Neurocognitive Function and Psychological Health

Longitudinal Performance Change Related to Repeated Low-Level Blast Exposure

Exposure to blast is associated with reports of cognitive disruption. Even low-level exposure is hypothesized to yield effects, particularly cumulative effects. The hypothesized effects are reported to be cognitive deficit similar to head injury. "Breaching" (dynamic entry) involves repeated exposure to overpressure. In a study sponsored by MOMRP, 14 members of an elite breaching unit from New Zealand participated in longitudinal assessments that involved taking the Automated Neuropsychological Assessment Metrics multiple times over the course of several years. Many of these participants have data spanning five years of time. The repeated measure analysis of variance resulted in no significant effects for any of the subtest. However, there was a mean decrease of 135 milliseconds in the mathematical processing subtest from pre-exposure to post-exposure. Pre-test administration varied from two years to five years before the post. While not statistically significant, this data suggests the possibility of a longitudinal decrement. The lack of significance with a 135 millisecond decrement is probably a result of the high inter-subject variability. Additional analyses using change scores as well as looking at individual participants are underway and will be presented at the conference.