

## PRETERM LABOUR AND CLINICAL HYPNOSIS

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### Abstract

Hypnosis may play an important role in reducing preterm labour for patients who have higher levels of psychosocial stress. This study examines the rate of late-preterm birth in a hypnosis group (directed to all women) and a historical control group. From July 2007 all women ( $n = 64$ ), who were in their 28<sup>th</sup> to 34<sup>th</sup> weeks' gestation, were offered self-hypnosis training using the hypnoreflexogenous protocol after Hüsken-Janßen and Schauble. Expectant mothers with uncertain anticipated days of delivery were excluded. All women who delivered after 31 weeks' gestation served as a control group ( $n = 2135$ ) from January 2006 till June 2007. In the hypnosis group there were three preterm deliveries (4.7%) (before 37 + 0 weeks' gestation) whereas in the control group there were 220 preterm deliveries (10.3%) ( $p = 0.01$ ). Average cigarette usage during the current pregnancy was lower in the hypnosis group ( $p = 0.02$ ). Higher work-educated employments ( $p = 0.01$ ), higher age of the mother ( $p < 0.001$ ) and fewer previous pregnancies ( $p < 0.03$ ) were found in the hypnosis group. Preterm birth correlated with the number of previous pregnancies ( $-0.38$ ;  $p < 0.001$ ) but not with smoking. Hypnosis was shown to be effective therapy without side-effects, which can reduce preterm delivery. This clinical study showed a significant prevention of preterm delivery. Prospective randomized controlled studies are required to evaluate fully the preventive value of clinical hypnosis. Copyright © 2009 British Society of Experimental & Clinical Hypnosis. Published by John Wiley & Sons, Ltd.

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**Key words:** clinical hypnosis, prevention of preterm birth, psychological support

### Introduction

Preterm birth is a major challenge for perinatal health care since most perinatal deaths and long-term neurological handicap occur in preterm infants (Tucker and McGuire, 2004; Goldenberg et al., 2008; Saigal and Doyle, 2008). Over the past 20–30 years the incidence of preterm birth in most developed countries has been about 5–7% of live births with a reported increase in the last years (Langhoff-Ross et al., 2006; Tracy et al., 2007; Goldenberg et al., 2008). The incidence of preterm delivery is about 12–13% in the United States (MacDorman et al., 2002; Hoyert et al., 2006; Goldenberg et al., 2008). Interventions to reduce the morbidity and mortality of preterm birth have been tertiary interventions, such as regionalized care, and treatment with antenatal corticosteroids,

tocolytic agents and antibiotics (Iams et al., 2008). In the United States late-preterm infants (34–36 weeks) have higher mortality rates and experience a higher incidence of respiratory distress syndrome, apnea, transient tachypnea of the newborn, hypoglycaemia, hypothermia, hyperbilirubinemia and feeding difficulties when compared with infants born at term (Tomashek et al., 2007).

Hypnotherapy has been used to treat a variety of medical and psychological problems (Revenstorf, 2001; Revenstorf, 2006), and has been conceptualized as making use of the bicameral nature of the brain and the conscious/unconscious process therein (Kossak, 1989; Gruzelier, 2000). Different to everyday neurophysiology, experimental evidence shows that the hypnotic process produces a brain state involving a specific temporal process (Gruzelier, 2000; Halsband, 2006).

Hypnosis not only significantly reduces the use of anaesthesia in the shorter first and second stages of labour (Revenstorf, 2001; Tomashek et al., 2007), but it can also play an important role in prevention of premature labour. Omer (1987) and others have shown that hypnosis combined with conventional pharmacologic therapy can significantly prolong the duration of pregnancies threatened by premature labour (Schwartz, 1963; Omer, 1987; Brown and Murphy, 1999; Brown and Hammond, 2007).

Preterm labour can be treated using hypnosis on several levels: a) control of psychosocial stress, b) education to be more aware of contractions, c) relaxation to reduce pharmacological side effects and muscle contractions, d) imagery focusing on a full-term, healthy infant, and e) social support (Mutale et al., 1991; Brown and Murphy, 1999).

Six cases have been reported where labour was stopped using hypnosis (Logan, 1963; Schwarz, 1963). A case-controlled study described hypnotic relaxation techniques that effectively prolonged pregnancy in a sample of 39 hospitalized patients for premature labour with 74 women, who served as a control. Ideomotor finger questioning was done and the rate of pregnancy prolongation was significantly higher in the hypnosis group (Brown and Murphy, 1999; Brown and Hammond, 2007).

