

Symposium: Improving Sports Performance

Patricia de Cocq
Experimental Zoology Group,
Wageningen University, The Netherlands
Patricia.deCocq@wur.nl

ABSTRACT

In top class sports, performances of athletes are very close. Small improvements in technique can make the difference between winners and losers. A combination of behavioral analysis and physiological data can play a key role in improving sports performance and developing innovative training tools. It is a challenge to incorporate modern measuring equipment into the daily training of athletes. The measurements should not disturb the athlete and coach and in the same time should record all data necessary. Measurement equipment should therefore be small, wireless and user friendly. Several sports face this challenge.

Author Keywords

Sports performance, behavioral analysis, physiological data, innovations

INTRODUCTION

In several sports, projects are carried out to improve performance by measuring behavioral and physiological parameters. Performance monitoring is becoming more important to achieve and maintain a top position in several sports. Furthermore, new insight in training techniques enables the development of innovative tools which can improve the sports performance, increase the maintenance of top positions and help to prevent injuries.

An example of an innovative tool that changed sports performance tremendously is the klapskate. The klapskate increases the skating speed with about 5% by increasing the external power of the skater. It took 10 years before the klapskate was accepted by the top skaters. This demonstrates the challenge researchers face when bringing their research to the athletes and the importance of a joined approach by researchers, athletes and coaches. Techniques that might seem usable in an experimental set-up, might not be usable in practice. Furthermore, a joint approach will fill the needs of the athletes better and barriers for potential

users will be prevented or lowered.

In sports where speed is the measure for a good performance, a first approach in improving the performance lays in reducing air and water resistance. This could be a change in clothing, but also a change in the technique of the athlete. This can be a body position that minimizes friction, a more efficient turn or a faster, more efficient takeoff (swimming).

Performance in team sport can often been judged in the amount of goals that are scored. This performance is influenced by the tactic, the team play and the performance of individual athletes. These separate performances can also be monitored and behavioral and physiological data can lead to an improved performance. In the AC Milan lab these data streams are integrated using specific algorithms. In these algorithms the different parameters for sports performance are integrated.

Sports that are judged by juries, such as gymnastics and equine sports (dressage) face an extra challenge. It is hard to objectify the performance of these athletes. Performance in these sports is often specified as an specific combination of movements. Behavioral observation techniques can play an important role in the specification of the performance, especially in combination with sport analysis software. In equine sports, one of the athletes is a horse. When an animal is used in sports, special care should be taken to guard the welfare of the animal. The use of behavioral observations in combination with physiological parameters also play a role here.

This symposium demonstrates how these different sport disciplines take on the challenge to incorporate scientific tools into the training.

SYMPOSIUM CONTENTS

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Patricia de Cocq (Wageningen University, The Netherlands) & Carolien Munsters (Utrecht University, The Netherlands)

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João Prudente (University of Madeira), Júlio Garganta (University of Porto, Portugal) & M.Teresa Anguera (University of Barcelona, Spain).

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Geert Savelsbergh (Institute Move VU University, The Netherlands).

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