INTRODUCTION:
Coggan and Allen have sold 100,000 copies of their cycling manual “Training and racing with a power meter”. This textbook introduces the “Functional Threshold Power” (FTP) test and the commensurate FTP measurement. FTP purportedly reflects sustainable power output in a “quasi-steady state” for approximately 60-min without fatiguing. However, the test has not been validated nor proven reliable. The juxtaposition of an invalidated “scientific test” being embraced by a large number of cyclists creates a chasm between sport science and sport in-vivo. Models for power using a hyperbolic model to predict a “fatigueless power” as the asymptote of a curvature constant have stressed that duration is actually limited to about 30-min (Poole et al. 2016). The purpose of this investigation was initially to determine the repeatability of the FTP test. Thereafter, to assess validity of computed FTP (cFTP) against estimates of lactate threshold and the assertion that cFTP could be maintained for 60-min in a quasi-steady state (60min TT).

METHODS:
Participant were highly trained male and female cyclists and triathletes (n=13). Four non-randomised exercise tests were completed on a Wattbike across successive weeks. Test one comprised a 3-min incremental test to volitional exhaustion to compute Dmax (Cheng et al. 1992), and TLac using a double linear regression model (Beaver et al. 1986). Sequentially, two 20-min FTP tests were completed and FTP calculated (cFTP1 and cFTP2, respectively). Lastly, participants were tasked with sustaining their cFTP2 power for 60-min.

RESULTS:
The 95% limits of agreement (LoA) between cFTP1 and cFTP2 test were deemed acceptable (+15 to -20 W, mean bias 2 W, ICC=0.98 and %TEM of 2.4%). The 95% LoA between load at Dmax and TLac with cFTP1 extrapolated to +46 to -10 W, mean bias 18 W, ICC = 0.85 and %TEM of 6.5% and +78 to -46 W, mean bias 16 W, ICC = 0.74 and %TEM of 9.2%, respectively. These disparities were considered unacceptable, despite ANOVA failing to detect significance (P > 0.05) between variables. The 60min TT was successfully completed by 12 of 13 participants assessed at a load equivalent to their cFTP.

CONCLUSION:
Comparing c FTP1 with the Dmax and TLac would intimate that cFTP may be a proxy substitute. However, the effectiveness of Dmax or TLac to predict 60minTT should be questioned. We suggest that in highly trained athletes cFTP is a superior predictor for 60mTT than either Dmax or TLac. However, based on physiological measures recorded during testing, cFTP should not be used as a stand-alone pivot for exercise prescription.