Literature search strategy for review question: How effective are antenatal classes and groups in preparing pregnant women for labour?**

**Database(s): Medline & Embase (Multifile)**
Last searched on **Embase Classic+Embase** 1947 to 2020 September 04, **Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily** 1946 to September 04, 2020
Date of last search: 8th September 2020
*Multifile database codes: emczd = Embase Classic+Embase; ppez= MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily*

| # | Searches |
|---|---|
| 1 | Prenatal Care/ use ppez |
| 2 | Models, Nursing/ use ppez |
| 3 | 1 and 2 |
| 4 | prenatal care/ use emczd |
| 5 | *model/ use emczd |
| 6 | 4 and 5 |
| 7 | ((antenatal$ or ante-natal$ or ante natal$ or prenatal$ or pre-natal$ or pre natal$ or childbirth$ or child-birth$ or parentcraft$ or parent-craft$) adj2 (class or classes or group or groups or course or courses or session or sessions or workshop or workshops)).tw. |
| 8 | ((antenatal$ or ante-natal$ or ante natal$ or prenatal$ or pre-natal$ or pre natal$ or childbirth$ or child-birth$ or parentcraft$ or parent-craft$) adj (education$ or training$)).tw. |
| 9 | ((antenatal$ or ante-natal$ or ante natal$ or prenatal$ or pre-natal$ or pre natal$) adj3 (parentcraft$ or parent-craft$)).tw. |
| 10 | 3 or 6 or 7 or 8 or 9 |
| 11 | Pregnancy/ use ppez |
| 12 | Prenatal Care/ use ppez |
| 13 | pregnancy/ use emczd |
| 14 | prenatal care/ use emczd |
| 15 | (antenatal$ or ante-natal$ or ante natal$ or prenatal$ or pre-natal$ or pre natal$).tw,kw. |
| 16 | 11 or 12 or 13 or 14 or 15 |
| 17 | ((hypnosis$ or hypnotherap$ or hypno-therap$ or hypnobirth$ or hypno-birth$ or mindfulness$ or yoga$) adj3 (class or classes or group or groups or course or courses or session or sessions or workshop or workshops or program$ or education$ or training$)).tw. |
| 18 | ((hypnosis$ or hypnotherap$ or hypno-therap$ or hypnobirth$ or hypno-birth$ or mindfulness$ or yoga$) adj intervention$).tw. |
| 19 | (active$ adj birth$ adj3 (class or classes or group or groups or course or courses or session or sessions or workshop or workshops or education$ or training$)).tw. |
| 20 | 17 or 18 or 19 |
| 21 | 16 and 20 |
| 22 | (augment$ adj (antenatal$ or ante-natal$ or ante natal$ or prenatal$ or pre-natal$ or pre natal$) adj care$).tw. |
| 23 | ((birth or maternal or antenatal$ or ante-natal$ or ante natal$ or prenatal$ or pre-natal$ or pre natal$) adj prepar$ adj2 (class or classes or group or groups or course or courses or session or sessions or workshop or workshops or program$ or intervention$)).tw. |
| 24 | 10 or 21 or 22 or 23 |
| 25 | limit 24 to english language |
| 26 | limit 25 to yr="2006 -Current" |
| 27 | (controlled clinical trial or pragmatic clinical trial or randomized controlled trial).pt. or drug therapy.fs. or (groups or placebo or randomi#ed or randomly or trial).ab. |
| 28 | crossover procedure/ or double blind procedure/ or randomized controlled trial/ or single blind procedure/ or (assign* or allocat* or crossover* or cross over* or ((doubl* or singl*) adj blind*) or factorial* or placebo* or random* or volunteer*).ti,ab. |
| 29 | meta-analysis/ |
| 30 | meta-analysis as topic/ |
| 31 | systematic review/ |
| 32 | meta-analysis/ |
| 33 | (meta analy* or metanaly* or metaanaly*).ti,ab. |
| 34 | ((systematic or evidence) adj2 (review* or overview*)).ti,ab. |
| 35 | ((systematic* or evidence*) adj2 (review* or overview*)).ti,ab. |
| 36 | (reference list* or bibliograph* or hand search* or manual search* or relevant journals).ab. |
| 37 | (search strategy or search criteria or systematic search or study selection or data extraction).ab. |
| 38 | (search* adj4 literature).ab. |

| # | Searches |
|---|---|
| 39 | (medline or pubmed or cochrane or embase or psychlit or psyclit or psychinfo or psycinfo or cinahl or science citation index or bids or cancerlit).ab. |
| 40 | cochrane.jw. |
| 41 | ((pool* or combined) adj2 (data or trials or studies or results)).ab. |
| 42 | letter/ |
| 43 | editorial/ |
| 44 | news/ |
| 45 | exp historical article/ |
| 46 | Anecdotes as Topic/ |
| 47 | comment/ |
| 48 | case report/ |
| 49 | (letter or comment*).ti. |
| 50 | 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 |
| 51 | randomized controlled trial/ or random*.ti,ab. |
| 52 | 50 not 51 |
| 53 | animals/ not humans/ |
| 54 | exp Animals, Laboratory/ |
| 55 | exp Animal Experimentation/ |
| 56 | exp Models, Animal/ |
| 57 | exp Rodentia/ |
| 58 | (rat or rats or mouse or mice).ti. |
| 59 | 52 or 53 or 54 or 55 or 56 or 57 or 58 |
| 60 | letter.pt. or letter/ |
| 61 | note.pt. |
| 62 | editorial.pt. |
| 63 | case report/ or case study/ |
| 64 | (letter or comment*).ti. |
| 65 | 60 or 61 or 62 or 63 or 64 |
| 66 | randomized controlled trial/ or random*.ti,ab. |
| 67 | 65 not 66 |
| 68 | animal/ not human/ |
| 69 | nonhuman/ |
| 70 | exp Animal Experiment/ |
| 71 | exp Experimental Animal/ |
| 72 | animal model/ |
| 73 | exp Rodent/ |
| 74 | (rat or rats or mouse or mice).ti. |
| 75 | 67 or 68 or 69 or 70 or 71 or 72 or 73 or 74 |
| 76 | 59 use ppez |
| 77 | 75 use emczd |
| 78 | 76 or 77 |
| 79 | 27 use ppez |
| 80 | 28 use emczd |
| 81 | 79 or 80 |
| 82 | (or/29-30,33,35-40) use ppez |
| 83 | (or/31-34,36-41) use emczd |
| 84 | 82 or 83 |
| 85 | 26 and 78 |
| 86 | 26 not 85 |
| 87 | 81 or 84 |
| 88 | 86 and 87 [RCT/SR data] |
| 89 | 86 not 88 [Non-RCT/SR data] |

**Database(s): Cochrane Library**
Last searched on **Cochrane Database of Systematic Reviews**, Issue 9 of 12, September 2020, **Cochrane Central Register of Controlled Trials**, Issue 9 of 12, September 2020
Date of last search: 8th September 2020

| # | Searches |
|---|---|
| #1 | MeSH descriptor: [Prenatal Care] this term only |
| #2 | MeSH descriptor: [Models, Nursing] this term only |
| #3 | #1 AND #2 |
| #4 | (((antenatal* or ante-natal* or "ante natal*" or prenatal* or pre-natal* or "pre natal*" or childbirth* or child-birth* or parentcraft* or parent-craft*) NEAR/2 (class or classes or group or groups or course or courses or session or sessions or workshop or workshops))):ti,ab,kw |
| #5 | (((antenatal* or ante-natal* or "ante natal*" or prenatal* or pre-natal* or "pre natal*" or childbirth* or child-birth* or parentcraft* or parent-craft*) NEXT (education* or training*))):ti,ab,kw |

| # | Searches |
|---|----------|
| #6 | (((antenatal* or ante-natal* or "ante natal*" or prenatal* or pre-natal* or "pre natal*") NEAR/3 (parentcraft* or parent-craft*))):ti,ab,kw |
| #7 | #3 OR #4 OR #5 OR #6 |
| #8 | MeSH descriptor: [Pregnancy] this term only |
| #9 | MeSH descriptor: [Prenatal Care] this term only |
| #10 | ((antenatal* or ante-natal* or "ante natal*" or prenatal* or pre-natal* or "pre natal*")):ti,ab,kw |
| #11 | #8 OR #9 OR #10 |
| #12 | (((hypnosis* or hypnotherap* or hypno-therap* or hypnobirth* or hypno-birth* or mindfulness* or yoga*) NEAR/3 (class or classes or group or groups or course or courses or session or sessions or workshop or workshops or program* or education* or training*))):ti,ab,kw |
| #13 | (((hypnosis* or hypnotherap* or hypno-therap* or hypnobirth* or hypno-birth* or mindfulness* or yoga*) NEXT intervention*)):ti,ab,kw |
| #14 | ((active* NEXT birth* NEAR/3 (class or classes or group or groups or course or courses or session or sessions or workshop or workshops or education* or training*))):ti,ab,kw |
| #15 | #12 OR #13 OR #14 |
| #16 | #11 AND #15 |
| #17 | (augment* NEXT (antenatal* or ante-natal* or "ante natal*" or prenatal* or pre-natal* or "pre natal*") NEXT care*):ti,ab,kw |
| #18 | ((birth or maternal or antenatal* or ante-natal* or "ante natal*" or prenatal* or pre-natal* or "pre natal*") NEXT prepar* NEAR/2 (class or classes or group or groups or course or courses or session or sessions or workshop or workshops or program* or intervention*)):ti,ab,kw |
| #19 | #7 OR #16 or #17 or #18 Publication Year from 2006 to current |

**Database(s): CRD: Database of Abstracts of Reviews of Effects (DARE), HTA Database**
Date of last search: 8th September 2020

| # | Searches |
|---|----------|
| 1 | MeSH DESCRIPTOR Prenatal Care IN DARE,HTA |
| 2 | MeSH DESCRIPTOR Models, Nursing IN DARE,HTA |
| 3 | #1 AND #2 |
| 4 | (((antenatal* or ante-natal* or prenatal* or pre-natal* or childbirth* or child-birth* or parentcraft* or parent-craft*) NEAR2 (class or classes or group or groups or course or courses or session or sessions or workshop or workshops))) IN DARE, HTA |
| 5 | (((antenatal* or ante-natal* or prenatal* or pre-natal* or childbirth* or child-birth* or parentcraft* or parent-craft*) NEXT (education* or training*))) IN DARE, HTA |
| 6 | (((antenatal* or ante-natal* or prenatal* or pre-natal*) NEAR3 (parentcraft* or parent-craft*))) IN DARE, HTA |
| 7 | #3 OR #4 OR #5 OR #6 |
| 8 | MeSH DESCRIPTOR Pregnancy IN DARE,HTA |
| 9 | MeSH DESCRIPTOR Prenatal Care IN DARE,HTA |
| 10 | ((antenatal* or ante-natal* or ante natal* or prenatal* or pre-natal* or pre natal*)) IN DARE, HTA |
| 11 | #8 OR #9 OR #10 |
| 12 | (((hypnosis* or hypnotherap* or hypno-therap* or hypnobirth* or hypno-birth* or mindfulness* or yoga*) NEAR3 (class or classes or group or groups or course or courses or session or sessions or workshop or workshops or program* or education* or training*))) IN DARE, HTA |
| 13 | (((hypnosis* or hypnotherap* or hypno-therap* or hypnobirth* or hypno-birth* or mindfulness* or yoga*) NEXT intervention*)) IN DARE, HTA |
| 14 | ((active* NEXT birth* NEAR3 (class or classes or group or groups or course or courses or session or sessions or workshop or workshops or education* or training*))) IN DARE, HTA |
| 15 | #12 OR #13 OR #14 |
| 16 | #11 AND #15 |
| 17 | ((augment* NEXT (antenatal* or ante-natal* or prenatal* or pre-natal*) NEXT care*)) IN DARE, HTA |
| 18 | (((birth or maternal or antenatal* or ante-natal* or prenatal* or pre-natal*) NEXT prepar* NEAR2 (class or classes or group or groups or course or courses or session or sessions or workshop or workshops or program* or intervention*))) IN DARE, HTA |
| 19 | #7 OR #16 OR #17 OR #18 Publication Year from 2006 to current |

