

# ACUTE EFFECT OF A SINGLE HIGH-FAT MEAL ON FOREARM BLOOD FLOW, BLOOD PRESSURE AND HEART RATE IN HEALTHY MALE ASIANS AND CAUCASIANS: A PILOT STUDY

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**Abstract.** Research has shown that ingestion of a single high-fat (HF) meal causes postprandial lipemia and produces a reduced brachial artery blood flow response to vascular occlusion in Caucasians. However, the forearm BF response to occlusion in Caucasian and Asian populations after a single HF meal has not been compared. Eleven healthy male Asians, mean age 26.4 ( $\pm 4.2$ ) years, height 174.2 ( $\pm 7.4$ ) cm, and weight 73.8 ( $\pm 5.7$ ) kg and eight Caucasians, mean age 26.8 ( $\pm 4.6$ ) years, height 182.9 ( $\pm 5.9$ ) cm, and weight 82.8 ( $\pm 4.8$ ) kg were studied. A randomized cross-over study design was used with a HF (50.1 g total fat) or low-fat (LF) (5.1 g total fat) test meal 1 week apart. Forearm blood flow was measured over a 2-minute period following a 4-minute occlusion (FBFO) at 2 and 4 hours following ingestion of a test meal. This study found that FBFO was significantly attenuated in Asians (19.3%;  $p=0.09$ ) compared to Caucasians after the ingestion of a HF meal. When comparing LF vs HF meals in Asians, the FBFO were 336.9 ml/100 ml tissue/minute and 240.8 ml/100 ml tissue/minute, respectively ( $p=0.02$ ), whereas in Caucasians, the FBFO were 344.8 ml/100 ml tissue/minute and 287.4 ml/100 ml tissue/minute, respectively. It appears Asians have a more sensitive response to a single HF meal which may be explained, in part, by genotypic variation. These findings suggest that a single HF meal may contribute to the detrimental effects on vascular health in Asian males and raises speculation regarding the cumulative impact of a chronic HF diet in this population.

**Key words:** high-fat meal, forearm blood flow, ethnicity

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