

## Forschungsgesuch Vogt

### Das polarisierte Trainingsmodell: eine Möglichkeit zur Leistungsoptimierung bei austrainierten Ausdauerathleten?

#### ABSTRACT

This crossover-design study aimed to evaluate the effects of a polarized training distribution on physiological determinants of endurance performance in well-trained recreational runners. During the first year, fifteen well-trained recreational runners were randomly assigned to either a polarized (POL) or normal training (CON) group for 10 wk. In the second year, subjects switched groups and procedures were repeated. Subjects in POL performed 70±7% of endurance sessions below ventilatory threshold 1 (<VT1, zone 1), 4±5% between VT1 and VT2 (zone 2) and 26±6% above VT2 (zone 3), while CON trained 50±18%, 26±15%, and 24±4% in zones 1, 2, and 3, respectively. Maximal oxygen consumption (VO<sub>2</sub>max), maximal running speed (V<sub>max</sub>), ventilatory thresholds, submaximal running economy (RE) and respiratory exchange ratio (RER), peak (PPO) and mean (MPO) power output during a Wingate test, and body fat percentage (BF) were measured immediately before and after each intervention period.

VO<sub>2</sub>max increased significantly for CON (pre: 62.3±6.0; post: 64.9±6.2 ml·min<sup>-1</sup>·kg<sup>-1</sup>) but not for POL (pre: 62.1±6.6; post: 63.1±6.2 ml·min<sup>-1</sup>·kg<sup>-1</sup>). V<sub>max</sub>, VT1, VT2, and RE did not change. RER was significantly decreased at 10 km·h<sup>-1</sup> for POL only. PPO (+4.1±4.0%, p<0.01) and MPO (+1.8±2.7%, p=0.07) in 30s Wingate test were increased for POL only. When high intensity training (zone 3) comprises a fixed 25% of total endurance sessions, the relative contributions of low- (zone 1) and middle-intensity (zone 2) training does not affect maximal endurance performance in well-trained recreational runners. However a polarized training pattern seems to shift substrate selection toward increased fat oxidation and improves anaerobic performance.