Individualizing Our Approach for Athlete Success

Aerobic Metabolism

Defined - The ability to burn fat as fuel.

Fat provides over twice as much energy per gram as protein or carbohydrates, making it a very attractive source of energy

- Primary Energy System for Majority of Distance running & racing.
- Training should focus primarily on aerobic development

Methods of training Aerobic Metabolism...prolonged activities of low intensity

(Mark Wetmore)

Science Driven Training

Physiological Principles & How they relate to Race Specific Needs

- Events of 800m and above are primarily aerobic events Will get over half of their energy from aerobic metabolism
- 800m – 60% 1600m – 75% 3200m – 85% 5000m – 90% Training should focus primarily on aerobic development (Coe/Martin)
- Aerobic – meaning energy is created with Oxygen Anaerobic – energy can be created without Oxygen at a higher rate, but only capable of doing so for a short period of time

Energy Systems

- VO2 Max
- Maximum amount of Oxygen an individual can utilize during intense exercise
- Through training you can increase stroke volume – amount of blood pumped per heart beat. Heart does not have to work as hard to do the same amount of work
- Increasing VO2 Max allows athlete to hold faster pace for longer period of time
- Increased energy contribution from aerobic sources decreases the amount of energy from anaerobic sources...If able to limit anaerobic contribution, you can limit Lactate Production

Lactate Threshold

- Point during exercise that lactate builds up in blood faster than the body can remove it.
- Lactate is not a bad thing and does not cause fatigue, but accumulates as a product of anaerobic energy sources. During energy production a Hydrogen atom is released and the more intense the exercise, the harder it is to clear the Hydrogen. This causes the acidosis or “Burn”
- Lactate production coincides with acidosis, so it is still a key factor in training. Increasing Lactate Threshold pace increases the ability to provide energy through aerobic sources and allowing the athlete to hold a faster pace for a longer time with less lactate accumulation

SAID Principle

- Specific Adaptation to Imposed Demand
- When our body is placed under some form of stress, it starts to make adaptations that will allow the body to better withstand that stress.
- My goal in training is to improve Running Economy – the energy required to run at any given pace. I believe the two biggest components of this are VO2 Max and Lactate Threshold

Improving VO2 Max

- Pace is equal to 3k pace
- Running faster than VO2 Max pace does not stimulate VO2 Max improvements. Key is time spent at VO2 Max pace. Repeats should be between 2 and 5min in length with 1:1 recovery or less 5x1000 in 3:00 with 3:00 rest If running shorter repeats, shorten the rest 2x4x400 in 73-75 with 45 seconds rest and 3min between sets

Improving Lactate Threshold

- Pace is "comfortably hard" or that can be held for race effort of 50-60min, 30-45 seconds/mile slower than 5k pace
- Scientifically – 88-92% of Max HR Stress the lactate clearance ability – not to overstress that system. Duration of 20 minutes...Can go longer, pace will slow depending on duration. Longer "LT" runs help develop mental strength

Taking the guesswork out of training...

Know the WHY before the WHAT!!!

1. Determine the desired training effect and intended Energy System targeted
2. Choose workout from your menu within that Energy System
3. Clearly communicate expectations & intended training load
4. Assign intensities that will deliver desired training effect

Jack Daniels' Running Formula

VDOT Chart *(Next Slide)*

- VDOT values and training paces are calculated using your recent race performances
- Each Athlete is assigned a VDOT # & corresponding training intensities in the Aerobic, LT, Interval (VO2Max), & Repetition training zones
- Great for specifying target marks even in large groups
- McMillan Running Calculator

Maximize Results with Less is More

Daniels contends…do only what is necessary to achieve the desired training with the least amount of energy expenditure.

- Train, don't strain, the system
- Gives greater purpose and meaning to the athlete's experience

Taking the Science and Applying It

Personal Philosophies…

1.Frequency...how often

2.Volume...how much

3.Intensity...how hard you work

- Non-Negotiables…
  Long run (20%), Hills, High End Aerobic Development, Consistent Speed Dev. (Hill Sprints, Segments, Wicket)

Setting a Standard of Excellence

- Lifestyle of a Championship Runner
- What do you want from the sport

Personal Practices

How we facilitate Individualizing the experience and creating a sense of Ownership…

- XC Stats/Training Logs
- Goal Setting Activities
- Stamp Sheet
- Individual Racing Strategies