How does Acute Naturalistic Stress Affect Memory and Learning in Dutch Marines?

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Summary

The Royal Marines represent a high-reliability occupation, where stress levels are often intense and mistakes can be costly. Maintaining effective performance under these stressful conditions is an intimidating challenge, therefore it is crucial to provide these professionals with sound research results which can improve the insight into the relationship between acute stress and optimal cognitive performance. In the present study 37 male marines, ranging in age from 18 to 37 years, and in years of service from 1 to 18 years, were assigned to two different groups for a between-subjects quasi experiment. Assignment to the experimental groups was based on participation of platoon. One platoon was assigned to a no-stress control group \((n = 18) (M = 21.50, SD = 3.02)\), the other to a stress group \((n = 19) (M = 25.00, SD = 4.32)\). Participants in the latter were instructed to charge into a hostile location, where they were captured and blindfolded. Immediately thereafter short-term memory, working memory and learning performance were measured respectively the Digit Span (DS) forward, DS backward and the RULIT. Stress levels were assessed by the self reporting NASA Task Load Index (TLX). Contrary to expectations it could not be confirmed that acute stress has an impairing effect on memory and learning processes. However, the present findings did affirm once more the conflicting influence of acute stress on above described cognitive performance.

Keywords: High-intensity stress, High reliability professions, Short-term memory, Working memory, Learning performance, RULIT, Digit Span test.