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**Field and laboratory correlates of performance in competitive cross-country mountain bikers.**

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We designed a laboratory test with variable fixed intensities to simulate cross-country mountain biking and compared this to more commonly used laboratory tests and mountain bike performance. Eight competitive male mountain bikers participated in a cross-country race and subsequently did six performance tests: an individual outdoor time trial on the same course as the race and five laboratory tests. The laboratory tests were as follows: an incremental cycle test to fatigue to determine peak power output; a 26-min variable fixed-intensity protocol using an electronically braked ergometer followed immediately by a 1-km time trial using the cyclist's own bike on an electronically braked roller ergometer; two 52-min variable fixed-intensity protocols each followed by a 1-km time trial; and a 1-km time trial done on its own. Outdoor competition time and outdoor time trial time correlated significantly ( $r = 0.79$ ,  $P < 0.05$ ). Both outdoor tests correlated better with peak power output relative to body mass (both  $r = -0.83$ ,  $P < 0.05$ ) than absolute peak power output (outdoor competition:  $r = -0.65$ ; outdoor time trial:  $r = -0.66$ ; non-significant). Outdoor performance times did not correlate with the laboratory tests. We conclude that cross-country mountain biking is similar to uphill or hilly road cycling. Further research is required to design sport-specific tests to determine the remaining unexplained variance in performance.