



Train and race smart(er)  
with Power and Nutrition



**THERE ARE**

**#NOSHORTCUTS**

**sis**

**SCIENCE  
IN SPORT**







Phil Graves



Shadrack Biwott



Lauren Dolan



Crystal Spearman



The Brownlees



3 in Kona

## Forth Edge Profiling





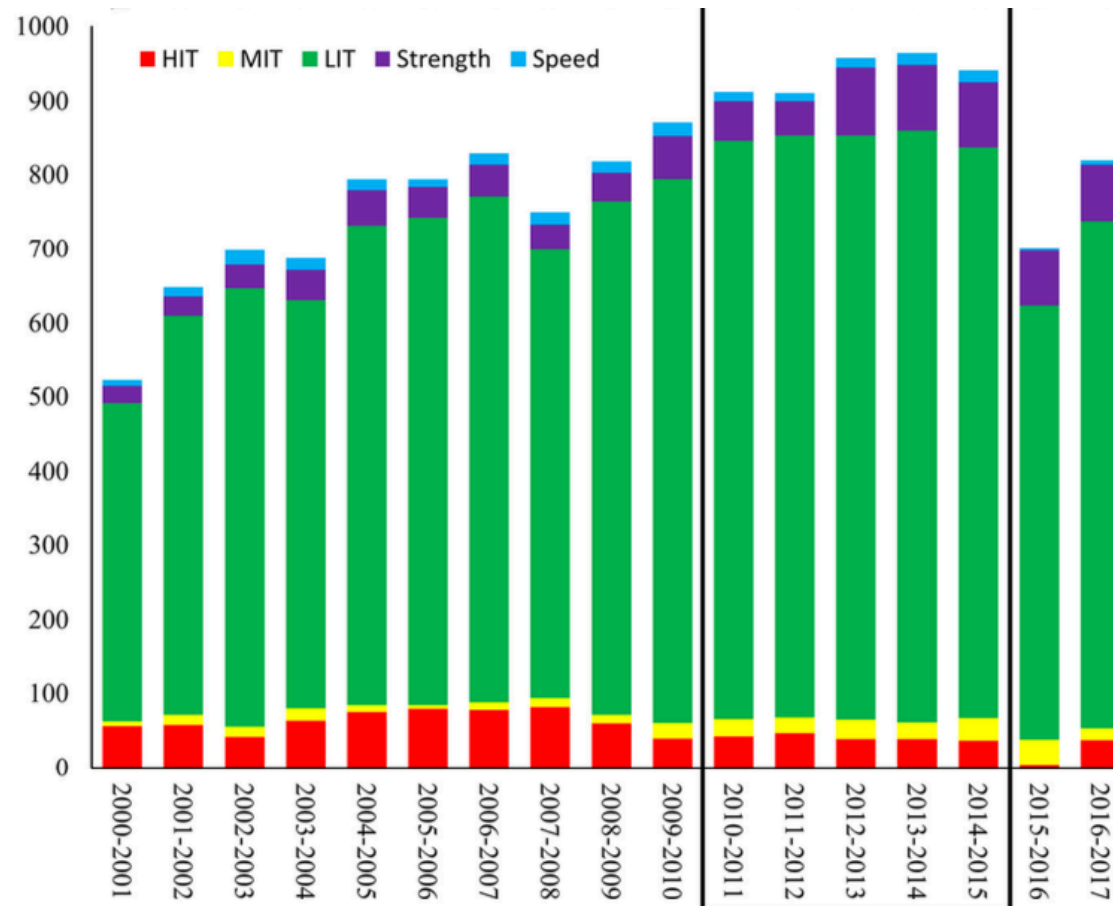


# Training

## 1st Rule of Smarter Training

**Base level must be 75-90% of time**

# Just look at the green bit!



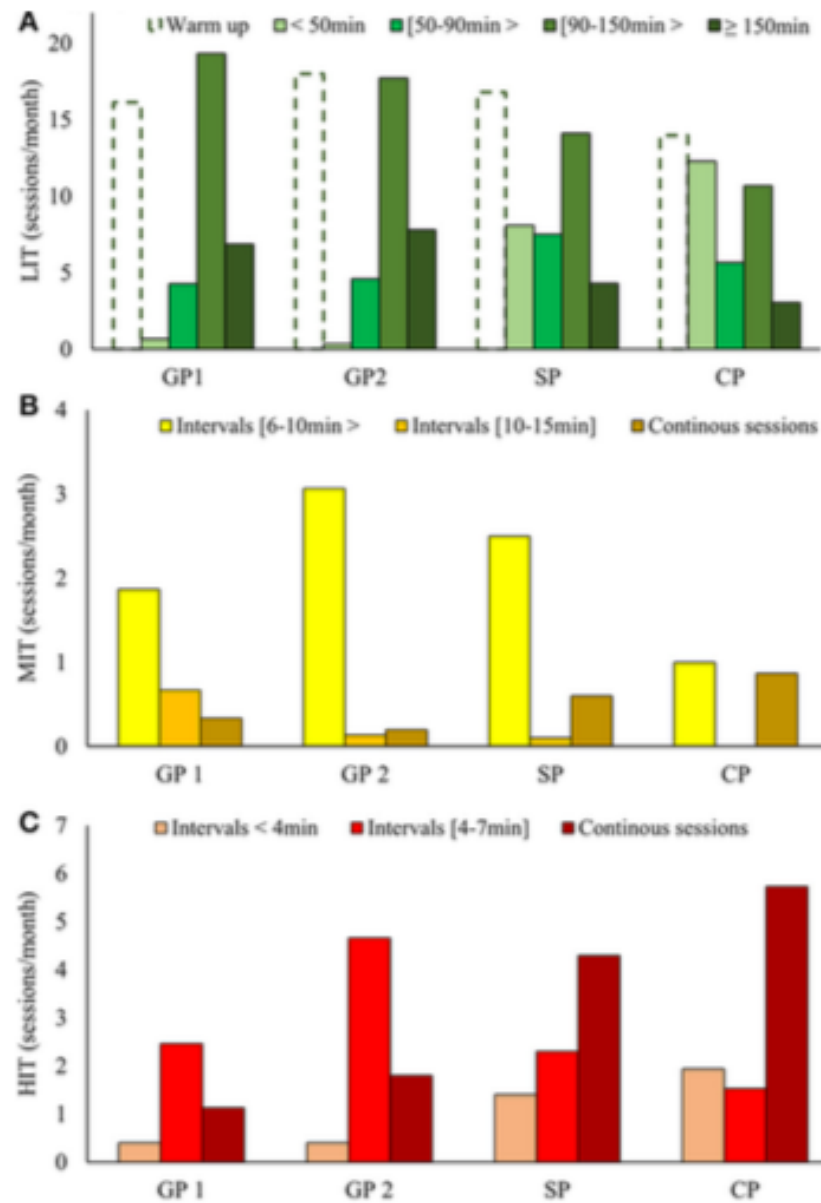
2nd Rule of Smarter Training

**Quality must be planned**

- **Only add HIT if required e.g. a “HIT-limited” A goal**  
Enjoy the ZI and you will get 90% of your peak fitness - for many HIT is better left as strength training
- **Only HIT once Low Intensity Training (LIT) is topped-off**  
Z2 “lapses of concentration” come out of your 20% HIT allowance  
You may be “HIT” too many days/week already (**2-3 is optimum**)
- **Plan High Intensity Training (HIT)**  
Such as the proven 2/wk: 6 x 4' @ 88-90%HR (+RI of 2 - 4')  
This is very potent over a 4 to 6/8 week period.

# NEW EVIDENCE

Solli et al (2017) Training Characteristics of *Worlds Most Successful Female XC Skier*





