

Effects of Impaired Peripheral Vision on Running

ARIANA G. WEEKS, JIMMY C. SMITH, and SCOTT P. MCLEAN

Human Performance Laboratory; Department of Kinesiology; Southwestern University;
Georgetown, TX

Category: Undergraduate

Advisor / Mentor: McLean, Scott (mcleans@southwestern.edu)

ABSTRACT

The extent to which peripheral vision is used in the control of gait is not well understood. **PURPOSE:** To investigate the effect of impairing peripheral vision on gait characteristics and running economy. **METHODS:** Twelve college students (20.3±1.2yrs, 73.5±13.1kg, 177.6±13cm) able to complete a 5K in 31 min or faster were asked to participate in this study. After providing informed consent, participants ran on a treadmill at 6 mph until steady state VO₂ was achieved for a minimum of two minutes. During the final minute of running, VO₂, heart rate and heel contact times were recorded. This test was completed under two vision conditions, no impairment and impaired peripheral vision (through the use of modified eyewear). During a subsequent session, participants completed a 600 m run at preferred speed on a 200m track under both visual conditions during which lap times were recorded. Paired t-tests were used to compare data between vision conditions. **RESULTS:** Steady state VO₂ decreased by 2% ($t_{(11)} = -1.81$, $p = .097$) when peripheral vision was impaired (32.6 ±2.2 ml/kg/min) compared to no vision impairment (33.2 ±2.5 ml/kg/min). This difference was characterized by a moderate effect size. Vision impairment had little effect on heart rate or stride rate variability. Furthermore, when participants were allowed to run at their preferred speed, vision impairment had little effect. **CONCLUSION:** Impairing peripheral vision minimally altered running gait suggesting that motor control of running gait must rely more on focal vision and other proprioceptive input.