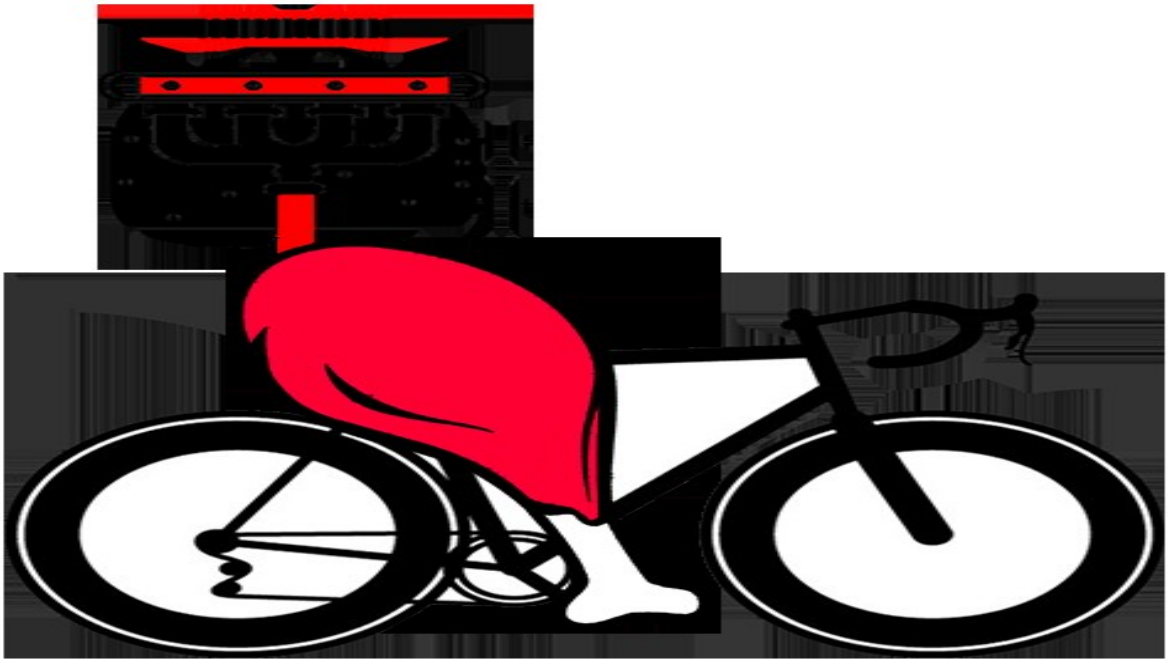


Meat Motor Sheds Light On Time Trial Pacing

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Meat Motor, a website dedicated to cycling and sports science, recently published an article for triathletes and time trial cyclists seeking to optimize their time trial speed. Meat Motor was created (and is maintained) by Jordan Fowler, a cycling enthusiast who is equally enthusiastic about the science behind cycling and wishes to share the knowledge he has gathered.

The new article, available on the Meat Motor website, discusses time trial pacing power. As the article shares, triathletes and time trial cyclists will have often heard pacing strategies such as, ?Push more into a hill or a headwind,? or, ?Make sure you negative split.? While these words of wisdom are not without foundation, it is important to understand what the data says. For instance, athletes should question whether surging into a higher aerobic zone or even into an anaerobic zone will optimize cycling performance. Similarly, they could explore whether starting fast or negative splitting would help more. The article delves into the subject to find a definitive answer using science.

The article points to a recent scientific study that examined how variations in cycling power output over different race distances can impact performance times. In the study, researchers used a mathematical model that simulated a 70 kg cyclist riding a 10 kg bike to calculate the performance times for distances between 4 to 40 km with average power outputs of 200 to 600 watts. They also looked at how power fluctuations of 5 to

15% of the average power and frequencies of 2 to 32 power changes per race affected the times. They compared the impact of going out hard at the start (fast-start strategy) versus keeping a steady power (constant-power strategy).

The study found that, for short 4 km races, varying power by up to 15% improved performance times by up to 0.90 seconds. However, for longer distances of 16.1 km up to 40 km, power variations of 15% slowed the modeled race times by 3.29 to 10.43 seconds compared to a steady power output. In other words, the more and bigger the changes in power were during the longer races, the worse the finishing times became.

The study?s conclusions show that endurance athletes should aim for stable power outputs during longer races to ensure that they have the best performance. Having an initial boost or surges may help during shorter events, but for longer events and endurance events ? especially as the race distance increases ? it can be very useful to minimize power fluctuations as this can result in optimal performance. Scientifically, this is the best way to conserve energy and minimize fatigue while generating the fastest speed across the course. As the article puts it: in simpler terms, for maximal speed, the longer the race, the less variation in your power output. In a shorter time trial, varying power is a more effective strategy. In the article on Meat Motor?s website, the full study is available with additional data.

Jordan Fowler of Meat Motor has been an athlete for most of his life. He started cycling on a Raleigh Tri-Technium Scott Tinley aluminum-framed bike in 1988. As a track athlete and swimmer, he also coached a group of distance runners in Texas and was head coach of the Frisco, TX swim team in the early 1990s. This naturally led to him competing in triathlons in his early 20s, a time before power meters and heart monitors were prevalent, and he developed an interest in learning more about how to optimize speed and go faster. Despite the lack of the internet as it is now, he was committed to finding and learning as much as he could.

His passion for cycling and sports science continues to this day. He has tried all kinds of cycling events, and has done numerous centuries, a few crits, and other races. His forte is the 12 Hour Ultra. He continues his search for data-driven methods to optimize speed and shares his learnings and interesting studies he comes across with others via Meat Motor.

Anyone interested in learning more about cycling and the science behind cycling and other endurance sports should visit the Meat Motor website where Jordan Fowler breaks down the science behind varying aspects of cycling. Fowler also encourages cycling enthusiasts and other interested parties to get in touch with him directly for any other questions or concerns. Meat Motor also has a presence on social media, including Facebook and Twitter.

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For more information about Meat Motor, contact the company here:Meat MotorJordan Fowler8178891487jordan@meatmotor.com11536 Twining Branch CrHaslet, TX 76052

Meat Motor

Breaking down sports science studies to help you become a faster cyclist and endurance athlete.

Website: https://meatmotor.com

Email: jordan@meatmotor.com

Phone: 8178891487