# Appendix C - Clinical evidence study selection

**Study selection for: How effective are antenatal classes and groups in preparing pregnant women for labour?**

**Figure 1: Study selection flow chart**

```
                    ┌─────────────────────────┐
                    │   Titles and abstracts  │
                    │   identified, N= 2147   │
                    └───────────┬─────────────┘
                                │
              ┌─────────────────┴─────────────────┐
              │                                    │
   ┌──────────▼──────────┐          ┌──────────────▼──────────────┐
   │  Full copies        │          │  Excluded, N= 2085          │
   │  retrieved          │          │  (not relevant population,  │
   │  and assessed for   │          │  design, intervention,      │
   │  eligibility, N= 62 │          │  comparison, outcomes,      │
   └──────────┬──────────┘          │  unable to retrieve)        │
              │                     └─────────────────────────────┘
        ┌─────┴──────┐
        │            │
┌───────▼───────┐ ┌──▼──────────────┐
│ Publications  │ │ Publications    │
│ included      │ │ excluded        │
│ in review,    │ │ from review,    │
│ N= 7 (1       │ │ N= 55           │
│ study not     │ │ (refer to       │
│ fully         │ │ excluded        │
│ extracted,    │ │ studies list)   │
│ see appendix  │ └─────────────────┘
│ M)            │
└───────────────┘
```
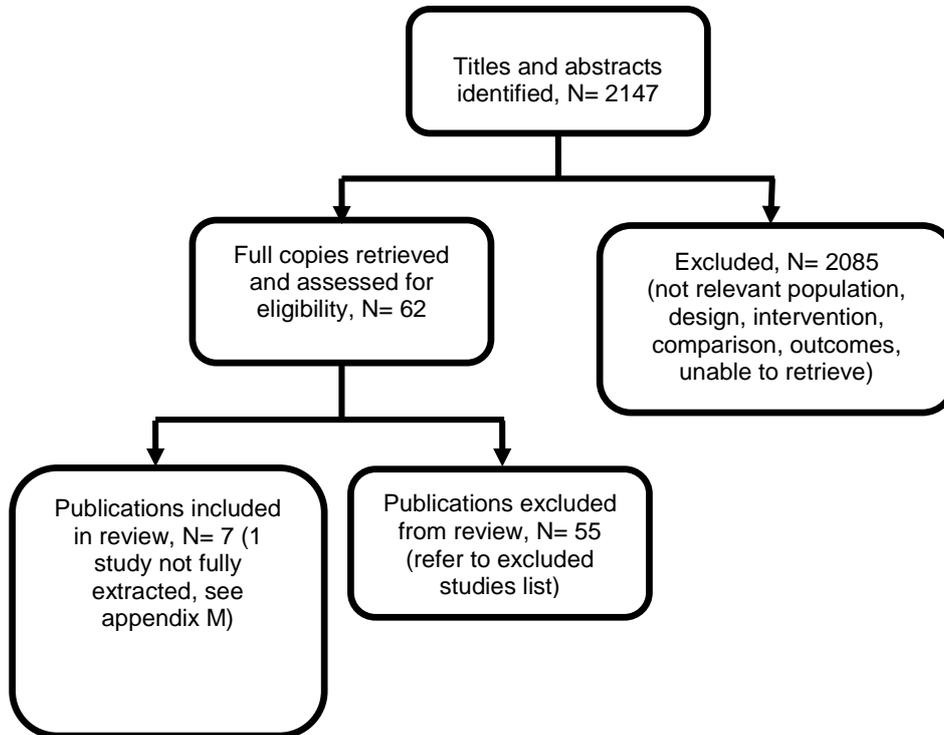
# Appendix D - Clinical evidence tables

**Evidence tables for review question: How effective are antenatal classes and groups in preparing pregnant women for labour?**

**Table 4: Evidence tables**

| Study details | Participants | Interventions | Methods | Outcomes and Results | Comments |
|---|---|---|---|---|---|
| **Full citation**<br>Cyna, A. M., Crowther, C. A., Robinson, J. S., Andrew, M. I., Antoniou, G., Baghurst, P., Hypnosis antenatal training for childbirth: a randomised controlled trial, BJOG: An International Journal of Obstetrics & GynaecologyBjog, 120, 1248-59; discussion 1256-7, 2013<br>**Ref Id**<br>1172352<br>**Country/ies where the study was carried out**<br>Australia<br>Study type<br>Randomised controlled trial | **Sample size**<br>N=448<br>Intervention a (hypnosis +CD): n= 154<br>Intervention b (CD only): n= 143<br>Control: n=151<br>**Characteristics**<br>Maternal age, mean (SD):<br>Intervention a (hypnosis +CD): 30.5 (5.1)<br>Intervention b (CD only): 31.4 (4.4)<br>Control: 31.2 (4.7)<br>Nulliparous, number of women:<br>Intervention a (hypnosis +CD): 124<br>Intervention b (CD only): 110<br>Control: 114<br>**Inclusion criteria** | **Interventions**<br>Intervention a: Hypnosis + CD + standard care:<br>• Standard care - usual antenatal classes and clinical appointments<br>• Group hypnosis session, over 3 weeks<br>• Antenatal hypnosis training by a doctor qualified in hypnosis<br>• CD on hypnosis after each session<br>• Participants asked to practice at home daily with the CD<br>• A 4th CD given for use during labour.<br><br>Intervention b: CD only + standard care:<br>• Standard care - usual antenatal classes and clinical appointments<br>• Group hypnosis session, over 3 weeks, listened to CD at hypnosis session. | **Details**<br>Power analysis<br>Sample size of 135 women needed in each group to achieve a power value of 80% at 0.05 significance level.<br>Statistical analysis<br>Relative risks (RR) or odds ratios (OR) with 95% confidence intervals used.<br>p values <0.05 were considered significant.<br>Intention to treat<br>Analysis on intention to treat | **Results**<br>Outcomes:<br>Critical:<br><br><u>Satisfaction with the birth experience - n/N:</u><br>Birth a positive experience:<br>Intervention a (hypnosis +CD): 108/149<br>Intervention b (CD only): 105/139<br>Control: 118/144<br>Intervention a vs control : RR 0.89 (0.78-1.00)<br>Intervention b vs control: RR 0.92 (0.82-1.04)<br><br>Birth better than expected:<br>Intervention a (hypnosis +CD): 59/144<br>Intervention b (CD only): 44/137<br>Control: 46/143<br>Intervention a vs control : RR 1.27 (0.94-1.73)<br>Intervention b vs control: RR 1.00 (0.71-1.40)<br><br>Important: | **Limitations**<br>Cochrane risk of bias tool V2:<br>Randomisation process:<br>Low risk of bias. (Computer generated allocation sequence. Allocation concealed. Baseline balanced).<br>Deviations from intended interventions (assignment):<br>High risk. (Participants aware of assignment. There were deviations from the intended intervention, 5.6% of the control group under took hypnosis outside of the trial and protocol. Less than 50% of the hypnosis group took part in all of the hypnosis sessions. Appropriate analysis).<br>Missing outcome data:<br>Some concerns. (Birth satisfaction outcome data not available for all randomised participants. Possible that missingness could depend on the true value).<br>Measurement of the outcome:<br>Satisfaction with birth experience: Some concerns. (Appropriate method of measurement. Possibility that the assessment could have been influenced by knowledge of intervention).<br>All other outcomes: Low risk. (Appropriate method of measurement. Assessment could not have been influenced by knowledge of intervention). |

| Study details | Participants | Interventions | Methods | Outcomes and Results | Comments |
|---|---|---|---|---|---|
| **Aim of the study**<br>To investigate whether antenatal hypnosis had an effect on analgesia during labour.<br><br>**Study dates**<br>December 2005 to December 2010<br>**Source of funding**<br>Not industry funded | Gestational week 34+0 to 39+0<br>Planned vaginal birth<br>Not in active labour<br>Singleton pregnancy<br>Viable fetus - vertex presentation<br>**Exclusion criteria**<br>Any previous hypnosis or hypnosis training for childbirth<br>Poor English that required a translator<br>Any other enrolment in a trial which looked analgesia in pregnancy as an outcome<br>Active psychological or psychiatric problems<br>Intellectual disability<br>Pre-existing pain | • Administered by a nurse not trained in hypnotherapy<br>• CD on hypnosis after each session<br>• Participants asked to practice at home daily with the CD<br>• A 4th CD given for use during labour.<br><br>Control: standard care:<br>• Standard care - usual antenatal classes and clinical appointments | | <u>Epidural using during labour - n/N:</u><br>Intervention a (hypnosis +CD): 78/154<br>Intervention b (CD only): 63/143<br>Control: 71/151<br>Intervention a vs control : RR 1.08 (0.86-1.36)<br>Intervention b vs control: RR 0.94 (0.73-1.20)<br><br><u>Mode of birth- n/N:</u><br>Spontaneous vaginal birth:<br>Intervention a (hypnosis +CD): 85/154<br>Intervention b (CD only): 84/143<br>Control: 92/151<br>Intervention a vs control: RR 0.91 (0.75-1.10) p=0.311<br>Intervention b vs control: RR 0.96 (0.80-1.16) p=0.703<br><br>Caesarean birth:<br>Intervention a (hypnosis +CD): 38/154<br>Intervention b (CD only): 25/143<br>Control: 29/151<br>Intervention a vs control: RR 1.29 (0.84-1.97) p=0.837<br>Intervention b vs control: RR 0.91 (0.56-1.48) p=0.561 | Selection of the reported result:<br>Satisfaction with birth experience: Some concern. (Birth experience satisfaction not measured at the pre-specified time point).<br>All other outcomes: Low risk. (Measured as pre-specified. Not likely to have been selected).<br>Overall: High risk. |
| **Full citation**<br>Downe, S., Finlayson, K., Melvin, C., Spiby, H., Ali, S., | **Sample size**<br>N= 680 nulliparous women | **Interventions**<br>Intervention: Self-hypnosis training + standard care:<br>• Two 90-minute group hypnosis sessions at 32 | **Details**<br>Power analysis<br>Sample size of 550 participants needed to achieve 80% power, and | **Results**<br>Outcomes:<br>Important outcomes: | **Limitations**<br>Cochrane risk of bias tool V2:<br>Randomisation process:<br>Low risk of bias. (Computer generated |

