**THE EFFECTS OF ANTENATAL SELF-HYPNOISIS AS PREPARATION
OF DELIVERY**

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**Abstract**

**Objective** The primary objective was to examine whether training of self-hypnosis in pregnancy when used during labour would reduce the need for epidural analgesia. Further, we wished to examine, whether self-hypnosis would reduce the need for oxytocin, vacuum extraction and caesarean section.

**Design** A randomised controlled clinical trial.

**Setting** A department of Obstetrics and Gynaecology in a university hospital in Denmark

**Sample** Nulliparous women with an uncomplicated, singleton pregnancy, spontaneous conception, planned vaginal delivery and fluent in Danish.

**Methods** One hundred women were randomly assigned to training in self-hypnosis to be used intrapartum or no training in self-hypnosis. Ninety-two women were included in the analyses. Outcome measures were: use of epidural analgesia (primary endpoint); augmentation of labour; with oxytocin; prevalence of vacuum extraction; prevalence of emergency caesarean sections; frequendes of Apgar $5 < 7$; Umbilical artery pH $< 7,1$ ; Umbilical artery standard base excess $> -10$ ; Duration of active labour $> 18$ hours; labour pain VAS $< 5$.

**Results**
There was no statistically significant difference between the self-hypnosis group and the no self-hypnosis group in the use of epidural analgesia (27 % versus 28 %); Oxytocin augmentation (57,5 % versus 54 %); vacuum extraction (14 % versus 22 %); child apgar score $5 < 7$ (0% versus; 2 %); umbilical artery pH $< 7,10$ (11 % versus 13 %); umbilical artery SBE $> -10$
(100 % versus 100 %); labour pain VAS $< 5$ (26 % versus 40 %); there was a trend towards a lower frequency of emergency caesarean section in the self-hypnosis group (9,1 % versus 22 %, p=0.09).

**Conclusion** Antenatal hypnosis when used during labour did not reduce the need for epidural analgesia or the need for oxytocin during labour. However, there was a trend towards a lower frequency of emergency caesarean section in the self-hypnosis group.
**Keywords:** hypnosis, childbirth, labour, pregnancy, pain relief, self-hypnosis, antenatal hypnosis.

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## Introduction

In the past, many different "natural" non-invasive methods have been used for pain relief during labour. One of these non-invasive methods is hypnosis [1].

The use of hypnosis in pregnancy and childbirth has been practised for many years, and throughout time, countries like the UK [2], Australia [3][4], and America [5][6][7] have conducted studies to determine, whether hypnosis could be a method for pain relief during labour. Not only did the studies indicate, that women taught self-hypnosis had reduced requirements for epidural analgesia, but also other benefits seem possible [3].

Although popular and effective in pain relief, epidural analgesia may be associated with side effects potentially influencing both labour and childbirth. Thus it seems interesting to study a non-invasive method of pain relief, specifically self hypnosis.

The primary objective of this study was to examine whether training of self-hypnosis in pregnancy and use of hypnosis during labour may reduce the need for epidural analgesia.
The secondary objective was to examine whether the use of hypnosis reduces the need of oxytocin, vacuum extraction and emergency caesarean section, duration of active labour > 18 hours as well as the strength of labour pain.

## Materials and methods

Nulliparous women with a normal singleton pregnancy of 30 gestational weeks, Danish spoken with a spontaneous conception, planned vaginal delivery were eligible for inclusion.

In order to avoid potential psychological side effects, the pregnant women who fulfilled the inclusion criteria were subjected to a preadmission assessment. The assessment of the women's mental suitability to undergo the self-hypnosis was based on a structured questionnaire developed by a therapeutic psychologist (Fig 1).The psychologist designed the sorting questions in the assessment through years of clinical experience with patients in trance.

The women were excluded if they answered yes to any of the questions from the questionnaire or had a history with neurological or psychiatric illnesses.

