

An Evidence-Based Approach to Assessing the Effectiveness of Training Regimen on Athlete Performance: Youth Soccer as a Case Study

Cameron M. Keating¹, Michael P. Keating², Jon D. Nichols³, and James M. Nichols⁴

¹University of North Carolina at Chapel Hill

²Captain Elite, Soccer Research and Training Organization

³1317 Pleasant Meadow Rd., Crofton MD, 21114

⁴1525 Elwyn Ave., Crofton MD, 21114

Author Note

We have no known conflict of interest to disclose.

Any concerns about this article should be sent to Cameron M. Keating, 5685 Wolf Ridge Ct., Oak Ridge, NC 27310. Email: cammketing@gmail.com.

Acknowledgements

Dedicated to Anders Ericsson, who as one of the smartest people I have ever met, made me feel that I could accomplish whatever I set my mind to. Thank you, Professor Ericsson. May you rest in peace.

An Evidence-Based Approach to Assessing the Effectiveness of Training Regimen on Athlete Performance: Youth Soccer as a Case Study

C. Keating¹, M. Keating², J. D. Nichols³, and J. M. Nichols⁴

¹University of North Carolina at Chapel Hill

²Captain Elite, Soccer Research and Training Organization

³1317 Pleasant Meadow Rd., Crofton MD, 21114

⁴1525 Elwyn Ave., Crofton MD, 21114

Keywords: performance improvement; commitment; training time; model selection; AIC

Abstract

In this work we model athletic performance data in an effort to better understand the relationship between both hours spent training and a measurement of “commitment”, and improvements in performance. We predicted that both increased training time and greater commitment would produce larger increases in performance improvement, and that commitment would be the more important determinant of improvement. To this end we quantified the performance of 108 soccer players (ages 9-18) over a 10 week training program. Hours spent training ranged from 16 to 90 during the course of the study, while commitment ranged from 0.55 to 2.0. We used a model selection approach, fitting models specifying relationships between training hours and improvement and commitment and improvement. Despite considerable variability in the data, we find strong evidence for an increase in performance improvement with both training hours and commitment score. We compared the best models for hours and commitment by computing an evidence ratio of 5799, indicating much stronger evidence favoring the model based on commitment. Results of analyses such as these go beyond anecdotal experience in an effort to begin to establish a formal evidentiary basis for athletic training programs.

To read the rest of this paper and unlock our other research, sign up on the Research page of our website with your name and email!