| Study details | Participants | Interventions | Methods | Outcomes and Results | Comments |
|---|---|---|---|---|---|
| Diggle, P., Gyte, G., Hinder, S., Miller, V., Slade, P., Trepel, D., Weeks, A., Whorwell, P., Williamson, M., Self-hypnosis for intrapartum pain management in pregnant nulliparous women: a randomised controlled trial of clinical effectiveness, BJOG: An International Journal of Obstetrics & Gynaecology, 122, 1226-34, 2015 **Ref Id** 823536 **Country/ies where the study was carried out** UK Study type Randomised controlled trial **Aim of the study** To establish whether a group self-hypnosis programme had an effect on | (N= 672 analysed. 670 for epidural use) Intervention=337 Control=335 **Characteristics** Mean maternal age (SD): Intervention: 28.4 (5.5) Control: 28.5 (5.2) **Inclusion criteria** 27-32 weeks' gestation at randomisation Read and understand English **Exclusion criteria** On medication for hypertension or psychological illness Planning an elective caesarean | and 35 weeks gestation, given by midwives with hypnosis for childbirth experience. • Could attend with or without birth partner. • Advised to listen to a 26-minute self-hypnosis CD daily until birth. • Standard care which is usual NHS antenatal care, includes antenatal education. In most study locations this includes 4/5 classroom session covering pregnancy, new baby care, feeding advice. Control: Standard care • Usual NHS antenatal care, includes antenatal education. In most study locations this includes 4/5 classroom session covering pregnancy, new baby care, feeding advice. | a two-tailed significance of 5%. Statistical analysis Clinical and psychosocial outcomes analysed used two-sample t-test. Results reported as an estimated mean difference with 95% confidence interval, and a p-value for a two-sided test of the null hypothesis that the mean difference is zero. Binary outcomes analysed as a two-by-two table, and reported as estimated odd ratio, 95% confidence interval, and a p-value for a two-sided test of the null hypothesis that the odds ratio is one. Intention to treat analysis. | Epidural use - n/N: Intervention: 94/337 Control: 101/333 P=0.487 OR, (CI): 0.89 (0.64,1.24) Mode of birth - n/N: Spontaneous vaginal delivery: Intervention: 171/337 Control: 171/335 P=0.937 OR, (CI): 0.99 (0.73,1.34) Caesarean birth (total): Intervention: 85/337 Control: 78/335 P=0.558 OR, (CI): 1.11 (0.78,1.58) | random allocation. Allocation concealment. Baselines balanced). Deviations from intended interventions: Some concern. (Participants aware of assignment. No information on deviations. Appropriate analysis). Missing outcome data: Low risk of bias. (Outcome available for nearly all participants randomised). Measurement of the outcome: Low risk of bias. (Appropriate method of measuring outcomes. Outcome assessors blinded). Selection of the reported result: Low risk of bias. (Results reported as pre-specified. Results not likely to have been selected). Overall: Some concerns. |

| Study details | Participants | Interventions | Methods | Outcomes and Results | Comments |
|---|---|---|---|---|---|
| rates of epidural use and labour outcomes in pregnant nulliparous women.<br>**Study dates**<br>April 2013 - July 2013<br>**Source of funding**<br>Not industry funded. | | | | | |
| **Full citation**<br>Duncan, L. G., Cohn, M. A., Chao, M. T., Cook, J. G., Riccobono, J., Bardacke, N., Benefits of preparing for childbirth with mindfulness training: A randomized controlled trial with active comparison, BMC Pregnancy and Childbirth, 17, no pagination, 2017<br>**Ref Id**<br>630521<br>**Country/ies where the study was carried out**<br>USA | **Sample size**<br>N=30 nulliparous women (29 analysed)<br>Intervention: n=15<br>Control: n=15<br>**Characteristics**<br>No relevant characteristics reported.<br>**Inclusion criteria**<br>English speaking<br>Nulliparous<br>Low risk, healthy singleton pregnancy<br>Third trimester<br>Planning a hospital birth<br>Women with a fear of pregnancy were targeted at recruitment stage by use of language on fliers | **Interventions**<br>Intervention: Standard care + Mindfulness:<br>• Aimed at pregnant women and their partners.<br>• Course held over 1 weekend. 18hours of mindfulness.<br>• Delivered by certified instructors in the mindfulness based childbirth and parenting programme.<br>• Coping with labour pain and fear strategies taught.<br>• Participants provided with handouts and audio material to take home.<br><br>Control: Standard care<br>• Participants provided with a study approved list of childbirth education | **Details**<br>Power analysis<br>Sample size restricted to funding.<br>Statistical analysis<br>Childbirth self-efficacy:<br>Linear mixed model with random participant intercepts. | **Results**<br>Outcomes:<br>Critical outcomes:<br><br>Satisfaction with birth experience - n/N:<br>Satisfied with labour and delivery - Responses taken post birth:<br>Intervention: 7/15 (47%)<br>Control: 8/14 (57%)<br>p=0.47<br><br>Important outcomes:<br>Epidural use during labour - n/N:<br>Intervention: 12/14<br>Control: 11/13<br>p=0.94<br><br>Childbirth self-efficacy - Mean (SD):<br>*Measured using CBSEI (Childbirth self-efficacy inventory). Range 31-310. Higher scores show increased self-efficacy. Responses taken post-intervention prior to birth:* | **Limitations**<br>Cochrane risk of bias tool V2:<br>Randomisation process:<br>Low risk of bias. (Computer generated random sequence. Suggestion of concealment. Baseline balanced).<br>Deviations from intended interventions:<br>Some concern. (Participants aware of assignment. No information on deviations. Appropriate analysis).<br>Missing outcome data:<br>Low risk of bias. (Outcome data available for nearly all participants).<br>Measurement of the outcome:<br>Birth experience and childbirth self-efficacy: Some concerns. (Appropriate method of measurement. Possibility that the assessment could have been influenced by knowledge of intervention).<br>Epidural use: Low risk of bias. (Appropriate method of measurement. Unlikely influenced by knowledge of intervention).<br>Selection of the reported result:<br>Low risk of bias. (All outcomes reported at pre-specified. Not like to have been selected). |

| Study details | Participants | Interventions | Methods | Outcomes and Results | Comments |
|---|---|---|---|---|---|
| Study type<br>Randomised controlled trial<br>**Aim of the study**<br>To investigate if mindfulness training through mind in labour intervention would increase childbirth self-efficacy, reduce pain and pain medication use and increase birth satisfaction.<br>**Study dates**<br>2014<br>**Source of funding**<br>Not industry funded | **Exclusion criteria**<br>High risk pregnancy<br>Extensive prior experience with meditation or yoga<br>Participation in other mind/body preparation course<br>Planned caesarean birth | providers. These were similar in length and quality.<br>• They did not have a mindfulness component. | | Intervention:<br>Post intervention: 243.3 (41.6)<br>Control:<br>Post intervention: 212.0 (35.4)<br>Time*group interaction. p=0.04<br>Estimated treatment effect: 64.4 points. 80% CI (26.1, 102.7)<br>Time interaction. p=0.52 | Overall: Some concerns. |
| **Full citation**<br>Kimber,L., McNabb,M., McCourt,C., Haines,A., Brocklehurst,P, Massage or music for pain relief in labour: A pilot randomised placebo controlled trial, European Journal of Pain, | **Sample size**<br>N=90<br>Control: n=30<br>Placebo: n=30<br>Intervention: n=30<br><br>**Characteristics**<br>Maternal age - mean, range:<br>Control: 30, 19-41<br>Placebo: 28.8, 18-38<br>Intervention: 30, 18-40 | **Interventions**<br>Intervention: Standard care + Massage programme with relaxation techniques:<br>• Usual antenatal preparation classes at trial centre.<br>• Women attended a 2.5 hr class at 35-37 week's gestation with their birth partner.<br>• Massage techniques taught to birth | **Details**<br>Power analysis<br>A sample size of 30 women needed in each arm (90 women in total) to achieve 80% power at a 0.05 significance level.<br>Statistical analysis<br>For continuous data, means and standard deviations were compared using t-test. For categorical data, frequencies compared using chi-squared. | **Results**<br>Outcomes:<br>Critical outcomes:<br><br>Satisfaction with birth - n/N:<br>*Number reporting 'very' satisfied*<br>Intervention: 22/30<br>Placebo: 22/30<br>Control: 18/30<br><br>Important outcomes:<br><br>Dilatation of cervix on admission - mean (SD): | **Limitations**<br>Cochrane risk of bias tool V2:<br>Randomisation process:<br>Low risk of bias. (Computer generated random sequence. Allocation concealed. No baseline imbalances).<br>Deviations from intended interventions: Some concern. (Participants aware of assignment. No information on deviations. Appropriate analysis).<br>Missing outcome data:<br>Low risk of bias. (Outcome data available for nearly all randomised participants). |

| Study details | Participants | Interventions | Methods | Outcomes and Results | Comments |
|---|---|---|---|---|---|
| 12, 961-969, 2008<br>**Ref Id**<br>278901<br>**Country/ies where the study was carried out**<br>UK<br>Study type<br>Randomised controlled trial<br>**Aim of the study**<br>To investigate a massage programme with relaxation techniques in women and their birth companions.<br>Study dates<br>December 2004 to January 2006<br>**Source of funding**<br>Not industry funded | Nulliparous - number:<br>Control: 21<br>Placebo: 21<br>Intervention: 21<br>Mean gestation at trial entry - weeks, (SD):<br>Control: 33.0 (1.3)<br>Placebo: 33.1 (1.5)<br>Intervention: 32.9 (1.2)<br>**Inclusion criteria**<br>Not specified.<br>**Exclusion criteria**<br>Planned elective c-section<br>Multiple pregnancy<br>Existing medical problems that restricted use of massage<br>Previous use of massage programme<br>Strong preference for a particular pain relief<br>Not fluent in English<br>No birth companion | companion by midwife/therapist.<br>• Woman and birth partner taught to synchronise massage and breathing.<br>• Visualisation/mind mapping taught - asking women to focus on massaging hands.<br>• Asked to practice for 30-45 minutes at least 3 evenings week until 39 weeks' gestation. Then every evening until labour.<br><br>Placebo: Standard care + Playing music during relaxation technique practice:<br>• Usual antenatal preparation classes at trial centre.<br>• Breathing and visualisation techniques taught.<br>• Woman and birth partner chose their favourite music.<br><br>Control: Standard care:<br>• Usual antenatal preparation classes at trial centre.<br>• Three 2.5-hr classes which had antenatal and labour sessions about | Data presented at relative risks (RR) with 95% confidence intervals for discrete data.<br>Data presented as mean difference with 95% confidence intervals for continuous data. | Intervention: 3.7 (3.0)<br>Placebo: 4.0 (2.8)<br>Control: 4.0 (3.0)<br>Control vs placebo:<br>Mean difference (95% CI): 0 (-1.5 to 1.5)<br>Control vs intervention:<br>Mean difference (95% CI): -0.3 (-1.9 to 1.3)<br><br>Epidural (including spinal) use - n/N:<br>Intervention: 10/30<br>Placebo: 10/29<br>Control: 8/30<br>Control vs placebo:<br>Risk difference (95% CI): 8 (-15 to 30)<br>Control vs intervention:<br>Risk difference (95% CI): 7 (-16 to 28)<br><br>Mode of birth - n/N:<br>Spontaneous vaginal delivery:<br>Intervention: 20/30<br>Placebo: 18/29<br>Control: 17/30<br>Control vs placebo:<br>Risk difference (95% CI): 5 (-19 to 29)<br>Control vs intervention:<br>Risk difference (95% CI): 10 (-14 to 32)<br><br>Elective caesarean:<br>Intervention: 1/30<br>Placebo: 1/29<br>Control: 0/30 | Measurement of the outcome:<br>Satisfaction with birth and Self efficacy:<br>Some concerns. (Appropriate method of measurement. Possibility that the assessment could have been influenced by knowledge of intervention).<br>All other outcomes: Low risk of bias. (Appropriate method of measurement. Unlikely knowledge of intervention influenced assessment).<br>Selection of the reported result:<br>Some concerns. (No information on pre-specified plan. Unlikely results were selected).<br>Overall: Some concerns. |

