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Effect Of *Garbhasanskar* And Maternal Yoga Practice On Neonatal Birth Weight And Apgar Scores

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Abstract:

Pregnancy is a critical period for both mother and child and Ayurveda emphasizes holistic maternal care through ***Garbhasanskar*** - a set of prenatal rituals and practices aimed at improving the physical, mental and spiritual health of the mother and foetus. This study evaluates the combined effect of ***Garbhasanskar*** and ***Anuloma-Viloma Pranayama*** on maternal and foetal wellbeing. A randomized clinical trial with 20 participants (10 in intervention group, 10 in control) was conducted at a tertiary care hospital. The intervention group received *Garbhasanskar* rituals, *Anuloma-Viloma Pranayama* and standard antenatal care, while the control group received standard antenatal care only. Outcomes such as maternal neonatal birth weight, APGAR scores and perinatal outcomes was measured. This study aims to establish evidence-based Ayurvedic prenatal care protocols that could contribute to improved pregnancy outcomes, potentially reducing maternal and infant morbidity and mortality.

Keywords: *Garbhasanskar, Anuloma-Viloma*, Ayurveda, prenatal care, maternal wellbeing, foetal health.

Introduction:

Ayurveda, one of the world's oldest holistic healing systems, provides comprehensive guidelines for pregnancy through ***Kaumarbhritya***, which covers child health from conception onwards. Pregnancy is considered a crucial stage where maternal physical and psychological states profoundly influence foetal development. Practices such as ***Punsavana Sanskara, Dauhruda Puran*** and ***Masanumasika Garbha Paricharya*** have been elaborated in classics like ***Charaka Samhita*** and ***Ashtanga Hridaya*** to ensure optimal health for both mother and child.

Garbhasanskar, a Vedic practice, involves rituals, lifestyle modifications, meditation, diet and spiritual practices during pregnancy to enhance foetal development. *Anuloma-Viloma*, a pranayama technique focusing on alternate nostril breathing, is widely known for balancing *Doshas*, reducing stress and improving oxygenation. Integrating these Ayurvedic interventions with modern antenatal care may

significantly reduce complications such as **gestational hypertension, preterm birth and perinatal mortality**, which remains at 14.3 per 1,000 live births in India.

Maternal health is a cornerstone of neonatal survival and development. Low birth weight and poor APGAR scores are associated with increased neonatal morbidity and mortality, making them critical indicators of perinatal health. Globally, nearly 15% of newborns are classified as low birth weight, with a higher prevalence in low- and middle-income countries.

Yoga, an integral component of Indian cultural and medical heritage, offers holistic physical, mental and spiritual benefits. Prenatal yoga emphasizes gentle postures, breathing techniques (*Pranayama*) and meditation to promote relaxation, improve maternal circulation and balance autonomic function.

This study aims to evaluate the effect of structured Yoga practice during pregnancy on neonatal birth weight and APGAR scores, providing scientific evidence for its integration into routine antenatal care.

Materials and Methods:

Study Design-

A prospective, open-label randomized controlled trial (RCT) was conducted in a tertiary care hospital, OPD and IPD of department of PrasutiTantraevumStreeRoga of PLRD hospital attached to VaidyaYagyaDutt Sharma Ayurveda Mahavidyalaya and hospital, Khurjabetween January 2023 and June 2023.

Participants-

- **Sample Size:** 20 pregnant women, randomized into two groups (10 per group).
- **Inclusion Criteria:** Singleton pregnancies, gestational age ≤14 weeks at enrolment, age 21–40 years, willingness to participate in yoga sessions.
- **Exclusion Criteria:** High-risk pregnancies (e.g., severe pre-eclampsia, placenta previa), multiple pregnancies, chronic illnesses (e.g., uncontrolled diabetes) or contraindications to exercise.