Brown and Hammond (2007) reported that in spite of their knowledge that emotional factors were involved in each case, verbal reassurance and hypnotic relation made no difference. By incorporating the use of ideomotor search techniques in hypnosis the incidence of preterm birth dropped (Brown and Murphy, 1999; Brown and Hammond, 2007).

For the first time this study examines primary interventions (directed to all women) to reduce preterm birth using the hypnoreflexogenous protocol, a clinical hypnosis 'programme' developed by Hüsken-Janßen and Schauble (Schauble et al., 1998; Hüsken-Janßen, 2005; Reinhard et al., 2007).

## Study design

From July 2007 all expectant mothers who were in their 28<sup>th</sup> to 34<sup>th</sup> weeks' gestation were offered the opportunity to learn self-hypnosis free of charge using the hypnoreflexogenous protocol (Schauble et al., 1998; Hüsken-Janßen, 2005; Reinhard et al., 2007). In four group sessions of 1½ hours a maximum of 8 women were taught to enter a hypnotic state and then prepared for labour and delivery. After the second lesson every woman was given a CD to enable them to repeat the protocol at home. The women learned to use a 'conditioned reflex' effect, i.e. when the uterine contraction starts the hypnotic trance begins. In German some obstetric words have very negative implications, for example uterine contraction (German: 'Wehen') implicates (German: 'weh', 'It hurts').

These words with negative implications were cognitively restructured along with the removal of negative emotions. Through the imagination of the birth experience with hypnosis a reduction of anxiety levels regarding birth was observed.

The hypnometal birth preparation was presented in the monthly delivery suite provided for expectant mothers. On average 50 women attended the presentation and on average eight (16%) women agreed to participate in the free of charge hypnometal birth preparation.

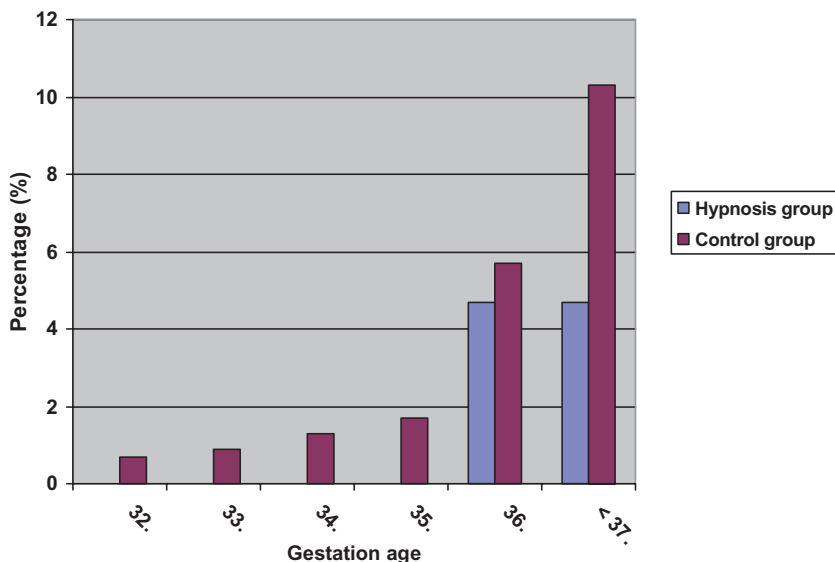
One expectant mother, who had irregular menstrual periods with no early ultrasound scan, had an uncertain expected day of delivery and hence was excluded from this study.

All patients from January 2006 till June 2007, who delivered after 31 weeks' and before 37 weeks' gestation, served as a control group ( $n = 2135$ ).

