SUMMARY AND CONCLUSION

The main aim of this thesis was to explore the effect of a 9 week exercise training program completed as 4x15 min strength training sessions plus 4x15 min endurance training sessions as compared to 2x60 min training sessions with identical content, matched for volume and intensity. The hypotheses were that micro-training would induce superior adaptations compared to classical training and that adaptations to training could be related to initial training status. This was investigated in 290 military recruits undergoing a 9-week basic military training program including a high volume of low intensity activity such as marching and standing. Prior to the main study, the hypotheses were tested in an 8 week pilot study using a similar intervention amongst 29 military interpreter students with predominantly sedentary schedule and not undergoing basic military training.

In contrast to the hypotheses, adaptations to 4x15 min strength training as opposed to 1x60 min strength training resulted in similar adaptations suggesting that the improvements in strength were unaffected by weekly training distribution. Furthermore, most measures of strength remained unchanged or declined during the intervention which indicate that the strength training stimuli were insufficient and/or suppressed by an interference effect from other training activities.

Also in contrast to the study hypotheses, 4x15 min endurance training as opposed to 1x60 min endurance training resulted in a similar increase in virtually all evaluated measures of endurance suggesting that the improvements in endurance were unaffected by weekly training distribution. Furthermore, under these circumstances one added endurance training session per week was sufficient to induce robust adaptations in functional performance.

Thus, a tendency to superior adaptations from micro-training compared to classical training observed in the pilot study could not be confirmed in the main study. However, the similar response is interpreted as an important finding, demonstrating that functional performance can be increased to the same extend with volume matched low- or high-frequent training added to basic military training.
In agreement with the study hypotheses, adaptation in functional performance to the same training stimuli appeared to depend on initial physical capacity. Specifically, that the 1/3 of the population with lowest initial physical capacity for a given variable achieved the highest degree of adaptations while the 1/3 of the population with the highest initial physical capacity achieved the lowest degree of adaptations. Peak oxygen consumption showed the same trend although not as strong as performance measures. In contrast, adaptation in physiological strength measures (MVC) were unaffected by initial performance level.

In conclusion, the present thesis did not find superior adaptations from micro-training compared to classical training but the results supports the use of micro-training with expected training outcomes corresponding to volume and intensity matched classical training outcomes. Furthermore, there was a relationship between individual initial training status and adaptations to training hence there appears to be a potential to optimize training outcomes by applying training programs adjusted according to the initial training level.