

TITLE: Effect of Yoga (Shankh Prakhshalana) on Liquid Gastric Emptying Pattern Measured By Real Time Ultrasound

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ABSTRACT BODY:

Purpose: Originated in India, more than 2500 years ago, Yoga is now in widespread practice throughout the United States. Shankh Prakhshalana is a Yogic process intended to clean the bowel using lukewarm saline water and specific sets of yoga postures (Asanas). Using this Yogic method to clean the colon, we reported the efficacy similar to Polyethylene glycol based colon prep with an average prep time of 101 minutes. We postulate that Yoga postures in Shankh Prakhshalana, modify the gastric configuration and gastric emptying leading to faster gastric emptying and faster colon lavage.

Methods: After six hours of fasting, gastric emptying pattern analysis was done in 10 (5 males, 5 females) healthy volunteers. The protocol was approved by IRB at WHMC. All ultrasound measurements were done by a well trained technician. The volunteers drank 480mL of lukewarm saline in a bolus form (1-2 minutes). Gastric antral ultrasounds were done - Baseline, immediately after intake and at 10, 20 and 30 minutes interval. On a different day, the process was repeated with Asanas performed in between intervals. Return to the baseline surface area and/ or appearance of gas shadow in the antrum were used as a secondary guideline for complete emptying. The results were expressed as percentage change in the surface area of gastric antrum from antral surface area measured at immediately after intake.

Results: The percentage decrease in the surface area of gastric antrum at 10, 20 and 30 minutes from immediately after intake were - (minus)1.44, 32.83, 51.14 without Asanas and 23.47, 42.26, 58.69 with Asanas. The major difference in gastric antral surface area was evident at first 10 minutes - increased in non Yoga group as compared to decrease in the Yoga group. Gastric emptying patterns in males was faster than females. One patient showed paradoxical effect and is not included in this analysis.

Conclusion: The Yoga allowed normal saline to pass gastric antrum without accumulation, leading to faster emptying. Bolus intake of normal saline itself makes the gastric emptying process faster (first order kinetics) and it was further enhanced by these Asanas. This may explain the faster colon preparation in bolus lukewarm saline Yogic method of colon cleaning.