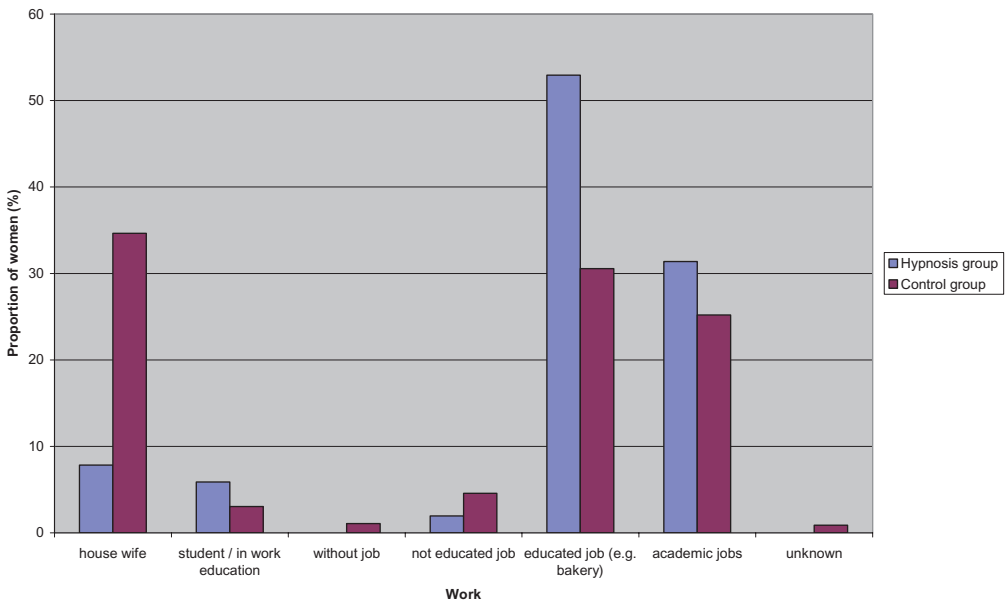
Statistical analysis was carried out using the SPSS software (Version 17.0). Non-parametric tests (Mann Whitney U-Test), parametric test (T-test) and correlation (Spearman-Rho) were used.

## Results

In the hypnosis group ( $n = 64$ ) there were three preterm deliveries (4.7%) (before 37 + 0 weeks' gestation) whereas in the control group ( $n = 2135$ ) there were 220 preterm deliveries (10.3%) (Mann Whitney U-Test  $Z = -2.56$ ,  $p = 0.01$ ; T-test  $p = 0.04$ , see Figure 1). The following factors were significantly different between the hypnosis and control groups: average number of cigarettes used daily during the current pregnancy was lower in the hypnosis group (Mann Whitney U-Test  $Z = -2.29$ ,  $p = 0.02$ ; T-test  $p = 0.001$ ); they had higher work-educated employments (Mann-Whitney-U-Test  $Z = -3.19$ ,  $p = 0.01$ ; T-test  $p = 0.001$ , Figure 2); higher age of the mother (Mann-Whitney-U Test  $Z = -4.43$ ,  $p < 0.001$ ; T-test  $p = 0.001$ ); and a lower number of previous pregnancies (Mann-Whitney-



**Figure 1.** Proportion of preterm birth in the hypnosis group ( $n = 64$ ) and control group ( $n = 2135$ ) depending on gestation age (last column total number of preterm births in each group (<37)).



**Figure 2.** Women's current work employment before delivery for the hypnosis group (n = 64) and the control group (n = 2135).

**Table 1.** Demographics of average number of cigarettes used daily, work-educated employments, age of the mother and number of previous pregnancies (mean  $\pm$  standard deviation)

	Hypnosis group (n = 64)	Control group (n = 2135)
Preterm labour	0.04 $\pm$ 0.21	0.12 $\pm$ 0.33
Average number of cigarettes/day	0.16 $\pm$ 0.75	1.68 $\pm$ 4.52
Work-educated employment	4.80 $\pm$ 1.46	3.72 $\pm$ 2.14
Age of the mother	33.8 $\pm$ 5.1	30.2 $\pm$ 5.6
Number of previous pregnancies	0.39 $\pm$ 0.67	0.97 $\pm$ 1.20

U Test  $Z = -2.20$ ,  $p < 0.03$ ; T-test  $p = 0.001$ ). There was no significant correlation between preterm birth and smoking (Spearman-Rho =  $-0.03$ ;  $p > 0.05$ ). Table 1 shows the demographics of the above mentioned calculations.

The mean gestation age at the beginning of the course was at 32 weeks of gestation in the hypnosis group. On average the women attended 3.1 sessions and listened 4.8 times to the CD. All participants would highly recommend the hypnosis course to her best friend with an average score of 1.5 (on a scale of 1 to 10; 1 = highly recommend, 10 = advice against participating).