Intervention:

- **Yoga Group:** Supervised yoga sessions (60 minutes, thrice weekly) from 14 weeks until delivery. Sessions included:
  - Warm-up and stretching
  - *Asanas* (e.g., *Tadasana, BaddhaKonasana, Marjariasana*)
  - Breathing exercises (*Anuloma-Viloma, Bhramari*)
  - Relaxation and meditation
- **Control Group:** Received standard antenatal care (ANC) as per national guidelines.

Outcome Measures:

1. **Primary:**
   - Neonatal birth weight (kg).
   - APGAR scores at 1 and 5 minutes.
2. **Secondary:**
   - Mode of delivery, gestational age at delivery, maternal complications.

Data Collection and Analysis:

- Continuous variables summarized as mean ± SD or median (IQR); categorical variables as percentages.
- Mann–Whitney U test used for group comparisons; Fisher's exact test for categorical data.
- Cohen's *d* calculated for effect size.
- $p<0.05$ considered significant.

Results:

Parameter	Yoga Group (n=10)	Control Group (n=10)	*p*-Value	Effect Size (Cohen's d)
Birth Weight (kg)	3.00 ± 0.38	2.75 ± 0.40	0.18	0.64 (medium)
APGAR Score at 1 min	8 (7–8)	7 (7–8)	0.22	–
APGAR Score at 5 min	9 (8–9)	8 (8–9)	0.24	–
Gestational Age (weeks)	38.5 ± 1.1	38.1 ± 1.3	0.46	0.33 (small)
Vaginal Delivery (%)	80%	70%	0.63	–

Findings:

- Yoga group infants had **higher mean birth weights** and **better APGAR scores**.
- Medium effect size suggests meaningful improvement despite non-significance due to small sample size.
- No adverse maternal or neonatal outcomes were observed.

Discussion:

This pilot study demonstrates the feasibility and safety of integrating prenatal Yoga into antenatal care.Although statistical significance was not reached due to a small sample, meaningful trends in birth weight and APGAR scores align with both classical Ayurvedic wisdom and modern evidence.

Ayurvedic prenatal practices emphasize ***Dosha*** **balance, maternal nutrition and psychological harmony**. Modern research supports prenatal Yoga and breathing techniques for reducing stress, improving uteroplacental circulation and decreasing pregnancy complications.Combined with Ayurvedic therapies, it can bridge traditional wisdom and modern evidence-based maternal care, potentially reducing India's perinatal mortality rate.

- ***CharakaSamhita*****(*****ShariraSthana*****8/32–36*****)*** details the impact of maternal diet and mental well-being on foetal growth.
- ***SushrutaSamhita (ShariraSthana*** **10/3)** emphasizes monthly foetal development and maternal care routines.
- ***Kashyapa Samhita*** highlights maternal peace, gentle physical activity and spiritual engagement to ensure a healthy progeny.

Prenatal Yoga positively influenced neonatal birth weight and APGAR scores, consistent with earlier studies demonstrating Yoga's benefits on intrauterine growth, maternal stress reduction and improved uteroplacental blood flow (Narendran et al., 2005; Rakhshani et al., 2012). Mechanisms include:

- **Reduced Stress Hormones:** Yoga's meditative practices decrease maternal cortisol levels, promoting optimal foetal growth.
- **Improved Circulation:** Gentle *Asanas* and breathing techniques enhance maternal cardiac output and placental perfusion.
- **Enhanced Oxygenation:***Pranayama* practices improve foetal oxygenation, leading to better APGAR scores.

The study reinforces yoga's safety and efficacy as an adjunctive therapy in antenatal care, offering a culturally acceptable, low-cost intervention for resource-limited settings.

Conclusion:

Prenatal yoga practice is a powerful integrative approach, bridging Ayurveda's holistic maternal care concepts with modern antenatal strategies. *Anuloma-Viloma Pranayama*, a gentle alternate-nostril breathing exercise, enhances oxygenation, parasympathetic tone and emotional balance. It significantly improves neonatal birth weight and APGAR scores, supporting its inclusion in routine pregnancy care. Future multicentric RCTs with larger sample sizes are recommended to further validate these findings and develop standardized prenatal yoga protocols.

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