3rd Rule of Smarter Training

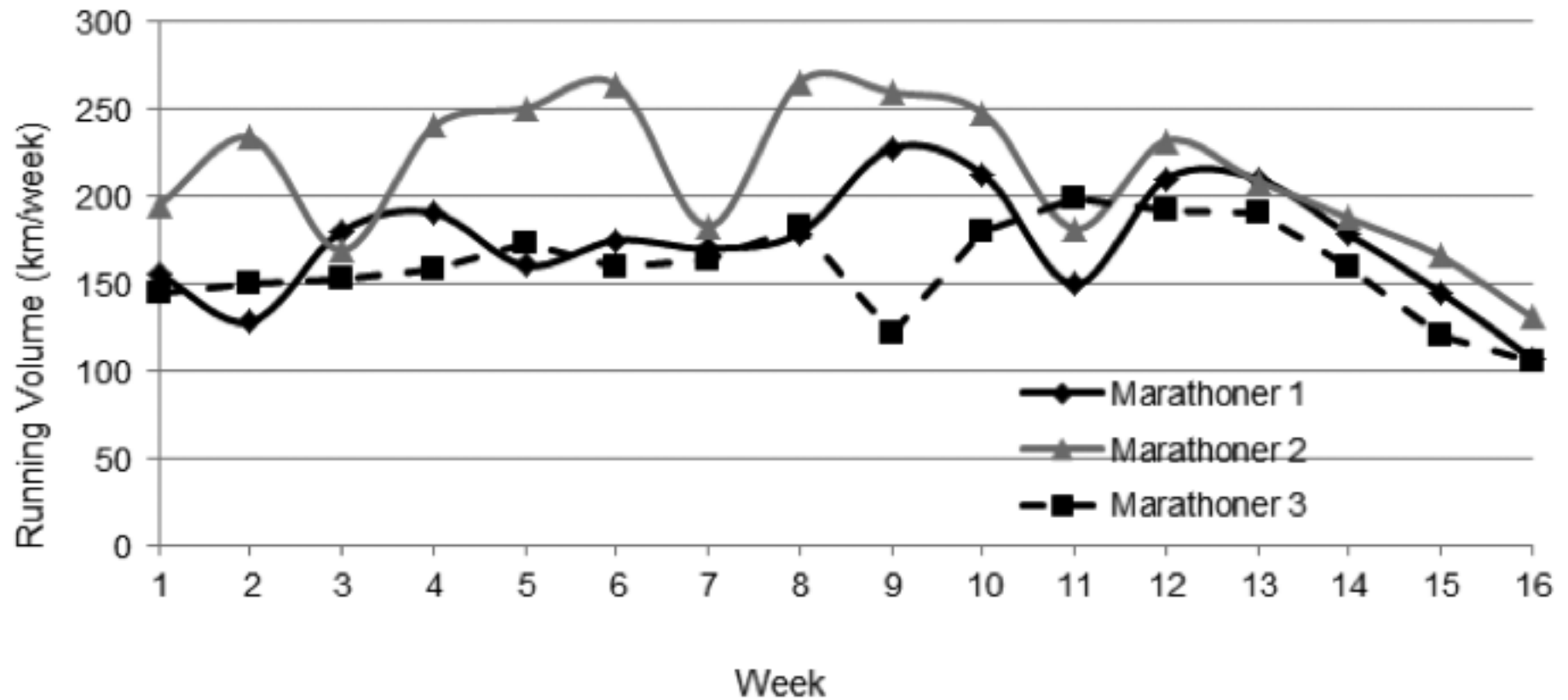
**Strength Training is essential**

4th Rule of Smarter Training

**Plan 3:1 Blocks of Train:Adapt**

# NEW EVIDENCE

Stellingwerff (2012) Elite marathoners training volume ebb-and-flow.  
Note: 74% training was ZI; they also planned feeding-during-training key sessions