## Discussion

Newton et al. (1979) showed that premature labour was far more common in women with higher levels of psychosocial stress. Hedegaard et al. (1993) investigated psychosocial stress and showed a strong association between distress and preterm delivery. In a prospective study Newton confirmed that there was a significant association between preterm

delivery and the experience of major life events ( $p < 0.001$ ) (Newton, 1989). A study of preterm deliveries and small size for gestation age indicated significant variables (previous preterm delivery, severe event and/or difficulty, and bleeding during pregnancy), however even after taking these factors into account, there was a further significant effect attributable to severe life events/chronic difficulties during pregnancy for the preterm group (Mutale et al., 1991). Copper et al. (1996) reported a score indicating high stress was significantly associated with spontaneous preterm birth (5.3% vs. 3.0%,  $p = 0.003$ ) and low birth weight (13.5% vs. 9.6%,  $p = 0.02$ ); no other psychosocial characteristic was significantly associated with spontaneous preterm birth, intrauterine growth retardation or low birth weight. Using the Pregnancy Psychological Attitudes Test, in relation to premature birth (PPAT(p)) the risk of premature birth increased from 1 to 1.5 when the PPAT(p) score increased one point (range 0–6;  $p < 0.001$ ) (Mamelle, Munoz and Collin, 1981). Williams et al. measured stressful life changes, social support and serious complications of pregnancy; this study showed a significantly higher rate of poor outcomes (neonatal death, transfer to a neonatal intensive care unit, birth weight less than 2500 g, or 5 minute Apgar score less than 7) in the third trimester when the life change score increased from the second to the third trimester (9.2% vs. 3.9%,  $p = 0.015$ ) (Williams, LeFevre and Hector, 1989). Even after controlling for demographic and standard obstetric risk factors, increasing stress still showed poor outcome.

Newton et al. (1979) showed that 43% of mothers who went to term had no major life events. Women who went into preterm labour had 67% major life events and 84% of patients whose babies were very preterm had major life events. Significantly more major life events occurred in the preterm than the term group ( $p < 0.02$ ), and the difference between the very preterm and the term groups was highly significant ( $p < 0.01$ ).

Mamelle et al. (1981) reported that a preterm delivery rate in a psychological support group was 12.3% versus 25.7% in the control group ( $p < 0.01$ ).

A decrease in fear, tension and pain before and during labour has been found using hypnosis (Schauble et al., 1998; Hüsken-Janßen, 2005; Reinhard et al., 2007). For more than a century hypnotic techniques have been used in pain control (Werner, Schauble and Knudson, 1982), however hypnotherapy can span the entire duration of pregnancy from the control and prevention of early nausea and vomiting through post partum depression and anxiety (Goldman, 1992). The term hypnoreflexogenous method combines the concept of conditioned reflex with hypnosis (Roig-Gracia, 1961). Throughout the training emphasis is put on imagery techniques to control and maintain a satisfying depth of hypnosis and to perform a normal physiological act of labour and delivery (Schauble et al., 1998; Hüsken-Janßen, 2005; Reinhard et al., 2007). Benefits of using hypnosis include a reduction of chemo-analgesia as well as fear, tension and pain before and during labour, control of painful uterine contraction, speedier recovery and fulfilled feeling of accomplishment (Schauble et al., 1998; Bobart and Brown, 2002; Hüsken-Janßen, 2005; Reinhard et al., 2007). Also a Cochrane review showed a benefit in pain control during labour including five hypnosis trials ( $n = 729$ ) (Smith et al., 2006).

## Summary and conclusions

Since the perinatal mortality and morbidity rates have greatly been reduced the value of prolongation of pregnancy beyond 34 + 0 weeks' gestation is currently under discussion (Newton, 1989; Tomashek et al., 2007). The current guideline of the German Society of Obstetrics and Gynaecology (DGGG) currently do not advise the use of tocolytics after 34 + 0 weeks' gestation (<http://www.dggg.de>). Our study showed that participating in

the hypnoreflexogenous hypnosis protocol significantly reduces the risk of late-preterm delivery, though the comparative group did not share the same socioeconomic background. It is not clear whether the reduced preterm delivery rates can be explained by the different demographics. To answer this question a prospective randomized controlled study (standard treatment plus hypnosis or attention control) of women admitted to hospital with cervix insufficiency or preterm uterine contraction has been approved by our ethics committee and will shortly start in our hospital. Hypnosis seems to be a new primary prevention therapy for reducing late-preterm delivery and is a side-effect free treatment option. Further randomized controlled trials are needed to verify the ability of clinical hypnosis to reduce early preterm birth (less than 32 weeks' gestation).

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