

Power to the People!

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Once upon a time (when I started cycling in the 1970's) a bicycle speedometer was considered an invaluable training tool, then in the 1980's POLAR evolved the way cyclists trained with their development of the wireless heart rate monitor (the PE3000). Subsequently in the 1990's Ulrich Schoberer commercialised the SRM power meter and it could be said, dually revolutionised cycling training.

Twenty five years on from my first amazing encounter with an SRM power crank in a University laboratory, we are surrounded by a plethora of bicycle power meters, smart trainers and training apps which literally turn the bicycle into a mobile sports science laboratory. Indeed monitoring training and racing power has become ubiquitous amongst professional cyclists, and as the technology has developed (and costs reduced) power meters are increasingly found at amateur and even novice competitive levels. Almost every racing cyclist I talk to nowadays uses terms such as functional threshold power (FTP) or 20 minute MMP! I am convinced that within the next decade almost all racing bicycles will come equipped with power meters of some kind as standard equipment.

The advances in power meter technology will undoubtedly provide some exciting opportunities for the sports researcher. The increasing level of accuracy and reliability of power meters will allow us to better elucidate the small changes in performance that matter to competitive cyclists. Furthermore, before too long, I expect to see researcher's making more use of actual computer simulated races (similar to Clark et al 2014) to test research interventions or better still move outside of the laboratory and improve the ecological validity of their work by monitoring race performance itself.

There is little doubt that power measuring devices can provide valuable feedback on a cyclist's capabilities and training advancement (Passfield et al. 2016). However, I believe that sports scientists and coaches still have plenty to learn (and research) about how to effectively use power meters to enhance rider performance. In many instances, there remains a disconnection between the numbers that a rider can produce and how they perform in a racing situation. Certainly, you need to be able to produce good numbers to perform well (much like you need a good VO₂max), but there is so much more to winning a bicycle race than just having a high MMP. Interestingly several top professional cyclists have suggested power meters be outlawed in competition, arguing that they make racing too controlled and predictable. While I am sure that riders refer to their power meters at times during a race I doubt very much

that they ride to specific numbers. To win a race like the Tour de France requires strong mental fortitude, tactical knowledge, bike handling skills and just a small amount of luck Suffice to say I expect power meters are here to stay and we will be seeing much more individual power data available to view during live TV broadcasts. Notwithstanding the privacy issues and ethical dilemmas involved in broadcasting athlete data (Zabala & March 2015), I for one look forward to seeing the information laid bare for all to see and scrutinise.

Finally let everyone praise the emergence of the power measuring smart trainer and the accompanying online apps such as Zwift, BKOOL, Trainer road, and my current personal favourite Bigring VR. Now you can spend those long and dark winter evenings (in the northern hemisphere at least) racing your friends from down the road or on the other side of the world, all from the comfort of your own home...truly marvellous. If you don't have a Smart trainer of Power-meter yet add one to your Christmas present list, I guarantee your training will improve and you'll be ready for spring with a much higher level of fitness than usual. You never know you may even get a professional cycling contract out of your virtual reality training similar to kiwi cyclist Ollie Jones. Jones recently signed a contract to race for Team Dimension data after completing 6 weeks of simulated training and racing using the Zwift Academy platform... I hope that Ollie can reach beyond just his numbers from the power meter into a successful cycling career.

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Conflict of interest

The author declares that he has no conflict of interests concerning the content of this study

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