

## Documents

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**The effects of different postures and provocative swallow materials on the normative Chicago 3.0 metrics in a healthy Asian population**

(2021) *Journal of Gastroenterology and Hepatology (Australia)*, 36 (5), pp. 1244-1252. Cited 1 time.

DOI: 10.1111/jgh.15284

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**Abstract**

Background and Aim: Variations in the Chicago 3.0 normative metrics may exist with different postures and with different provocative swallow materials in a healthy Asian population. Method: Eligible healthy Malay volunteers were invited to undergo the high-resolution esophageal manometry (inSIGHT Ultima, Diversatek Healthcare, Milwaukee, WI, USA). In recumbent and standing positions, test swallows were performed using liquid, viscous, and solid materials. Metrics including integrated relaxation pressure 4 s (IRP-4 s, mmHg), distal contractile integral (DCI, mmHg s cm), distal latency (DL, s), and peristaltic break (PB, cm) were reported in median and 95th percentile. Results: Fifty of 57 screened participants were recruited, and 586 saline, 265 viscous, and 261 solid swallows were analyzed. Per-patient wise, in the recumbent position, 95th percentile for IRP-4 s, DCI, DL, and PB were 16.5 mmHg, 2431 mmHg s cm, 8.5 s, and 7.2 cm, respectively. We observed that with each posture, the use of viscous swallows led to changes in DL, but the use of solid swallows led to more changes in the metrics including DCI and length of PB. Compared with a recumbent posture, an upright posture led to lower IRP-4 s and DCI values. Both per-patient analysis and per-swallow analyses yielded almost similar results when comparing the different postures and types of swallows. No major motility disorders were observed in this cohort of asymptomatic population. However, more motility disorders were reported in the upright position. Conclusions: Variations in metrics can be observed in different postures and with different provocative swallow materials in a healthy population. The normative Chicago 3.0 metrics are also determined for the Malay population. © 2020 The Authors. *Journal of Gastroenterology and Hepatology* published by Journal of Gastroenterology and Hepatology Foundation and John Wiley & Sons Australia, Ltd

**Author Keywords**

Asian; body position; Chicago classification; high-resolution esophageal manometry; Malay; solid; viscous

**Index Keywords**

adult, article, Asian, cohort analysis, controlled study, esophagus, female, human, Illinois, leisure, major clinical study, Malay (people), male, manometry, recumbency, standing, Asian continental ancestry group, body position, esophagus, Malaysia, manometry, muscle contraction, normal human, peristalsis, physiology, procedures, swallowing, young adult; Adult, Asian Continental Ancestry Group, Cohort Studies, Deglutition, Esophagus, Female, Healthy Volunteers, Humans, Malaysia, Male, Manometry, Muscle Contraction, Peristalsis, Posture, Young Adult

**Funding details**

UKM FPR.4/244/FF-2015-306

Universiti Sains Malaysia304/PPSP/61313083

**Funding details**

We acknowledged the short-term research grant from Universiti Sains Malaysia (reference no: 304/PPSP/61313083), Hospital Canselor Tuaku Muhriz (reference no: UKM FPR.4/244/FF-2015-306), and the Malaysian Society of Gastroenterology & Hepatology (reference no: MSGH Research Project 2016). Financial support:

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**Publisher:** Blackwell Publishing

**ISSN:** 08159319

**CODEN:** JGHEE

**PubMed ID:** 33002243

**Language of Original Document:** English

**Abbreviated Source Title:** J. Gastroenterol. Hepatol.

2-s2.0-85092655294

**Document Type:** Article

**Publication Stage:** Final

**Source:** Scopus

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