

## 2. Primary findings

The present PhD thesis is based on an exercise response study, a portfolio training intervention consisting of four studies, and on the work from five papers.

The first paper investigated and compared the effect of intense exercise, endurance exercise and the combination of intense and endurance exercise in trained subjects and shows:

- Study I (Skovgaard et al., 2016): that intense exercise provides a stimulus for markers of oxidative capacity that is not evident with endurance exercise and that this response is reinforced when intense exercise is combined with endurance exercise.

The last four papers, which are the result of the portfolio training intervention, investigated different compositions of the combination of intense training and a basic volume of aerobic training in trained runners. Specifically these papers show:

- Study II (Skovgaard et al., 2017d): that initial 40 days of intense training improved running economy together with decreased expression of proteins that may suggest a more efficient contractile apparatus after training. In agreement with earlier literature on intense training, 10-km performance, running economy and short-term performance did also improve.

- Study III (Skovgaard et al., 2017a): that after initial gains, performance in the 10-km run and running economy was unaltered with both increased and maintained training frequency suggesting that 10-km runners only need to do intense training in the last 40 days before a competition.

- Study IV (Skovgaard et al., 2017b): that tapering, after a period of increased intense training frequency, improved 10-km performance and running economy, and that short-term performance was better than before the start of the period with increased intense training frequency.

- Study V (Skovgaard et al., 2017c): that for short-term performance, a repeated period of intense training is more advantageously adapted to, and that 10-km performance and running economy improves to the same extent as during the first period of intense training.