# Nutrition



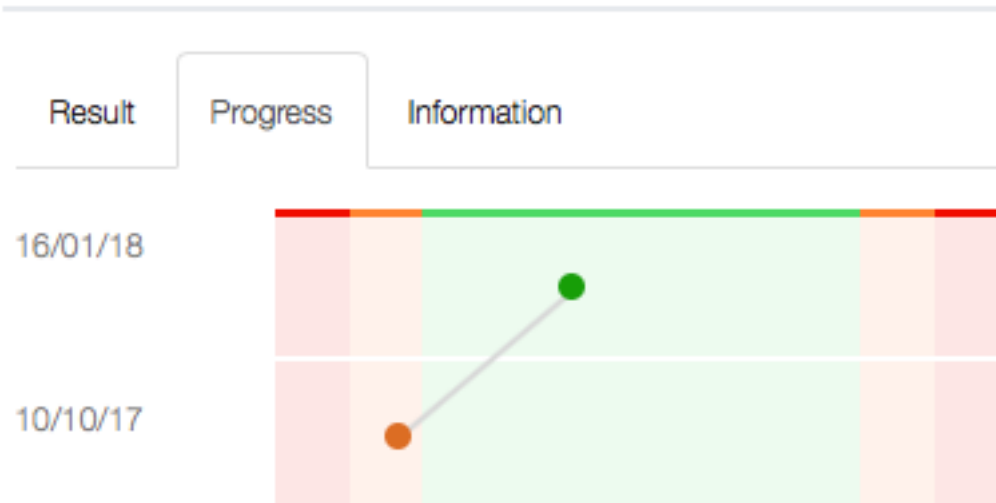
5th Rule of Smarter Nutrition

**Nutrients fuel results**

- **Use carbs in training - its the predominant fuel choice**  
Some fasted sessions (<2h) help lean-burn ability but do compromise quality and the session must be controlled ZI
- **Quality Protein timing helps “adaptation”**  
e.g. around hard resistance training or at night (25-40g). Plus shakes add an extra “easy” quality protein dose to the diet
- **Tracking Profile of nutrient status is essential (~£400/yr)**  
e.g. [tri-monthly profiling](#) for Hbn, Vitamin D, B12, Folate, Testosterone and others to ensure blood, immune system and health optimisation (around 20% of metrics are out of range - so 1 in 5 things could be better)

# Ironman male athlete low-haemoglobin: tested, “flagged”, actioned and re-tested.

## Haemoglobin



**RESULT: up | 1.62%**

# COUNTER ARGUMENTS

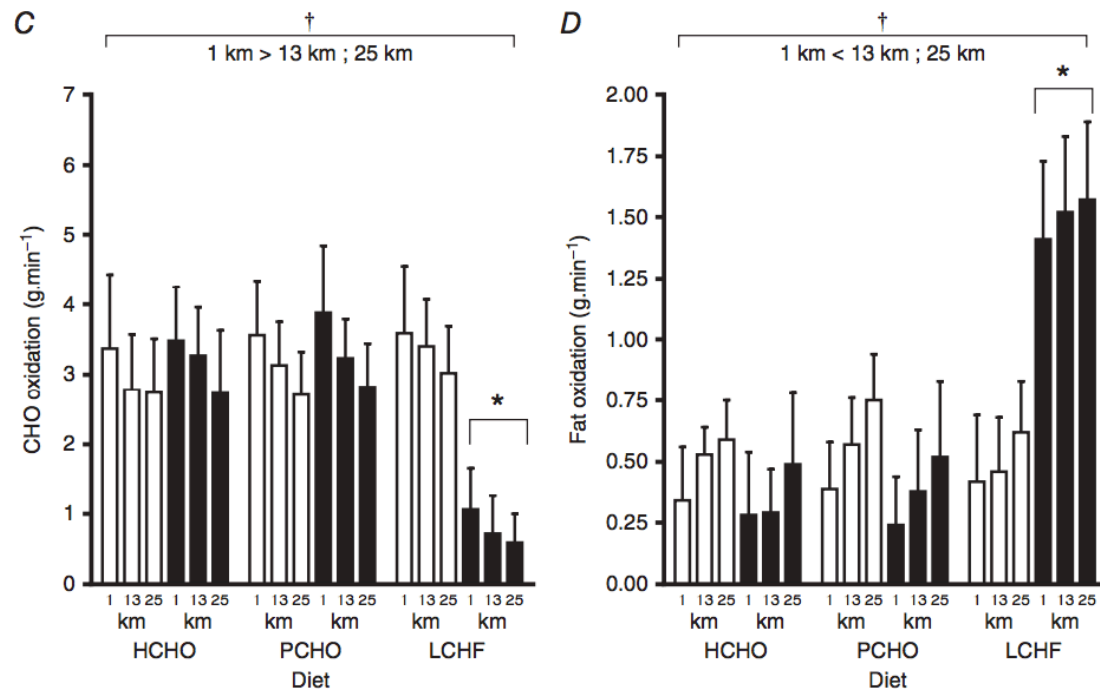
## **The “craze” for Very Low Carbohydrate Feeding**

An attempt to make athletes super fat efficient, lean and faster.  
Carb drinks, gels etc are a scam by big companies. Blah Blah Blah.



