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## Assessment of Vascular Function throughout the Menstrual Cycle

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Fluctuating sex hormones throughout the menstrual cycle, particularly endogenous estrogen, have been documented to correspond with nitric oxide (NO) bioavailability and likely have a cardioprotective effect in premenopausal women. However, the corresponding temporal changes in vascular function are not entirely understood. Passive leg movement (PLM) is a relatively novel technique assessing NO-mediated vascular function, with a higher degree of NO-dependence than the traditionally used flow-mediated dilation (FMD) technique that could provide additional insight. **PURPOSE:** To assess vascular function throughout the menstrual cycle in premenopausal women using PLM, in addition to FMD. **METHODS:** Assessment of vascular function via PLM and FMD was performed on 10 apparently healthy, young, eumenorrheic women at three phases of the menstrual cycle: early follicular (EF) (1–3 days post onset of menstruation), ovulatory (OV) (within 2-3 days of luteinizing hormone surge determined by ovulation test), and midluteal (ML) (8–10 days post-ovulation). Hemodynamics and artery diameters were measured using ultrasound Doppler. **RESULTS:** Brachial artery FMD tended to be increased during the OV phase (9.4±1%) compared to the EF (8.2±1%) and ML (7.8±1%) phases. There were no significant differences in PLM responses throughout the menstrual phases ( $\Delta$ peak leg blood flow EF: 390±45 mL/min, OV: 228±36 mL/min, and ML: 287±72 mL/min). **CONCLUSION:** These findings support the importance of menstrual cycle when interpreting vascular function data as measured by FMD. Surprisingly, the PLM responses do not appear to be influenced by menstrual cycle phase but additional data are needed.