The women were randomly assigned to two groups (a self-hypnosis group and a group with no self-hypnosis using numbered, sealed and non-transparent envelopes with a randomization code generated by a computer program in blocks of 100. The randomization was arranged by a person not involved in the trial or the study protocol.

The women in the intervention group attended 5 group hypnosis sessions of 2 hours each, in terms of various verbal imaging techniques that was recorded for subsequent training at home. The home training aimed at having the women memorizing the verbal imaging techniques recorded on a cd. The 4th and the 5th session of the training was dedicated to the labor process and where the recording was made for home training, and subsequently to be played or used through memorization during birth. Duration of labour defined as the time from 3 cm dilatation of cervix until the delivery of the neonate.

The extent of labour related pain was measured through a VAS (Visual Analogue Scale) by placing an indicator on a 10 cm ruler going from no pain (0) to unbearable pain (10). On the front of the ruler is a face pain scale indicated by the woman 2 hours after birth. On the back a decimal score is yielded by the woman's registration, which is reported by the midwife.

Initially, we performed a sample size calculation. The dependent variable was considered to be the number of women with need of epidural analgesia during birth. Since the frequency of epidural analgesia was expected to be 20 % among women trained in hypnosis, a population of 40 women were to receive training to indicate change with an SD of 0,3 an alfa risk of 5 % and with a test power of 80 %. After sample size calculation we aimed at the conclusion of 100 women and an expected a dropout rate of 20%.

Categorical variables were presented with frequencies and percentages and compared using Chi-square test or Fisher's exact test. Continuous data were inspected for normality. If confirming to normality they were compared using Student's T-test. All p-values were two-sided and p-values below 0.05 were considered significant.

The women received verbal and written information, and all participants gave informed consent. The project was approved by the local Data protection Agency and The National Committee on Health Research Ethics.


## Results

Over the study period, a total of 112 parturients were assessed. Twelve women were not suitable for self-hypnoses, and thus 100 were eligible for the study protocol and randomised. Subsequently eight women dropped out from the study (Fig 2.).

Three because of transfer to another hospital under pregnancy, and five of the women that chose to leave the project during pregnancy. Thus, the final study groups comprised 44 women in the hypnosis group and 48 women in the non-hypnosis group (Fig. 2)

The mean maternal age was 30 in both the hypnosis group and the non-hypnosis group. The perinatal data are shown in table 1.

There was no difference between the two groups in the duration of active labour >18 hours.

There was no difference between the two groups in the duration of active labour >18 hours. The degree of labour pain measured by the VAS-scale was not measured within the first 2 hours after birth in 21 women. Twenty six % had a VAS score of <5 the hypnosis group and forty % in non-hypnosis group

**Discussion**

There was no statistically significant difference between the self-hypnosis group and the no self-hypnosis group in the use of epidural analgesia although, several studies seem to indicate that women using hypnosis as a pain relief in labour have less need of epidural analgesia .

In an Australian systematic review with five RCTs, 14 non-randomized comparisons and 8395 women who used self-hypnosis as a labour analgesic, showed that, compared with controls, fewer parturients having hypnosis required analgesia. Further, the study showed the reduced needs of epidurals, less use of oxytocin, shorter 1$^{st}$ stage labour by 2,8 hours for nulliparous, less surgical intervention and less painful labour in the hypnosis group [2].

The review is in accordance with another review by Brown et al. [7] which demonstrated that hypnosis was more effective than standard analgetic medication, and also that apgar scores are higher when using self-hypnosis during childbirth.

It is interesting to note that an earlier retrospective comparative analysis of outcomes in one obstetrician`s practice showed higher 1 minute neonatal Apgar scores in the hypnosis group [5].

Another systematic review [6], came to the same conclusion as Cyna et al. [8] regarding the effect of hypnosis to reduce the need of epidural analgesia for labour pain. The conclusion was partly based of hypnosis on the studies of Letts et al. [10], who demonstrated a 11.4 % less use of epidurals in comparison to the control group.
A finding backed up by Smith et al [3] in a pilot study, indicated that nulliparous parturients needed fewer epidurals when using hypnosis.