| Study details | Participants | Interventions | Methods | Outcomes and Results | Comments |
|---|---|---|---|---|---|
| | | labour, methods of pain relief and delivery types. | | Control vs placebo:<br>Risk difference -<br>Control vs intervention:<br>risk difference -<br><br>Emergency caesarean:<br>Intervention: 5/30<br>Placebo: 3/29<br>Control: 7/30<br>Control vs placebo:<br>Risk difference (95% CI): -13 (-32 to 7)<br>Control vs intervention:<br>Risk difference (95% CI): -7 (-27 to 14)<br><br><u>Self-efficacy regarding childbirth - mean (SD):</u><br>*Measured using short version of Labour agentry scale (LAS). 7 point Likert scale. 10 items. Range 10-70. Lower scores indicate a higher control.*<br>Intervention: 27.5 (11.1)<br>Placebo: 27.5 (12)<br>Control: 33.6 (10.2)<br>Mean difference:<br>Intervention vs control: -6.1 (95% CI -11.6 to -0.6)<br>Placebo vs control: -6.1 (95% CI -11.9 to -0.3) | |
| **Full citation**<br>Levett, K. M., Smith, C. A., Bensoussan, A., Dahlen, H. G., Complementary therapies for labour and birth | **Sample size**<br>N=176 nulliparous women (171 analysed)<br>Intervention: n=89<br>Control: n=87<br>**Characteristics** | **Interventions**<br>Intervention: Standard care + multiple interventions (complementary medicine techniques):<br>• Hospital based antenatal education course. | **Details**<br>Power analysis<br>Sample size of 170 women needed to achieve a power of 80% at 0.05 significance level. Trial designed to detect | **Results**<br>Outcomes:<br>Important outcomes:<br><br><u>Epidural use during labour - n/N:</u> | **Limitations**<br>Cochrane risk of bias tool V2:<br>Randomisation process:<br>Low risk of bias. (Computer generated random sequence. Allocation concealment. No baseline imbalances). |

| Study details | Participants | Interventions | Methods | Outcomes and Results | Comments |
|---|---|---|---|---|---|
| study: a randomised controlled trial of antenatal integrative medicine for pain management in labour, BMJ Open, 6, e010691, 2016 **Ref Id** 823921 **Country/ies where the study was carried out** Australia Study type Randomised controlled trial **Aim of the study** To investigate the effect of an antenatal integrative medicine education programme on epidural use among nulliparous women. **Study dates** May 2012 to August 2013 **Source of funding** Not industry funded | Maternal age - mean (+/-SD): Intervention: 30.41 (4.99) Control: 28.87 (5.24) **Inclusion criteria** 24-34 weeks' gestation Singleton pregnancy with cephalic presentation Low risk (no pre-existing complications) Nulliparous Sufficient knowledge of English to participate **Exclusion criteria** Pre-identified risk factors Enrolled or intended to enrol in a 'continuity of care' course Enrolled or intended to enrol in a private birth preparation course Unable to attended weekend | • Two-day course conducted over one weekend. • Various tools taught to women and partners. These included, visualisations with a CD to take home, yoga postures, breathing techniques, massage (shown to partners), acupressure and facilitated partner support. Control: Standard care: • Hospital based antenatal education course. • Topics of classes include: Changes in pregnancy, exercise and back care in pregnancy, signs of labour, unexpected labour and birth outcomes, pharmacological pain management, managing labour and birth, post birth information on baby and parenthood. • Weekly classes over 6-7 weeks, or over 1-2 weekends. | an absolute reduction in 20% epidural use. Statistical analysis Intention to treat analysis. x2 for categorical data. t-tests for continuous data. Relative risk was reported with 95% CI. Significance was set at 0.05. | Intervention: 21/88 Control: 57/83 RR: 0.35 (0.23 to 0.52) p<0.0001 Mode of birth - n/N: Vaginal birth: Intervention: 60/88 Control: 39/83 RR: 1.56 (1.12 to 2.17) p≤0.01 C-section: Intervention: 16/88 Control: 27/83 RR: 0.52 (0.31 to 0.87) p=0.017 Self-efficacy regarding childbirth - mean (SD): *Measured using labour agentry scale (LAS). 7 point Likert scale. 29 item. Range 29-203. Lower scores indicate a higher control. Responses taken 72-hours post-birth.* Intervention: 164.97 (27.06) Control: 150.92 (30.03) Mean difference: 14.05 95% CI 3.84 to 24.26. p<0.01 72/88 women in intervention completed LAS 52/83 women in control completed LAS | Deviations from intended interventions: High risk. (Participants aware of assignment. 10 non-attendance participants in intervention, vs 0 in control, likely to affect outcome. Appropriate analysis). Missing outcome data: Some concern for LAS: (Outcome data not available for all randomised participants. Missingness could be due to true value). Low risk of bias for other outcomes. (Outcome data available for nearly all randomised participants). Measurement of the outcome: Childbirth self-efficacy: Some concerns. (Appropriate method of measurement. Possibility that the assessment could have been influenced by knowledge of intervention). Other outcomes: Low risk of bias. (Appropriate measures of outcomes. Outcome analysis blinded). Selection of the reported result: Low risk of bias. (Results as reported in pre-specified plan. Not likely to have been selected). Overall: High risk. |

| Study details | Participants | Interventions | Methods | Outcomes and Results | Comments |
|---|---|---|---|---|---|
| | Insufficient English for participation<br>Previous randomisation to the trial | | | | |
| **Full citation**<br>Maimburg,R.D., Vaeth,M., Durr,J., Hvidman,L., Olsen,J., Randomised trial of structured antenatal training sessions to improve the birth process, BJOG: An International Journal of Obstetrics and Gynaecology, 117, 921-928, 2010<br>**Ref Id**<br>116350<br>**Country/ies where the study was carried out**<br>Denmark<br>Study type<br>Randomised controlled trial<br>**Aim of the study**<br>To investigate whether attending | **Sample size**<br>N=1193 nulliparous women<br>Intervention: 603<br>Control: 590<br>**Characteristics**<br>Maternal age-mean (SD):<br>Intervention: 28.9 (3.7)<br>Control: 29.2 (3.7)<br>**Inclusion criteria**<br>Nulliparous women<br>Registered at Aarhus Midwifery Clinic<br>Older than 18<br>Singleton pregnancy<br>Able to speak and understand Danish<br>**Exclusion criteria**<br>Not specified. | **Interventions**<br>Intervention: Standard antenatal classes:<br>• Midwife led antenatal training sessions between 30-35 weeks' gestation.<br>• Partner was invited.<br>• 3 modules lasting 3 hours each. Taught as lectures and discussions.<br>• Birth module: labour onset, birth, pain relief.<br>• Newborn module: caring for newborn, breastfeeding, vaccination.<br>• Parent module.<br><br>Control: No antenatal classes<br>• Standard care in Denmark does not include antenatal classes or training programmes.<br>• 45% of the control group took part in antenatal training outside of the trial. | **Details**<br>Power analysis<br>712 women needed to detect a decrease from 70% to 60% in pain relief use, with significance level of 5% and power of 80%.<br>Statistical analysis<br>Intention to treat analysis.<br>Continuous data assessed using Mann Whitney U test.<br>Categorical data analysed using chi-square test.<br>P values are two sided, level of statistical significance 5%. | **Results**<br>Outcomes:<br>Critical outcomes:<br><br>Satisfaction with birth experience - n/N:<br>*Reported 6 weeks postpartum - if birth experience was good/great.*<br>Intervention:<br>417/543<br>Control:<br>406/525<br><br>Important outcomes:<br>Dilatation of cervix on admission- n/N:<br>*Cervix >3cm on arrival (induced labour excluded):*<br>Intervention: 270/587<br>Control: 185/575<br>RR: 1.43 (1.25-1.64) p<0.05<br><br>Use of epidural analgesia - n/N:<br>Intervention: 204/587<br>Control: 237/575<br>RR: 0.84 (0.73-0.97) p<0.05<br><br>Mode of birth - n/N:<br>Spontaneous:<br>Intervention: 365/587 | **Limitations**<br>Cochrane risk of bias tool V2:<br>Randomisation process:<br>Low risk of bias. (Computer generated random sequence. Allocation concealed. No baseline imbalances).<br>Deviations from intended interventions:<br>High risk. (Participants aware of assignment. 45% of the control group attended antenatal training outside of the trial protocol. Likely to affect outcomes. Appropriate analysis).<br>Missing outcome data:<br>Low risk of bias. (Outcome data available for nearly all participants).<br>Measurement of the outcome:<br>Birth satisfaction: Some concerns. (Appropriate measurement. Possibility that outcome could have been influences but assessors knowledge of intervention).<br>All other outcomes: Low risk of bias. (Appropriate measurement. Unlikely knowledge of intervention influenced outcome).<br>Selection of the reported result:<br>Low risk of bias. (Reported as pre-specified. Unlikely to be selected).<br>Overall: High risk of bias. |

| Study details | Participants | Interventions | Methods | Outcomes and Results | Comments |
|---|---|---|---|---|---|
| antenatal training classes had an impact on the birth process and women's birth experience.<br>**Study dates**<br>May 2006 - May 2007 (recruitment dates)<br>**Source of funding**<br>Not industry funded | | | | Control: 348/575<br>RR: 1.03 (0.94-1.13) p=0.56<br>Caesarean birth (total):<br>Intervention: 112/587<br>Control: 120/575<br>RR: 0.91 (0.73-1.15) p=0.45<br><br>Elective caesarean:<br>Intervention: 25/587<br>Control: 25/575<br>RR: 0.98 (0.57-1.68) p=0.94<br><br>Emergency caesarean:<br>Intervention: 87/587<br>Control: 95/575<br>RR: 0.90 (0.69-1.17) p=0.43 | |

*CBSEI: childbirth self-efficacy inventory CD: compact disc; CI: confidence interval; LAS: labour agentry scale; OR: odds ratio; RR: risk ratio; SD: standard deviation.*

# Appendix E - Forest plots

**Forest plots for review question: How effective are antenatal classes and groups in preparing pregnant women for labour?**

This section includes forest plots only for outcomes that are meta-analysed. Outcomes from single studies are not presented here; the quality assessment for such outcomes is provided in the GRADE profiles in appendix F.

