Introduction
Data presenting quantitative details regarding endurance training periodization in practice across an annual cycle, or the actual effect of this specific ordering of training variable emphasis performance, remain remarkably scarce. The aim of this study was to analyze changes across a full year of training among eight World Champion endurance athletes from the same sport.

Methods
Eight (six male and two female) former and current Norwegian elite orienteers were included in the study. Inclusion criteria were; having won at least one individual World Championship gold medal during their career. In addition, all included athletes had systematically and accurately recorded their day-to-day training from junior through to senior level, and specifically during the year leading up to their most successful competition at senior level. For analyses, the training year was divided into four training phases: Transition Phase (TP; October-November), General Preparatory Phase (GPP; December-March), Specific Preparatory Phase (SPP; April-June) and Competition Phase (CP; July-September). These four phases were defined based on basic periodization models in the literature (Matwejew, 1975; Issurin, 2010), on the training data itself, and following personal communications with the coaches and athletes. In total, 3837 training sessions reported by the 8 athletes were systematized in the present analysis. On an annual basis, athletes reported 480 ± 65 training sessions in the season they won a world championship.

Results and discussion
The main finding of the present study is that the annual training pattern of eight World Champions orienteers consistently reported a significant reduction in training volume from GPP to SPP and CP. However, the reduced training volume was achieved through reduction in non-specific training loads (cross-training), while specific running training volume was quite stable across the GPP, TPP and Competition phases of training. A second key finding is that the reduction in total training volume occurs primarily due to a reduction in the number of training hours in intensity zone 1, and in turn a reduction in non-specific training. That is, most of the reduction in training volume from the GPP to the SPP was achieved by reducing low intensity cross-training. A third consistent finding was that these athletes transitioned from interval-type high intensity training to continuous bouts and actual competitions as they prepared for their championship events. Ultimately, competitions appeared to be systematically integrated into the training and peaking process for championship performance. Taken together, these findings can be interpreted to support some key features of the Matweyew model of training periodization.

Figure 1. Training phases and monthly training time in each of the three intensity zones (bars) and training frequency (line) in the year leading up to winning a World Championship. Values are group means.

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