Relieving pain with other means than epidural analgesia is interesting, as literature points to the possible side effects of using epidural analgesia [8].
For instance Brander et al. and Leighton et al. shows that using epidural may lead to a significantly longer duration of labour and more frequent use of vacuum extraction [11] [12]. Another study supports these findings and states that epidural analgesia is a safe and effective method of relieving pain in labour, but is associated with longer labour, higher frequency of caesarean section for dystocia and lastly epidural is also associated with maternal fever in labour [13].

Although not significant the study demonstrated a trend towards a lower frequency of CS in the hypnosis group.

Instances of births with labour >18 hours, measured from 3 cm dilatation of cervix until the delivery of the neonate yields no difference between the self-hypnosis group and the control group (Table 1). It is likely that with a more stringent registration of initiation of birth, defined by cervical dilatation > 4 cm, and cervical progression within 2 hours, a more prominent result would have been expected. In addition, as a consequence of the modest sample of women, there is a risk of overlooking more subtle differences in perinatal variables between the intervention and control group (type II errors).

In spite of comparable frequencies of epidural analgesia, the labor pain seemed to be less intense in the self-hypnosis group, although the difference was not statistically significant.

The size of the population of this study did not allow for a meaningful comparison of neonatal outcomes.

The project included only a limited population, but has been based on a randomized study according to prescriptions. The dropout rate of 12 % is considered acceptable compared to the expected dropout rate of 20 % of the 100 participating women.

A blinded randomization was not possible in this study, because the participating women were aware of being in the self-hypnosis group. Also the member of the staff were aware of the women`s allocation, since the women during the birth might reveal their participation.

The two test groups have seemingly been treated similarly, although a differentiated treatment from staff during birth might have had an impact on the test results. A bias will usually be present due to positive/negative discrimination by the staff.

The inclusion criteria aimed to avoid potential psychological side effects of self-hypnosis based on a questionnaire with closed questions: Thus, the included women belonged to a selected subgroup, which has importance for the external validity of the results. Such questionnaire can always be

discussed, but the involvement of a therapeutic psychologist in the assessment of the women was considered to be optimal.

We conclude that there were no significant differences between the self-hypnosis group and the non self-hypnosis group in use of epidural analgesia, but there were a trend toward a lower frequency of emergency caesarean sections in the self-hypnosis group.

**References**

1. Werner, W., Schauble, P. & Knudsen, M., 1982. An argument for the revival of hypnosis in obstetrics. *American Journal of Clinical Hypnosis vol 24*, pp. 149-171.

2. Cyna, A. M., McAuliffe, G. L. & Andrew, M. I., 2004. Hypnosis for pain relief in labour and childbirth a systematic view. *British Journal of Anaestesia vol 4*, 26 July, pp. 505-511.

3. Smith, A., Collins, Cyna, A.M. & Crowther, C., 2008. Complementary and alternative therapies for pain management in labour. *Cochrane Database of Systematic Reviews - Issue 1*. 2008

4. Harmon, T., Hynan, M. & Tyre, T., 1990. Improved obstetric outcomes using hypnotic analgesia and skill mastery combined with childbirth education. *Journal of Consulting and Clinical Psychology vol 58*, pp. 525-30.

5. Vandevusse, L. et al., 2007. Hypnosis for Childbith: a retrospective comparative analysis of outcomes in one obstetrician's practice. *American Journal of Clinical Hypnosis*, October, pp. 109-119.

6. Landolt, A. S. & Milling, L. S., 2011. The efficacy of hypnosis as intervention for labour - A comprehensive methodological review. *Clinical Phychology Review vol 31*, 23 June, pp. 1022-1031.