**Figure 2: Hypnosis vs Standard care – Outcome: Use of epidural analgesia**
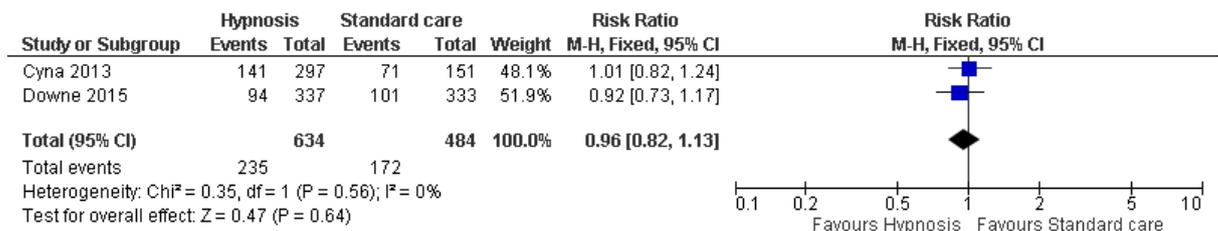


**Figure 3: Hypnosis vs Standard care – Outcome: Spontaneous vaginal delivery**
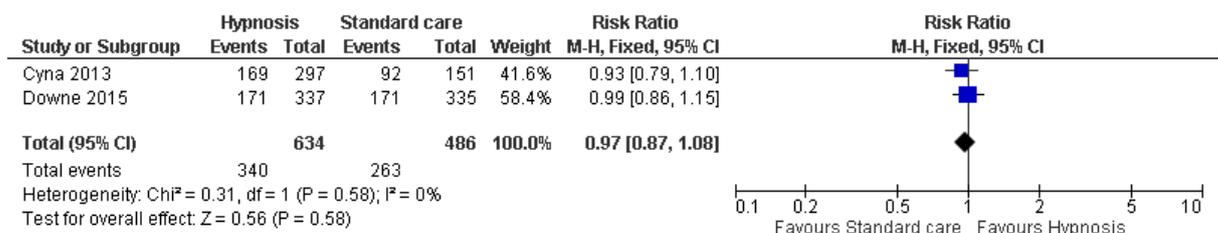


**Figure 4: Hypnosis vs Standard care – Outcome: Caesarean section (total)**
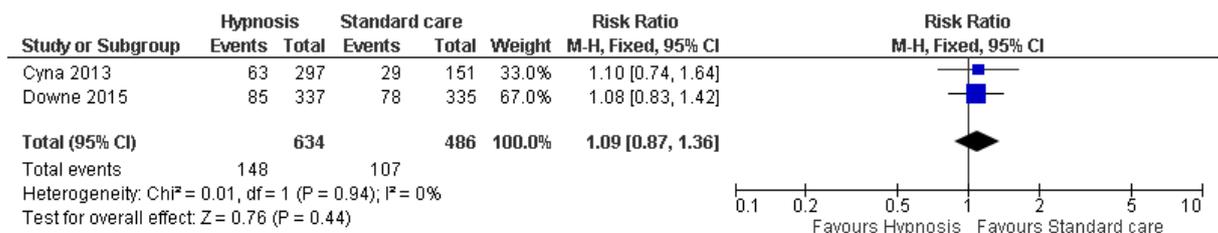
# Appendix F - GRADE tables

**GRADE tables for review question: How effective are antenatal classes and groups in preparing pregnant women for labour?**

**Table 5: Clinical evidence profile for comparison standard care vs no formal antenatal classes**

| | | Quality assessment | | | | | No of patients | | Effect | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | Standard care | No formal antenatal class | Relative (95% CI) | Absolute | Quality | Importance |
| **Satisfaction with birth (follow-up 16 weeks; assessed with: number reporting birth 'good' or 'great')** | | | | | | | | | | | | |
| 1 (Maimburg 2010) | randomised trials | very serious[1] | no serious inconsistency | no serious indirectness | no serious imprecision | none | 417/543 (76.8%) | 406/525 (77.3%) | RR 0.99 (0.93 to 1.06) | 8 fewer per 1000 (from 54 fewer to 46 more) | ⊕⊕OO LOW | CRITICAL |
| **>3cm cervix dilation on arrival (follow-up 10 weeks)** | | | | | | | | | | | | |
| 1 (Maimburg 2010) | randomised trials | serious[2] | no serious inconsistency | no serious indirectness | serious[3] | none | 270/587 (46%) | 185/575 (32.2%) | RR 1.43 (1.23 to 1.66) | 138 more per 1000 (from 74 more to 212 more) | ⊕⊕OO LOW | IMPORTANT |
| **Use of epidural analgesia (follow-up 10 weeks)** | | | | | | | | | | | | |
| 1 (Maimburg 2010) | randomised trials | serious[2] | no serious inconsistency | no serious indirectness | serious[3] | none | 204/587 (34.8%) | 237/575 (41.2%) | RR 0.84 (0.73 to 0.98) | 66 fewer per 1000 (from 8 fewer to 111 fewer) | ⊕⊕OO LOW | IMPORTANT |
| **Spontaneous vaginal delivery (follow-up 10 weeks)** | | | | | | | | | | | | |
| 1 (Maimburg 2010) | randomised trials | serious[2] | no serious inconsistency | no serious indirectness | no serious imprecision | none | 365/587 (62.2%) | 348/575 (60.5%) | RR 1.03 (0.94 to 1.13) | 18 more per 1000 (from 36 fewer to 79 more) | ⊕⊕⊕O MODERATE | IMPORTANT |
| **Elective caesarean (follow-up 10 weeks)** | | | | | | | | | | | | |
| 1 (Maimburg 2010) | randomised trials | serious[2] | no serious inconsistency | no serious indirectness | very serious[4] | none | 25/587 (4.3%) | 25/575 (4.3%) | RR 0.98 (0.57 to 1.68) | 1 fewer per 1000 (from 19 fewer to 30 more) | ⊕OOO VERY LOW | IMPORTANT |
| **Emergency caesarean (follow-up 10 weeks)** | | | | | | | | | | | | |

| Quality assessment | | | | | | No of patients | | Effect | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | Standard care | No formal antenatal class | Relative (95% CI) | Absolute | Quality | Importance |
| 1 (Maimburg 2010) | randomised trials | serious[2] | no serious inconsistency | no serious indirectness | serious[3] | none | 87/587 (14.8%) | 95/575 (16.5%) | RR 0.9 (0.69 to 1.17) | 17 fewer per 1000 (from 51 fewer to 28 more) | ⊕⊕OO LOW | IMPORTANT |

CI: confidence interval; RR: risk ratio

[1] Evidence downgraded by 2 levels due to high risk of deviation from intended interventions and measurement of the outcome bias in 1 study

[2] Evidence downgraded by 1 level due to high risk of deviation from intended interventions bias in 1 study.

[3] Evidence downgraded by 1 level because 95% CI cross 1 MIDs for dichotomous outcomes (0.8 or 1.25)

[4] Evidence downgraded by 2 levels because 95% CI crosses 2 MIDs for dichotomous outcomes (0.8 to 1.25)

**Table 6: Clinical evidence profile for comparison hypnosis training plus standard care vs standard care alone**

| Quality assessment | | | | | | No of patients | | Effect | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | Hypnosis | Standard care | Relative (95% CI) | Absolute | Quality | Importance |
| Satisfaction with birth experience (follow-up 9 weeks; assessed with: number reported birth a positive experience) | | | | | | | | | | | | |
| 1 (Cyna 2013) | randomised trials | very serious[1] | no serious inconsistency | no serious indirectness | no serious imprecision | none | 213/288 (74%) | 118/144 (81.9%) | RR 0.9 (0.81 to 1) | 82 fewer per 1000 (from 156 fewer to 0 more) | ⊕⊕OO LOW | CRITICAL |
| Use of epidural analgesia (follow-up mean 5.5 weeks) | | | | | | | | | | | | |
| 2‡ | randomised trials | serious[2] | no serious inconsistency | no serious indirectness | no serious imprecision | none | 235/634 (37.1%) | 172/484 (35.5%) | RR 0.96 (0.82 to 1.13) | 14 fewer per 1000 (from 64 fewer to 46 more) | ⊕⊕⊕O MODERATE | IMPORTANT |
| Spontaneous vaginal delivery (follow-up mean 5.5 weeks) | | | | | | | | | | | | |
| 2‡ | randomised trials | serious[2] | no serious inconsistency | no serious indirectness | no serious imprecision | none | 340/634 (53.6%) | 263/486 (54.1%) | RR 0.97 (0.87 to 1.08) | 16 fewer per 1000 (from 70 fewer to 43 more) | ⊕⊕⊕O MODERATE | IMPORTANT |
| Caesarean section (total) (follow-up mean 5.5 weeks) | | | | | | | | | | | | |
| 2‡ | randomised trials | serious[2] | no serious inconsistency | no serious indirectness | serious[3] | none | 148/634 (23.3%) | 107/486 (22%) | RR 1.09 (0.87 to 1.36) | 20 more per 1000 (from 29 fewer to 79 more) | ⊕⊕OO LOW | IMPORTANT |

CI: confidence interval; RR: risk ratio

[1] *Evidence downgraded by 2 levels due to high risk of deviation from intended interventions, missing outcome data and measurement of the outcome bias in 1 study*
[2] *Evidence downgraded by 1 levels due to high risk of deviation from intended interventions bias in 1 study*
[3] *Evidence downgraded by 1 level because 95% CI cross 1 MID for dichotomous outcomes (0.8 or 1.25)*
‡ *For references see corresponding Forest plot*

**Table 7: Clinical evidence profile for comparison mindfulness plus standard care vs standard care alone**

| No of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | Mindfulness | Standard care | Relative (95% CI) | Absolute | Quality | Importance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Quality assessment** | | | | | | | **No of patients** | | **Effect** | | | |
| **Satisfaction with birth (follow-up 12 weeks; assessed with: number scoring 8 or above/10)** | | | | | | | | | | | | |
| 1 (Duncan 2017) | randomised trials | serious[1] | no serious inconsistency | no serious indirectness | very serious[2] | none | 7/15 (46.7%) | 8/14 (57.1%) | RR 0.82 (0.4 to 1.65) | 103 fewer per 1000 (from 343 fewer to 371 more) | ⊕OOO VERY LOW | CRITICAL |
| **Use of epidural analgesia (follow-up 12 weeks)** | | | | | | | | | | | | |
| 1 (Duncan 2017) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | very serious[2] | none | 12/14 (85.7%) | 11/13 (84.6%) | RR 1.01 (0.74 to 1.39) | 8 more per 1000 (from 220 fewer to 330 more) | ⊕⊕OO LOW | IMPORTANT |
| **Self-efficacy regarding childbirth (follow-up 1 weeks; measured with: CBSEI (prebirth); range of scores: 31-310; Better indicated by higher values)** | | | | | | | | | | | | |
| 1 (Duncan 2017) | randomised trials | serious[1] | no serious inconsistency | no serious indirectness | serious[3] | none | 15 | 14 | - | MD 31.3 higher (3.25 to 59.35 higher) | ⊕⊕OO LOW | IMPORTANT |

