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Training for Olympic gold in endurance sports: views from successful coaches

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INTRODUCTION:

Performance development in endurance sports is determined by a multifaceted interaction of manifold variables, such as training volume, frequency, and intensity distribution. While training practices among world-leading athletes in long-distance running, road cycling and cross-country skiing are extensively explored, best practice training information is limited for many other endurance disciplines such as swimming, biathlon, speed skating, rowing and triathlon. In addition, comparisons of training variables across studies and sports are challenging due to lack of a common methodological framework (e.g., intensity zones) and terminology.

Norway has been one of the world-leading sport nations in the last 2-3 decades, with the majority of Olympic and World Championships medals won in endurance sports. One of the advantages of the Norwegian system is that all endurance sports use the same framework for defining training content, allowing valid comparisons across athletes and sports. Acknowledging that the very best coaches are often ahead of sport science in employing the fundamental features of training, the aim of this study was to explore successful Norwegian endurance coaches' views on training practices required for winning international medals in endurance sports.

METHODS:

Twelve male Norwegian coaches with a track record of coaching endurance world-class athletes (total of >320 Olympic, World and European Championship medals; mainly Norwegian athletes) in cross-country skiing, biathlon, speed skating, rowing, road cycling, swimming, long-distance running and triathlon participated. Initially, we performed training diary analyses of their best-performing athletes followed by interviews with each of the coaches about their views on training practices required to win future international medals in their sports.

RESULTS:

Our preliminary analyses shows that all coaches employ a high-volume approach, ranging from 600 annual training hours in running up to 1400 hours in triathlon. In all cases, around 90% the training time is aerobic endurance, in which 80-90% of this contains low-intensity endurance training interspersed by 2-3 days (i.e. 2-5 key sessions) weekly at higher intensities. All coaches utilize a traditional periodization model where key sessions becomes gradually more competition-specific towards the competition period. The sport-specific differences in training content are mainly caused by variations in mechanical and muscular loading. Detailed training data in terms of volume, intensity distributions and use of exercise modes periodized throughout the year will be presented and discussed during the presentation.

CONCLUSION:

This study illustrates how successful endurance coaches describe "state-of-the-art" endurance training, including quantitative and qualitative insights in common features and sport-specific variations in best practice training organization and characteristics in endurance sports.

Topic: Training and Testing

Presentation Oral

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