7. Brown, D. C. & Hammond, D. C., 2007. Evidence-Based clinical hypnosis for obstetrics, labor and delivery, and preterm labor. *International Journal of Clinical and Experimental Hypnosis*, 55(3), pp. 355-371.

8. Cyna, A. M., Andrew, M. I. & McAuliffe, G. L., 2006. Antenatal self-hypnoses for labour and childbirth: a pilotstudy. *Anaesth Intensive Care*, August, pp. 464-469.

9. Mehl-Madrona, I. (2004) Hypnosis to facilitate uncomplicated birth. *American Journal of Clinical Hypnoses*. 46,299-312

10. Letts, P.J., Bakert. P R. A. Rudermann, J., Kennedy, K. 1993. *The use of hypnoses in labor and delivery.* Journal of Women´s Health 2. 335-341

11. Brander, D. & Beinder, E., 2007. The impact of epidural analgesia on birth experience. *Zeitung Geburtshilfe Neonatologie*, April, pp. 76-81.

12. Leighton, B. L. & Halpern, S. H., 2002. The effects of epidural analgesia on labor, maternal, and neonatal outcomes: A systematic review. *American Journal of Obstetrics and Gynecology, vol 186, issue 5*, pp. S69-S77.

13. Thorp, J. & Breedlove, G., 1996. Epidural analgesia in labor: an evaluation of risks and benefits.. *Birth*, 23 June, pp. 63-83.

1.  Have you had a bad experience with hypnosis?                    YES_____ NO_____

2.  Have you had a bad experience with a pregnancy/abortion?        YES_____ NO_____

3.  Are you afraid of dark rooms, or open spaces?                   YES_____ NO_____

4.  Do you have any other phobic reactions?                         YES_____ NO_____

5.  Have you had a bad or an unpleasant anesthetic experiences?     YES_____ NO_____

6.  Have you experienced drowning or other near death experiences?  YES_____ NO_____

7.  Have you lost someone close to you?                             YES_____ NO_____

8.  Have you had anxiety or panic attacks?                          YES_____ NO_____

9.  Do you now or have you previously had depressions?              YES_____ NO_____

10. Do you now or previously have eating disorders?                 YES_____ NO_____

11. Do you or have you had a neurological disease?                  YES_____ NO_____

12. Have you ever been sexually assaulted?                          YES_____ NO_____

13. Have you ever been exposed to other abuses?                     YES_____ NO_____

14. Have you been exposed to other traumatic events or suffer
    from post-traumatic stress disorder?                           YES_____ NO_____

