Literature Review for Case Study 8

Modeling human running performance over time has been a topic for some time in medical, sports and evolutionary journals. These reviews and studies have been conducted in order to more accurately determine where the human ability to do long distance running came from, how are bodies are made for such running, and the current impacts of diet and training in increasing speeds. Ultimately, the data from the Cherry blossom race show the increasing popularity of long distance running, and the overall factors that age plays in modeling performance.

Despite these factors, one of the leading researchers on the subject, Dr. Owen Anderson, showed through multiple studies looking at both hereditary and environmental effects that both are contributing factors to the overall increase in human performance over time; however, no definitive proof could be given as to the level of impact each had on a runner’s performance. [1]

Further studies have confirmed that the overall impact of human physiology is unique to that of running, or at least having the ability to run; and that despite all of the play that one’s own environment has, it is never enough to fully get over our own physiology. [3][4] There are limits that are warned about, stating that the level of performance one can obtain is limited by physiological factors, and no matter how much diet or training is conducted, harm will come to the athlete who tries to go beyond those limits.[2] In the Cherry Blossom data, it shows that while there is a net performance gain over time, but physiological (as shown by the difference between the overall ages, gender and performance time) factors are the limit in human running performance.

Sources:

[1] – Anderson, Owens, “Running Science”, HumanKinetics.com, http://www.humankinetics.com/excerpts/excerpts/genes-and-running-performance.

[2] - Tucker R., Noakes TD. “The Physiological Regulation of Pacing Strategy During Exercise: A Critical Review.”, British Journal of Sports Medicine, June 2009.

[3] – Joyner, M. J., “Modeling: Optimal Marathon Performance on The Basis Of Physiological Factors.”, Journal of Applied Physiology, Feb 1991.

[4] – Tucker R., “The Anticipatory Regulation of Performance: The Physiological Basis For Pacing Strategies And The Development Of A Perception-Based Model For Exercise Performance.”, British Journal of Sports Medicine, June 2009.