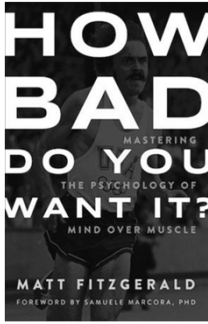


How Bad Do You Want It?

Mastering the Psychology of
 Mind Over Muscle

Overview




- Why Running Is Hard
- How Perception of Effort Limits Running Performance
- The “Psychobiological” Model of Endurance
- 5 Ways to Master Perception of Effort and Improve Performance
- Questions

Why Is Running Hard?

Common Answers

- Pain
- Fatigue
- Physical Limits*



*E.g., muscular acidosis

No, No, and No

	Mile 26 of Marathon	Stride 26 of Uphill Sprint
Muscle Pain	Very High	Minimal
Fatigue Level	Very High	Low
Lactic Acid Level	Steady	Rising
Muscle Glycogen	Very Low	Normal
Perceived Effort	Maximal	Maximal

What Is Perception of Effort? 1/3

“The conscious sensation of how hard, heavy, and strenuous the task is.”

--Smirmaul et al, 2013

Other Perceptions

- Pain
- Fatigue
- Thirst
- Proprioception
- Temperature
- ...

What Is Perception of Effort? 2/3

Objectively: Perception of effort is conscious awareness of activity in brain areas that generate and sustain the will to move.

Subjectively: Perception of effort is experienced as a general feeling of resistance to the mind’s will to move.

What Is Perception of Effort? 3/3

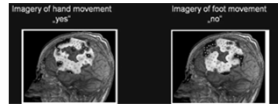
Things that Don't Affect PE

- Numbing the muscles
- Heart transplantation
- Full paralysis

Things that Do Affect PE

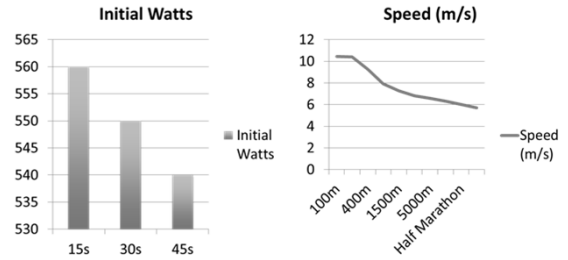
- Mental fatigue
- Transcranial electromagnetic stimulation
- Music
- Caffeine

Movement Related Cortical Potential



How Perception of Effort Limits Endurance Performance 1/2

No such thing as all-out efforts longer than 30 seconds



How Perception of Effort Limits Endurance Performance 1/2

Open-Loop Tasks



Closed-Loop Tasks



The Psychobiological Model of Endurance Performance



In the light of the Psychobiological model, the point of exhaustion during exercise is a form of task disengagement, in which individuals will exercise until a) the perception of effort rises to the critical level set by the potential motivation; or b) believe to be physically unable to maintain the task.

--Smirmaul et al, 2013

A Race Is Like a Fire Walk

A runner cannot improve except by changing his or her relationship to perception of effort.



5 Ways to Master Perception of Effort

Set 50/50 Goals

Muscular Endurance Test

Ranking of Improvement by Goal Type

1. Difficult/Realistic (20%)
2. Easy (10%)
3. Improbable/Unattainable (40%)
4. Subjective (“Do your best”)

Bar-Eli et al., 1997

Sell Your System

Performance in 5 km Time Trial

“Believe in your system, and then sell it to your players.”

Hurst et al., 2013

--Billy Donovan

Control Condition	Placebo Condition
20:16	19:55



Practice Feel-Good Training

Jeukendrup et al., 2002

“Athletes need to enjoy their training. From enjoyment comes the will to win.”

--Arthur Lydiard

	Time Trial Watts	RPE at 200 Watts
2 weeks normal training	261	9.2
2 weeks intensified training	239	10.9
2 weeks recovery training	265	8.5

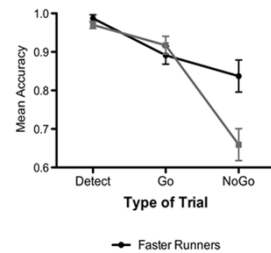
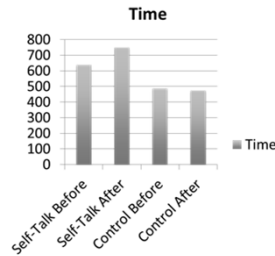
“Subjective measures reflected acute and chronic training loads with superior sensitivity and consistency than objective measures.”

--Saw et al., 2015

Think Helpfully

Positive Self-Talk Training Enhances Endurance Performance

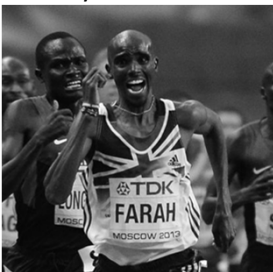
Runners with Great “Inhibitory Control” Race Faster



Brace Yourself

“This is going to be the hardest race of my life.”

Acceptance Vs. Suppression



Questions?

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