# NEW EVIDENCE

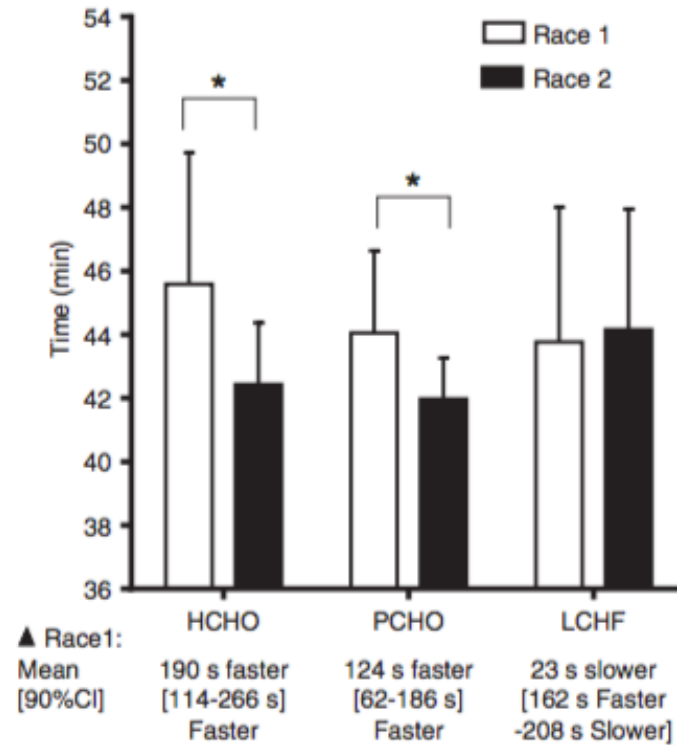
Burke et al (2017) Low carbohydrate, high fat diet impairs exercise economy and negates the performance benefit from intensified training in elite race walkers (10k PB 40-41 minutes)



**They got good at fat burning...**

# NEW EVIDENCE

Burke et al (2017)



**but ended up being slower!**

# THE BIG MISTAKES

- **Missing the basics of diet & sports nutrition**

Nothing is THE super food or pill. Carbs fuel, water hydrates, treats are treats, protein should be spread out, good fats are “essential”

- **Random use of a supplement or super-nutrient**

Positive results are from an **effective dose for a specific time**  
e.g. [colostrum](#): 10g twice a day x 2 weeks = rebuilding gut damage

- **Assuming you “are” fit and you “have a great CLEAN diet”**

If you don't know your “nutrient status” how can you tell what you need? Get [ForthEdge blood profile](#) to find your weak nutrient areas.

e.g.

**1990 Student (23): Hbn 13.3**

2015 Post Training Camp (47): Hbn 15.7

**2018 Winter (50): Hbn: 15.3 and 15.5**

6th Rule of the Smart Athlete:

**Nuture not Nuke your body**

# 6th Rule of the Smart Athlete: Nuture not Nuke your body

- **Good Sleep is central to development (but don't stress it)**  
It's all about ability, consistency and "ABSORBING"  
Elites 10-12h/day and Amateurs 50-hour minimum rule.  
Setting bodies daily pattern with use of light is very effective!  
e.g. [HumanCharger](#) 2 x 12minutes per day
- **Make daily wholefood nutrition a natural habit:**  
e.g. slow release carbs, real-food proteins, quality fats  
Don't try to be perfect just remember YAWYEAD  
(You Are What You Eat And Drink)
- **Body Work/flexibility must focus on your imbalances**  
e.g. poor shoulder mobility, leg tightness or cramping  
To find the **right expert** is the challenge or making the jump into Pilates, Yoga, Bowen, foam rolling etc.

# Technology



7th Rule of Smarter Technology

**Kit can make you faster**

# SAME ADVICE: use your watts wisely

	<b>% PPO</b>	<b>LIMITATIONS</b>	<b>e.g. 250w female e.g. 350w male</b>
<b>PEAK POWER</b>	100	ultimate muscle fatigue	<b>250</b> 350
<b>10-MILE TIME TRIAL</b>	80	acidosis pain tolerance pace judgement	<b>200</b> 280
<b>IRONMAN</b>	55	glycogen saving saving up a “marathon” temperature build-up	<b>137</b> 192
<b>SPRINT</b>	65	close to acidosis high muscle-tension immediate run-speed?	<b>162</b> 227