*CBSEI: childbirth self-efficacy inventory; CI: confidence interval; MD: mean difference; RR: risk ratio*
[1] *Evidence downgraded by 1 level due to high risk of measurement of outcome bias in 1 study.*
[2] *Evidence downgraded by 2 levels because 95% CI cross 2 MIDs for dichotomous outcomes (0.8 or 1.25)*
[3] *Evidence downgraded by 1 level because 95% CI cross 1 MID for continuous outcomes (0.5 x control group SD, for self-efficacy =17.7)*

**Table 8: Clinical evidence profile for comparison massage programme with relaxation techniques plus standard care vs standard care alone**

| | Quality assessment | | | | | | No of patients | | Effect | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | Massage | Standard care | Relative (95% CI) | Absolute | Quality | Importance |
| **Satisfaction with birth (follow-up 11 weeks; assessed with: Number reporting 'very' satisfied)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | serious[1] | no serious inconsistency | no serious indirectness | serious[2] | none | 22/30 (73.3%) | 18/30 (60%) | RR 1.22 (0.85 to 1.76) | 132 more per 1000 (from 90 fewer to 456 more) | ⊕⊕OO LOW | CRITICAL |
| **Dilatation of cervix on admission (cm) (follow-up 5 weeks; range of scores: 0-10; Better indicated by higher values)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | serious[3] | none | 30 | 30 | - | MD 0.3 lower (1.82 lower to 1.22 higher) | ⊕⊕⊕O MODERATE | IMPORTANT |
| **Use of epidural analgesia (follow-up 5 weeks)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | very serious[4] | none | 10/30 (33.3%) | 8/30 (26.7%) | RR 1.25 (0.57 to 2.73) | 67 more per 1000 (from 115 fewer to 461 more) | ⊕⊕OO LOW | IMPORTANT |
| **Spontaneous vaginal delivery (follow-up 5 weeks)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | very serious[4] | none | 20/30 (66.7%) | 17/30 (56.7%) | RR 1.18 (0.79 to 1.76) | 102 more per 1000 (from 119 fewer to 431 more) | ⊕⊕OO LOW | IMPORTANT |
| **Elective caesarean section (follow-up 5 weeks)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | very serious[4] | none | 1/30 (3.3%) | 0/30 (0%) | RR 3 (0.13 to 70.83) | 30 more per 1000 (from 50 fewer to 120 more)[5] | ⊕⊕OO LOW | IMPORTANT |
| **Emergency caesarean section (follow-up 5 weeks)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | very serious[4] | none | 5/30 (16.7%) | 7/30 (23.3%) | RR 0.71 (0.25 to 2) | 68 fewer per 1000 (from 175 fewer to 233 more) | ⊕⊕OO LOW | IMPORTANT |
| **Self-efficacy regarding childbirth (follow-up 11 weeks; measured with: Labour agentry scale; range of scores: 10-70; Better indicated by lower values)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | serious[1] | no serious inconsistency | no serious indirectness | serious[3] | none | 30 | 30 | - | MD 6.1 lower (11.49 to 0.71 lower) | ⊕⊕OO LOW | IMPORTANT |

CI: confidence interval; MD: mean difference; RR: risk ratio

[1] Evidence downgraded by 1 level due to high risk of measurement of outcome bias in 1 study.

[2] Evidence downgraded by 1 level because 95% CI cross 1 MIDs for dichotomous outcomes (0.8 or 1.25)

[3] Evidence downgraded by 1 level because 95% CI cross 1 MID for continuous outcomes (0.5 x control group SD, for dilatation of cervix =1.5, for self-efficacy =5.1)

[4] *Evidence downgraded by 2 levels because 95% CI cross 2 MIDs for dichotomous outcomes (0.8 or 1.25)*
[5] *Manual absolute effect was calculated as control arm had 0 events*

**Table 9: Clinical evidence profile for comparison playing music during relaxation technique practice plus standard care vs standard care alone**

| | Quality assessment | | | | | | No of patients | | Effect | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | Music | Standard care | Relative (95% CI) | Absolute | Quality | Importance |
| **Satisfaction with birth (follow-up 11 weeks; assessed with: Number reporting 'very' satisfied)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | serious[1] | no serious inconsistency | no serious indirectness | serious[2] | none | 22/30 (73.3%) | 18/30 (60%) | RR 1.22 (0.85 to 1.76) | 132 more per 1000 (from 90 fewer to 456 more) | ⊕⊕OO LOW | CRITICAL |
| **Dilatation of cervix on admission (cm) (follow-up 5 weeks; range of scores: 0-10; Better indicated by higher values)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | no serious imprecision | none | 30 | 30 | - | MD 0 higher (1.47 lower to 1.47 higher) | ⊕⊕⊕⊕ HIGH | IMPORTANT |
| **Use of epidural analgesia (follow-up 5 weeks)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | very serious[3] | none | 10/29 (34.5%) | 8/30 (26.7%) | RR 1.29 (0.59 to 2.81) | 77 more per 1000 (from 109 fewer to 483 more) | ⊕⊕OO LOW | IMPORTANT |
| **Spontaneous vaginal delivery (follow-up 5 weeks)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | very serious[3] | none | 18/29 (62.1%) | 17/30 (56.7%) | RR 1.1 (0.72 to 1.67) | 57 more per 1000 (from 159 fewer to 380 more) | ⊕⊕OO LOW | IMPORTANT |
| **Elective caesarean (follow-up 5 weeks)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | very serious[3] | none | 1/29 (3.4%) | 0/30 (0%) | RR 3.1 (0.13 to 73.14) | 30 more per 1000 (from 60 fewer to 120 more)[4] | ⊕⊕OO LOW | IMPORTANT |
| **Emergency caesarean (follow-up 5 weeks)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | very serious[3] | none | 3/29 (10.3%) | 7/30 (23.3%) | RR 0.44 (0.13 to 1.55) | 131 fewer per 1000 (from 203 fewer to 128 more) | ⊕⊕OO LOW | IMPORTANT |

| Quality assessment | | | | | | No of patients | | Effect | | Quality | Importance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | Music | Standard care | Relative (95% CI) | Absolute | | |
| **Self-efficacy regarding childbirth (follow-up 11 weeks; measured with: Labour agentry scale; range of scores: 10-70; Better indicated by lower values)** | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | serious | no serious inconsistency | no serious indirectness | serious[5] | none | 29 | 30 | - | MD 6.1 lower (11.79 to 0.41 lower) | ⊕⊕OO LOW | IMPORTANT |

CI: confidence interval; MD: mean difference; RR: risk ratio
[1] Evidence downgraded by 1 level due to high risk of measurement of outcome bias in 1 study.
[2] Evidence downgraded by 1 level because 95% CI cross 1 MID for dichotomous outcomes (0.8 or 1.25)
[3] Evidence downgraded by 2 levels because 95% CI cross 2 MID for dichotomous outcomes (0.8 or 1.25)
[4] Manual absolute effect was calculated as control arm had 0 events
[5] Evidence downgraded by 1 level because 95% CI cross 1 MID for continuous outcomes (0.5 x control group SD, for self-efficacy=5.1)

### Table 10: Clinical evidence profile for comparison multiple interventions (yoga postures, breathing techniques, massage and acupressure) plus standard care vs standard care alone

| Quality assessment | | | | | | No of patients | | Effect | | Quality | Importance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | Multiple intervention | Standard care | Relative (95% CI) | Absolute | | |
| **Use of epidural analgesia (follow-up 4 weeks)** | | | | | | | | | | | |
| 1 (Levett 2016) | randomised trials | serious[1] | no serious inconsistency | no serious indirectness | no serious imprecision | none | 21/88 (23.9%) | 57/83 (68.7%) | RR 0.35 (0.23 to 0.52) | 446 fewer per 1000 (from 330 fewer to 529 fewer) | ⊕⊕⊕O MODERATE | IMPORTANT |
| **Spontaneous vaginal birth (follow-up 4 weeks)** | | | | | | | | | | | |
| 1 (Levett 2016) | randomised trials | serious[1] | no serious inconsistency | no serious indirectness | serious[2] | none | 60/88 (68.2%) | 39/83 (47%) | RR 1.45 (1.11 to 1.9) | 211 more per 1000 (from 52 more to 423 more) | ⊕⊕OO LOW | IMPORTANT |
| **Caesarean section (total) (follow-up 4 weeks)** | | | | | | | | | | | |
| 1 (Levett 2016) | randomised trials | serious[1] | no serious inconsistency | no serious indirectness | serious[2] | none | 16/88 (18.2%) | 27/83 (32.5%) | RR 0.56 (0.33 to 0.96) | 143 fewer per 1000 (from 13 fewer to 218 fewer) | ⊕⊕OO LOW | IMPORTANT |
| **Self-efficacy regarding childbirth (follow-up 4 weeks; measured with: Labour agentry scale ; range of scores: 29-203; Better indicated by lower values)** | | | | | | | | | | | |

| Quality assessment | | | | | | No of patients | | Effect | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | Multiple intervention | Standard care | Relative (95% CI) | Absolute | Quality | Importance |
| 1 (Levett 2016) | randomised trials | very serious[3] | no serious inconsistency | no serious indirectness | serious[4] | none | 72 | 52 | - | MD 14.05 higher (3.77 to 24.33 higher) | ⊕◯◯◯ VERY LOW | IMPORTANT |

CI: confidence interval; MD: mean difference; RR: risk ratio
[1] Evidence downgraded by 1 levels due to high risk of deviation from intended interventions bias in 1 study
[2] Evidence downgraded by 1 level because 95% CI cross 1 MID for dichotomous outcomes (0.8 or 1.25)
[3] Evidence downgraded by 2 levels due to high risk of deviation from intended interventions and measurement of the outcome bias in 1 study
[4] Evidence downgraded by 1 level because 95% CI cross 1 MID for continuous outcomes (0.5 x control group SD, for self-efficacy = 15.015)