15. Do you now or have you had an abuse of alcohol or narcotics?    YES_____ NO_____

16. Have you ever considered or attempted suicide?                  YES_____ NO_____

17. Have you ever been in contact with psychiatric system?         YES_____ NO_____

(Fig.1) Questionnaire used to assess mental eligibility
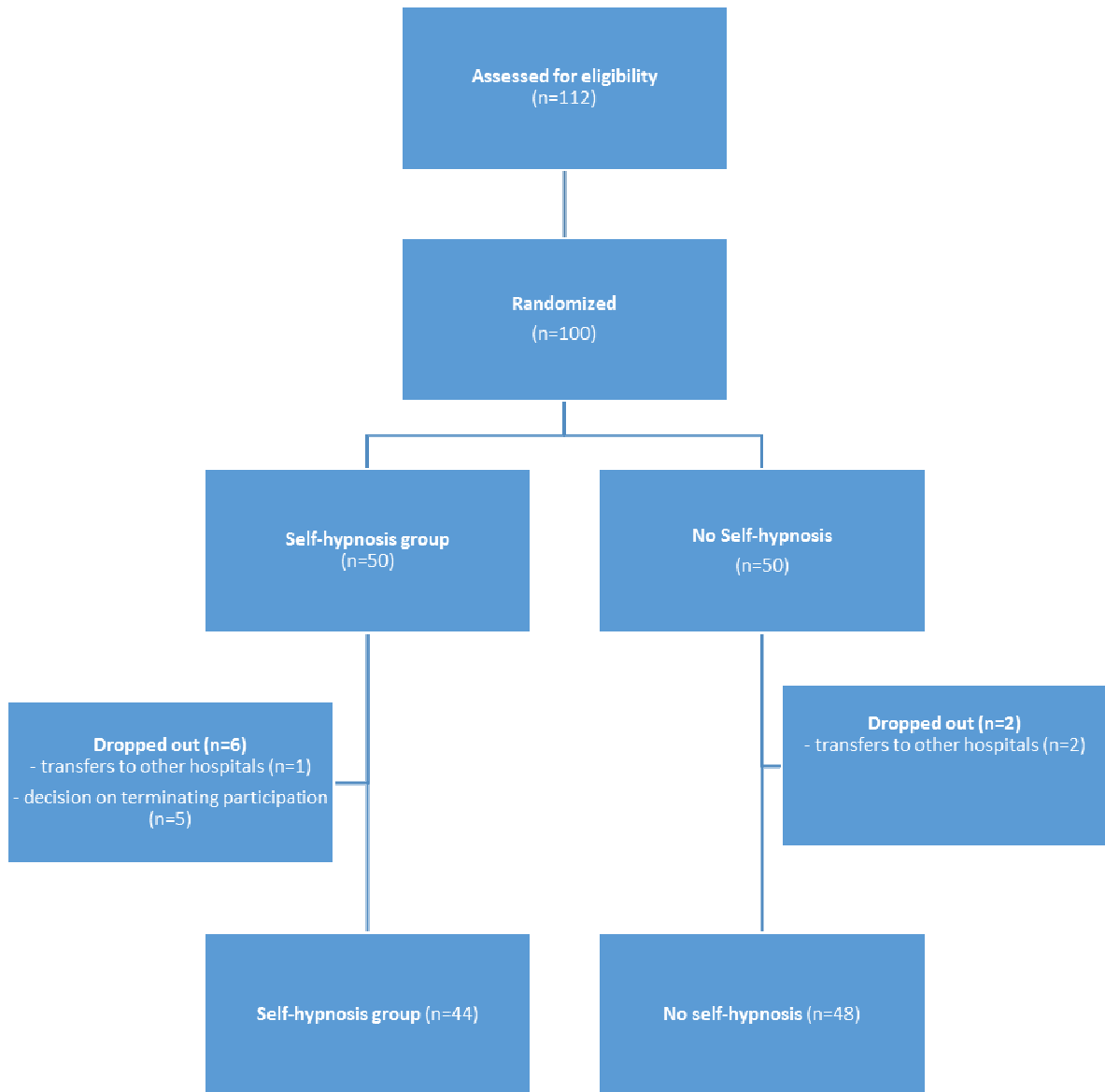
(Fig 2) Flow diagram of the study

| Table 1 | Hypnosis | | No hypnosis | | |
|---|---|---|---|---|---|
| | **N=44** | | **N=48** | | **P** |
| Epidural analgesia | 12/44 | (27%) | 14/48 | (29%) | 0.4 |
| Oxytocin augmentation | 27/44 | (61%) | 27/48 | (56%) | 0.89 |
| Vacuum extraction | 6/44 | (14%) | 13/48 | (27%) | 0.4 |
| Cesarean section | 4/44 | (9%) | 10/48 | (21%) | 0.09 |
| Apgar five minute score <7 | 2/33 | (6%) | 1/38 | (3%) | 1* |
| Cord artery blood pH <7,1 | 2/33 | (6%) | 5/39 | (13%) | 1* |
| Cord artery blood SBE > - 10 | 26/27 | (96%) | 27/31 | (84%) | 0,35* |
| Active labour > 18 h | 42/42 | (100%) | 45/45 | (100%) | - |
| Labour pain VAS < 5 | 35/ | 37(95%) | 24/31 | (77%) | 0.19 |

*Fisher's exact test*

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