

Physical fitness level affects perception of chronic stress in military trainees**Authors:** Tuch C¹, Roos L², Wyss T²¹Karlsruhe Institute of Technology, Germany²Federal Institute of Magglingen, Switzerland**Introduction:**

Stress has become one of the most common causes for the outbreak of secondary diseases in Central Europe. Previous research has shown significant effects of stress on the quality of life (Gerber & Pühse, 2009). Recruits are frequently exposed to a stressful environment (Wyss, Scheffler, & Mäder, 2012). Because of the negative effects of long-term stress on psychophysiological wellbeing and the ensuing high injury and dropout rate during basic military training (BMT; Hofstetter, Mäder, & Wyss, 2012) psychological research investigating factors that influence the level of perceived stress (PS) in recruits and soldiers is needed. The present study aims to detect the influence of fitness level on PS, while correcting for the influence of moderating variables.

Methods:

The present study was part of a larger project on physical and mental health during BMT of the Swiss Armed Forces (Boesch et al., 2014). All subjects were recruits of the infantry training school in Aargau. Finally, complete data of 173 men were included in statistical analyses. The following data were used as independent variables: physiological fitness (consisted of five disciplines: progressive endurance run, standing long jump, seated shot put, trunk muscle strength test and one leg standing test), PS at week 1 of BMT, personality factors (“Big 5”), education level and leadership style. PS at week 11 of BMT was used as dependent variable. Maximal oxygen consumption (VO₂max) was calculated based on PER data. Fitness variables remaining in the final regression model were used to stratify volunteers in four performance groups for each fitness test.

Results:

Mean PS at week 11 was significant higher than in week 1 ($T = -10.561, p < .001$). Participants in the 1st quartile of VO₂max level reported significant higher PS level at week 1 and week 11 compared to the 4th quartile of VO₂max level. Level of increased PS from week 1 to week 11 was significant lower in participants with higher VO₂max. Values of VO₂max, as well as neuroticism, TL, PS at week 1, and education level have functions as predictors for the level of PS at week 11. Explained variance is at 28.1% ($R^2 = .281, F = 22.368, p < .001$).

Discussion:

The present study was carried out to investigate the risk factors for an increased stress level during BMT school. It is apparent that lower VO₂max, high neuroticism value, high level of PS at week 1 of BMT, and a higher education level resulted in a higher PS level after 11 weeks of BMT.

Transformational leadership style had a positive impact on the stress experience. Based on the results, it would seem advisable, that recruits receive an additional physical training session, in particular in the field of endurance capacity. Recruits may enhance performance levels and endurance prior the commencement of BMT by using training programs and guidelines. A further implication of this study may be the development and training of leaders.

References:

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