### Table 11: Clinical evidence profile for comparison hypnosis training plus standard care vs hypnosis CD plus standard care

| Quality assessment | | | | | | No of patients | | Effect | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | Hypnosis training | Hypnosis CD | Relative (95% CI) | Absolute | Quality | Importance |
| **Satisfaction with birth (follow-up 9 weeks; assessed with: number reporting birth was a positive experience)** | | | | | | | | | | | | |
| 1 (Cyna 2013) | randomised trials | very serious[1] | no serious inconsistency | no serious indirectness | no serious imprecision | none | 108/149 (72.5%) | 105/139 (75.5%) | RR 0.96 (0.84 to 1.1) | 30 fewer per 1000 (from 121 fewer to 76 more) | ⊕⊕◯◯ LOW | CRITICAL |
| **Use of epidural analgesia (follow-up 3 weeks)** | | | | | | | | | | | | |
| 1 (Cyna 2013) | randomised trials | serious[2] | no serious inconsistency | no serious indirectness | serious[3] | none | 78/154 (50.6%) | 63/143 (44.1%) | RR 1.15 (0.9 to 1.46) | 66 more per 1000 (from 44 fewer to 203 more) | ⊕⊕◯◯ LOW | IMPORTANT |
| **Spontaneous vaginal birth (follow-up 3 weeks)** | | | | | | | | | | | | |
| 1 (Cyna 2013) | randomised trials | serious[2] | no serious inconsistency | no serious indirectness | serious[3] | none | 85/154 (55.2%) | 84/143 (58.7%) | RR 0.94 (0.77 to 1.15) | 35 fewer per 1000 (from 135 fewer to 88 more) | ⊕⊕◯◯ LOW | IMPORTANT |
| **Caesarean section (total) (follow-up 3 weeks)** | | | | | | | | | | | | |
| 1 (Cyna 2013) | randomised trials | serious[2] | no serious inconsistency | no serious indirectness | serious[3] | none | 38/154 (24.7%) | 25/143 (17.5%) | RR 1.41 (0.9 to 2.21) | 72 more per 1000 (from | ⊕⊕◯◯ LOW | IMPORTANT |

| | Quality assessment | | | | | | No of patients | | Effect | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | Hypnosis training | Hypnosis CD | Relative (95% CI) | Absolute | Quality | Importance |
| | | | | | | | | | | 17 fewer to 212 more) | | |

CD: compact disc; CI: confidence interval; RR: risk ratio

[1] Evidence downgraded by 2 levels due to high risk of deviation from intended interventions, missing outcome data and measurement of the outcome bias in 1 study

[2] Evidence downgraded by 1 level due to high risk of deviations from intended interventions bias in 1 study

[3] Evidence downgraded by 1 level because 95% CI cross 1 MID for dichotomous outcomes (0.8 or 1.25)

**Table 12: Clinical evidence profile for comparison massage programme with relaxation techniques plus standard care vs playing music during relaxation techniques plus standard care**

| | Quality assessment | | | | | | No of patients | | Effect | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No of studies | Design | Risk of bias | Inconsistency | Indirectness | Imprecision | Other considerations | Massage | Music | Relative (95% CI) | Absolute | Quality | Importance |
| **Satisfaction with birth (follow-up 11 weeks; assessed with: Number reporting 'very' satisfied)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | serious[1] | no serious inconsistency | no serious indirectness | very serious[2] | none | 22/30 (73.3%) | 22/30 (73.3%) | RR 1 (0.74 to 1.36) | 0 fewer per 1000 (from 191 fewer to 264 more) | ⊕◯◯◯ VERY LOW | CRITICAL |
| **Dilatation of cervix on admission (cm) (follow-up 5 weeks; range of scores: 0-10; Better indicated by higher values)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | serious[3] | none | 30 | 30 | - | MD 0.3 lower (1.77 lower to 1.17 higher) | ⊕⊕⊕◯ MODERATE | IMPORTANT |
| **Use of epidural analgesia (follow-up 5 weeks)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | very serious[2] | none | 10/30 (33.3%) | 10/29 (34.5%) | RR 0.97 (0.47 to 1.97) | 10 fewer per 1000 (from 183 fewer to 334 more) | ⊕⊕◯◯ LOW | IMPORTANT |
| **Spontaneous vaginal delivery (follow-up 5 weeks)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | very serious[2] | none | 20/30 (66.7%) | 18/29 (62.1%) | RR 1.07 (0.73 to 1.57) | 43 more per 1000 (from 168 fewer to 354 more) | ⊕⊕◯◯ LOW | IMPORTANT |

| No of studies | Design | Risk of bias | Quality assessment | | | Other considerations | No of patients | | Effect | | Quality | Importance |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Inconsistency | Indirectness | Imprecision | | Massage | Music | Relative (95% CI) | Absolute | | |
| **Elective caesarean (follow-up 5 weeks)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | very serious[2] | none | 1/30 (3.3%) | 1/29 (3.4%) | RR 0.97 (0.06 to 14.74) | 1 fewer per 1000 (from 32 fewer to 474 more) | ⊕⊕OO LOW | IMPORTANT |
| **Emergency caesarean (follow-up 5 weeks)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | no serious risk of bias | no serious inconsistency | no serious indirectness | very serious[2] | none | 5/30 (16.7%) | 3/29 (10.3%) | RR 1.61 (0.42 to 6.14) | 63 more per 1000 (from 60 fewer to 532 more) | ⊕⊕OO LOW | IMPORTANT |
| **Self-efficacy regarding childbirth (follow-up 11 weeks; measured with: Labour agentry scale; range of scores: 10-70; Better indicated by lower values)** | | | | | | | | | | | | |
| 1 (Kimber 2008) | randomised trials | serious | no serious inconsistency | no serious indirectness | no serious imprecision | none | 30 | 29 | - | MD 0 higher (5.9 lower to 5.9 higher) | ⊕⊕⊕O MODERATE | IMPORTANT |

CI: confidence interval; MD: mean difference; RR: risk ratio
[1] Evidence downgraded by 1 level due to high risk of measurement of outcome bias in 1 study.
[2] Evidence downgraded by 2 levels because 95% CI cross 2 MIDs for dichotomous outcomes (0.8 or 1.25)
[3] Evidence downgraded by 1 level because 95% CI cross 1 MID for continuous outcomes (0.5 x control group SD, for dilatation of cervix = 1.4)

# Appendix G - Economic evidence study selection

**Economic evidence study selection for review question: How effective are antenatal classes and groups in preparing pregnant women for labour?**

A single economic search was undertaken for all topics included in the scope of this guideline. No economic studies were identified which were applicable to this review question. See supplementary material 2 for details.

# Appendix H - Economic evidence tables

**Economic evidence tables for review question: How effective are antenatal classes and groups in preparing pregnant women for labour?**

No economic evidence was identified which was applicable to this review question.

# Appendix I - Economic evidence profiles

**Economic evidence profiles for review question: How effective are antenatal classes and groups in preparing pregnant women for labour?**

No economic evidence was identified which was applicable to this review question.

# Appendix J - Economic analysis

**Economic analysis for review question: How effective are antenatal classes and groups in preparing pregnant women for labour?**

No economic analysis was conducted for this review question.

# Appendix K- Excluded studies

**Excluded studies for review question: How effective are antenatal classes and groups in preparing pregnant women for labour?**

**Clinical studies**

**Table 13: Excluded studies and reasons for their exclusion**

| Study | Reason for exclusion |
|---|---|
| Akbarzadeh, M., Rafiee, B., Asadi, N., Zare, N., Comparative effect of attachment and relaxation training on perception of fetal movement and mother's anxiety in primiparous women: A randomized controlled study, Trends in medical research, 11, 62-68, 2016 | Study in Iran |
| Baghdari, N., Sadeghi Sahebzad, E., Kheirkhah, M., Azmoude, E., The Effects of Pregnancy-Adaptation Training on Maternal-Fetal Attachment and Adaptation in Pregnant Women With a History of Baby Loss, Nursing & Midwifery Studies, 5, e28949, 2016 | Study in Iran |
| Beevi, Z., Low, W. Y., Hassan, J., The Effectiveness of Hypnosis Intervention for Labor: An Experimental Study, American Journal of Clinical Hypnosis, 60, 172-191, 2017 | Study in Malaysia |
| Bellieni, C. V., Ceccarelli, D., Rossi, F., Buonocore, G., Maffei, M., Perrone, S., Petraglia, F., Is prenatal bonding enhanced by prenatal education courses?, Minerva Ginecologica, 59, 125-9, 2007 | Not a RCT |
| Bergstrom, M., Kieler, H., Waldenstrom, U., A randomised controlled multicentre trial of women's and men's satisfaction with two models of antenatal education, Midwifery, 27, e195-200, 2011 | Intervention arm does not include standard care |
| Bergstrom,M., Kieler,H., Waldenstrom,U., Effects of natural childbirth preparation versus standard antenatal education on epidural rates, experience of childbirth and parental stress in mothers and fathers: a randomised controlled multicentre trial, BJOG: An International Journal of Obstetrics and Gynaecology, 116, 1167-1176, 2009 | Intervention arm does not include standard care |
| Boz, I., Akgun, M., Duman, F., A feasibility study of a psychoeducation intervention based on Human Caring Theory in nulliparous women with fear of childbirth, Journal of Psychosomatic Obstetrics and Gynecology., 2020 | Population is a subgroup - only women with a moderate level of fear of childbirth. |
| Citak Bilgin, N., Ak, B., Ayhan, F., Kocyigit, F., Yorgun, S., Topcuoglu, M. A., Effect of childbirth education on the perceptions of childbirth and breastfeeding self-efficacy and the obstetric outcomes of nulliparous women, Health Care for Women International, 41, 188-204, 2020 | Study in Turkey |
| Ctri,, Research on use of Information Technology for pregnancy care related training of women, http://www.who.int/trialsearch/Trial2.aspx?TrialID=CTRI/2019/10/021794, 2019 | Protocol only, and in India |
| Cyna,A.M., Andrew,M.I., McAuliffe,G.L., Antenatal self-hypnosis for labour and childbirth: a pilot study, Anaesthesia and Intensive Care, 34, 464-469, 2006 | Not a RCT |
| Cyna,A.M., Andrew,M.I., Robinson,J.S., Crowther,C.A., Baghurst,P., Turnbull,D., Wicks,G., Whittle,C., Hypnosis Antenatal Training for Childbirth (HATCh): a randomised controlled trial [NCT00282204], BMC Pregnancy and Childbirth, 6, 5-, 2006 | Protocol only |