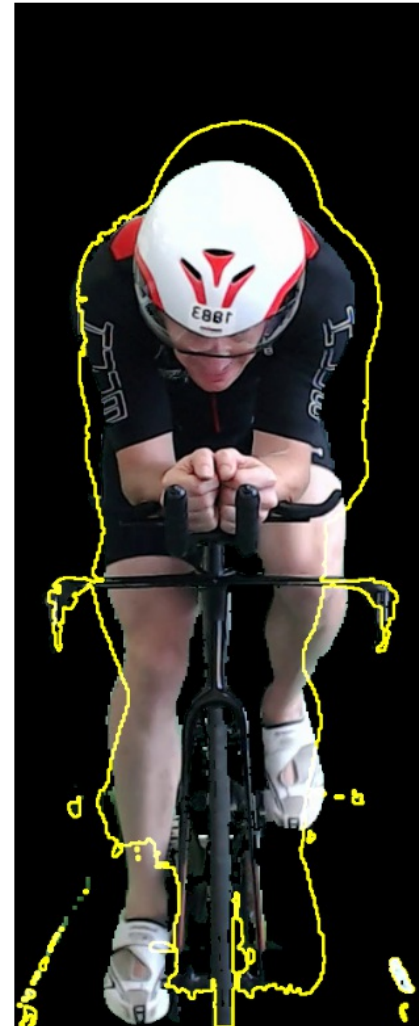
# Snapshots



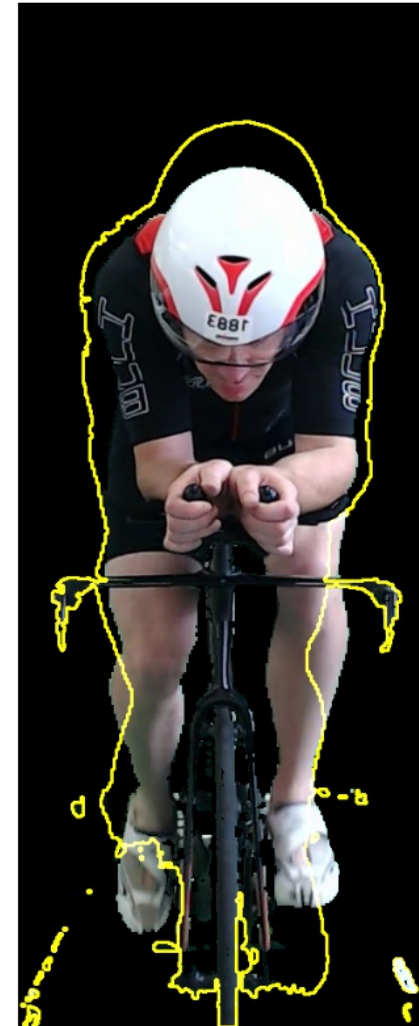
(1) 176 W - 0.3308 m<sup>2</sup>  
Baseline



(2) 205 W - 0.3854 m<sup>2</sup>  
Cowhorns



(3) 156 W - 0.2932 m<sup>2</sup>  
Narrow arms



(4) 156 W - 0.2933 m<sup>2</sup>  
Head dropped

**SAME ADVICE:** aero, aero, aero  
long sleeves, trips, aero tri belt, aero calfs guards...



8th Rule

**The future is bright**



# Summary

NO SHOPS  
TOLD,  
LIVES  
ATTEST  
GREAT  
RIVER  
FOR THE  
NORTH  
AND  
SOUTH




# BKM TAKEAWAYS

- Training <80%HRmax must be a key basic habit. #1 BKM
- Diary used to plan: work blocks/tapers/adaptation(?)/race-recovery
- Adapt to your reality not Plan A, others plan or “ideal”
- Diet/Supplements timing/loading/testing will impact performance
- Fasted sessions/low-carb/race-feeding have to be periodised
- Bike power/Drag measuring tech are serious but effective tools
- “Bodywork”, DIY foam rolling etc remains weekly priority
- Blood profiling and HRV are the essentials to Peak Performance

# THE BIGGEST MISTAKES


- Following the nopain-nogain #smashitup ethos
- Missing rehab/strength & conditioning or the Zone 1 habit
- Failing to periodise carbs before/during/after training
- Too/high or low vitamin status due to random dosing
- Ignoring simple recovery tools (e.g. rest days, foam rollers, compression tights/socks, massage, naps, warm baths etc)
- Ignoring optimal personal **power pacing** and all that is “Aero”
- Failing to correctly leverage 4thGEN for “refinement”


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