| Study | Reason for exclusion |
|---|---|
| Dowswell, T., Carroli, G., Duley, L., Gates, S., Gülmezoglu, A. M., Khanâ-Neelofur, D., Piaggio, G., Alternative versus standard packages of antenatal care for low-risk pregnancy, Cochrane Database of Systematic Reviews, 2015 | Cochrane SR, PICO similar but not matching, references checked for inclusion |
| Gheibi, Z., Abbaspour, Z., Haghighyzadeh, M. H., Javadifar, N., Effects of a mindfulness-based childbirth and parenting program on maternal-fetal attachment: A randomized controlled trial among Iranian pregnant women, Complementary therapies in clinical practice, 41, 101226, 2020 | Study in Iran |
| Haapio, S., Kaunonen, M., Arffman, M., Astedt-Kurki, P., Effects of extended childbirth education by midwives on the childbirth fear of first-time mothers: an RCT, Scandinavian journal of caring sciences, 31, 293-301, 2017 | No outcomes of interest |
| Howarth, A. M., Swain, N. R., Low-cost, self-paced, educational programmes increase birth satisfaction in first-time mothers, New Zealand College of Midwives Journal, 55, 14-19, 2019 | Intervention does not focus on antenatal classes |
| Howarth, A. M., Swain, N. R., Skills-based childbirth preparation increases childbirth self-efficacy for first time mothers, Midwifery, 70, 100-105, 2019 | Intervention arm does not include standard care |
| Irct20190129042538N,, Effect of self-hypnosis on fear and pain of normal delivery, http://www.who.int/trialsearch/Trial2.aspx?TrialID=IRCT20190129042538N1, 2019 | Protocol only, and in Iran. |
| Jahdi, F., Sheikhan, F., Haghani, H., Sharifi, B., Ghaseminejad, A., Khodarahmian, M., Rouhana, N., Yoga during pregnancy: the effects on labor pain and delivery outcomes (A randomized controlled trial), Complementary Therapies in Clinical Practice, 27, 1-4, 2017 | Study in Iran |
| Jiang, Q., Wu, Z., Zhou, L., Dunlop, J., Chen, P., Effects of Yoga Intervention during Pregnancy: A Review for Current Status, American Journal of Perinatology, 32, 503-514, 2015 | SR, references checked for inclusion |
| Karabulut, O., Coskuner Potur, D., Dogan Merih, Y., Cebeci Mutlu, S., Demirci, N., Does antenatal education reduce fear of childbirth?, International Nursing Review, 63, 60-7, 2016 | Study in Turkey |
| Kaya, S., Orhan, C., Akbayrak, T., Uzelpasaci, E., Baran, E., Nakip, G., Ozyuncu, O., Beksac, S., Effects of childbirth education on birth fear, anxiety level and quality of life, Fizyoterapi Rehabilitasyon, 28 (2), S65, 2017 | Conference abstract |
| Kearney, L., Kynn, M., Craswell, A., Reed, R., The relationship between midwife-led group-based versus conventional antenatal care and mode of birth: a matched cohort study, BMC Pregnancy & Childbirth, 17, 39, 2017 | not a RCT |
| Khoursandi, M., Vakilian, K., Torabi Goudarzi, M., Abdi, M., Childbirth preparation using behavioral-cognitive skill in childbirth outcomes of primiparous women, Journal of Babol University of Medical Sciences, 15, 76-80, 2013 | Article not in English |
| Klabbers, G. A., Wijma, K., Paarlberg, K. M., Emons, W. H., Vingerhoets, A. J., Treatment of severe fear of childbirth with haptotherapy: design of a multicenter randomized controlled trial, BMC Complementary & Alternative Medicine, 14, 385, 2014 | Protocol only |
| Landolt, A. S., Milling, L. S., The efficacy of hypnosis as an intervention for labor and delivery pain: a comprehensive methodological review, Clinical Psychology Review, 31, 1022-31, 2011 | Not a SR |

| Study | Reason for exclusion |
|---|---|
| Levett, K. M., Smith, C. A., Dahlen, H. G., Bensoussan, A., Complementary therapies for labour and birth: Results from a mixed methods study, Journal of paediatrics and child health, 1), 19, 2014 | Conference abstract |
| Madden, K., Middleton, P., Cyna, A. M., Matthewson, M., Jones, L., Hypnosis for pain management during labour and childbirth, Cochrane Database of Systematic Reviews, 2016 (5) (no pagination), 2016 | Cochrane SR, references checked for inclusion |
| Maimburg, R. D., Vaeth, M., Hvidman, L., Durr, J., Olsen, J., Women's worries in first pregnancy: results from a randomised controlled trial, Sexual & reproductive healthcare : official journal of the Swedish Association of Midwives, 4, 129-31, 2013 | No outcomes of interest |
| Matvienko-Sikar, K., Lee, L., Murphy, G., Murphy, L., The effects of mindfulness interventions on prenatal well-being: A systematic review, Psychology & Health, 31, 1415-1434, 2016 | SR - references checked for inclusion |
| Miquelutti, M. A., Cecatti, J. G., Makuch, M. Y., Evaluation of a birth preparation program on lumbopelvic pain, urinary incontinence, anxiety and exercise: a randomized controlled trial, BMC Pregnancy & Childbirth, 13, 154, 2013 | Study in Brazil |
| Miquelutti, M. A., Cecatti, J. G., Makuch, M. Y., Developing strategies to be added to the protocol for antenatal care: an exercise and birth preparation program, Clinics (Sao Paulo, Brazil), 70, 231-6, 2015 | Study in Brazil |
| Moghaddam Hosseini, V., Nazarzadeh, M., Jahanfar, S., Interventions for reducing fear of childbirth: A systematic review and meta-analysis of clinical trials, Women and Birth, 31, 254-262, 2018 | SR - references checked for inclusion |
| Nct,, Pilot Trial of CenteringPregnancy With Mindfulness Skills, https://clinicaltrials.gov/show/NCT01646463, 2012 | Clinical trial entry |
| Nct,, My Baby My Move A Community Wellness Intervention, https://clinicaltrials.gov/show/NCT04294095, 2020 | Protocol only, no results published. |
| Nct,, Childbirth Education Pilot Study, https://clinicaltrials.gov/show/NCT04327557, 2020 | Protocol only no published data |
| Nct,, A RCT of CenteringPregnancy on Birth Outcomes, https://clinicaltrials.gov/show/NCT02640638, 2015 | Protocol only, but does not meet specified interventions. |
| Nct,, Reducing Fear of Childbirth Among Pregnant Women, https://clinicaltrials.gov/show/NCT04214431, 2019 | Protocol only, but population is a subgroup. |
| Newham, J. J., Wittkowski, A., Hurley, J., Aplin, J. D., Westwood, M., Effects of antenatal yoga on maternal anxiety and depression: a randomized controlled trial, Depression and anxiety, 31, 631-640, 2014 | Intervention arm does not include standard care |
| Ngai, F. W., Chan, S. W., Ip, W. Y., The effects of a childbirth psychoeducation program on learned resourcefulness, maternal role competence and perinatal depression: a quasi-experiment, International Journal of Nursing Studies, 46, 1298-306, 2009 | Not a RCT |
| Pan, W. L., Gau, M. L., Lee, T. Y., Jou, H. J., Liu, C. Y., Wen, T. K., Mindfulness-based programme on the psychological health of pregnant women, Women and Birth, 32, e102-e109, 2019 | Intervention arm does not include standard care |
| Ricchi, A., La Corte, S., Molinazzi, M. T., Messina, M. P., Banchelli, F., Neri, I., Study of childbirth education classes and evaluation of their effectiveness, Clinica Terapeutica, 170, e78-e86, 2020 | Not a RCT |
| Sacristan-Martin, O., Santed, M. A., Garcia-Campayo, J., Duncan, L. G., Bardacke, N., Fernandez-Alonso, C., Garcia-Sacristan, G., Garcia-Sacristan, D., Barcelo-Soler, A., Montero-Marin, J., A mindfulness and compassion-based program applied to pregnant | Protocol only |

| Study | Reason for exclusion |
|---|---|
| women and their partners to decrease depression symptoms during pregnancy and postpartum: study protocol for a randomized controlled trial, Trials [Electronic Resource], 20, 654, 2019 | |
| Satyapriya, M., Nagarathna, R., Padmalatha, V., Nagendra, H. R., Effect of integrated yoga on anxiety, depression & well being in normal pregnancy, Complementary Therapies in Clinical Practice, 19, 230-6, 2013 | Study in India |
| Sheffield, K. M., Woods-Giscombe, C. L., Efficacy, Feasibility, and Acceptability of Perinatal Yoga on Women's Mental Health and Well-Being: A Systematic Literature Review, Journal of Holistic Nursing, 34, 64-79, 2016 | SR - references checked for inclusion |
| Stoll, K., Swift, E. M., Fairbrother, N., Nethery, E., Janssen, P., A systematic review of nonpharmacological prenatal interventions for pregnancy-specific anxiety and fear of childbirth, Birth, 45, 7-18, 2018 | SR- references checked for inclusion |
| Streibert, L. A., Reinhard, J., Yuan, J., Schiermeier, S., Louwen, F., Clinical Study: Change in Outlook Towards Birth After a Midwife Led Antenatal Education Programme Versus Hypnoreflexogenous Self-Hypnosis Training for Childbirth, Geburtshilfe und Frauenheilkunde, 75, 1161-1166, 2015 | Not a RCT |
| Swift, E. M., Zoega, H., Stoll, K., Avery, M., Gottfresdottir, H., Enhanced Antenatal Care: Combining one-to-one and group Antenatal Care models to increase childbirth education and address childbirth fear, Women & Birth: Journal of the Australian College of Midwives, 24, 24, 2020 | Intervention arm is not antenatal class/group/workshop, and study not randomised controlled trial. |
| Taheri, M., Takian, A., Taghizadeh, Z., Jafari, N., Sarafraz, N., Creating a positive perception of childbirth experience: systematic review and meta-analysis of prenatal and intrapartum interventions, Reproductive Health, 15, 73, 2018 | SR - references checked for inclusion |
| Toohill, J., Fenwick, J., Gamble, J., Creedy, D. K., Buist, A., Turkstra, E., Ryding, E. L., A randomized controlled trial of a psycho-education intervention by midwives in reducing childbirth fear in pregnant women, Birth (Berkeley, Calif.), 41, 384-394, 2014 | Population is a subgroup |
| Warriner, S., Crane, C., Dymond, M., Krusche, A., An evaluation of mindfulness-based childbirth and parenting courses for pregnant women and prospective fathers/partners within the UK NHS (MBCP-4-NHS), Midwifery, 64, 1-10, 2018 | Not a RCT |
| Werner, A., Uldbjerg, N., Zachariae, R., Nohr, E. A., Effect of self-hypnosis on duration of labor and maternal and neonatal outcomes: a randomized controlled trial, Acta Obstetricia et Gynecologica Scandinavica, 92, 816-23, 2013 | Intervention arm does not include standard care |
| Werner, A., Uldbjerg, N., Zachariae, R., Rosen, G., Nohr, E. A., Self-hypnosis for coping with labour pain: a randomised controlled trial, BJOG: An International Journal of Obstetrics & Gynaecology, 120, 346-353, 2013 | Intervention arm does not include standard care |
| Werner, A., Uldbjerg, N., Zachariae, R., Wu, C. S., Nohr, E. A., Antenatal hypnosis training and childbirth experience: a randomized controlled trial, Birth (Berkeley, Calif.), 40, 272-280, 2013 | Intervention arm does not include standard care |
| Woolhouse, H., Mercuri, K., Judd, F., Brown, S. J., Antenatal mindfulness intervention to reduce depression, anxiety and stress: a pilot randomised controlled trial of the MindBabyBody program in an Australian tertiary maternity hospital, BMC Pregnancy & Childbirth, 14, 369, 2014 | No outcomes of interest |

| Study | Reason for exclusion |
|---|---|
| Yohai, D., Alharar, D., Cohen, R., Kaltian, Z., Aricha-Tamir, B., Ben Aion, S., Yohai, Z., Weintraub, A. Y., The effect of attending a prenatal childbirth preparedness course on labor duration and outcomes, 46, 47-52, 2018 | Not a RCT |

## Economic studies

One excluded list was created for all economic studies in this guideline. See supplementary material 2 for further information.

# Appendix L - Research recommendations

**Research recommendations for review question: How effective are antenatal classes and groups in preparing pregnant women for labour?**

No research recommendations were made for this review question.

# Appendix M - Additional studies in update searches

**Table 14 : Summary of studies identified but not extracted**

| Study | Why the study was not fully extracted and included |
|---|---|
| Thorstensson 2020 | Small pilot study of intervention not being recommended by committee, study found no important differences for any of the outcomes in the review protocol. |