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ORAL PRESENTATIONS

U.N. Military Observers — A Follow-Up Study Focusing on Mental Health and Social Adjustment of Norwegian Officers in the Years after Completed Missions

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Introduction: The risk of developing mental dysfunction and social maladjustment by serving as military observer was evaluated. Military observers are exposed to greater mental stress than are the average military personnel serving in a national unit within an international peace-keeping force. Thus, they are considered to be a group at increased risk. The majority of military observers have limited access to adequate mental support in the sense of "talking oneself out" in their own language with personnel from the same cultural background. There are reasons to assume that persons on observer-duty had reduced access to stress management resources, and hence, were at enhanced risk for development of inadequate behavioral patterns or post-traumatic stress disorder (PTSD). To what degree is PTSD, dysthymia, or depression present among these personnel? Which circumstances were crucial in development these symptoms? What preventive measures can be taken? The medical selection criteria used were validated prospectively. Subjects were officers from the Norwegian Defence (army, navy, air-force) who had served as military observers in various United Nations observer missions during the years 1994 until May 2000.

Methods: The subjects were presented with a questionnaire that covered: 1) their present state of mental health; 2) their social and family adjustments after their duty as an observer; and 3) their work and career conditions following their tour of duty. The questionnaire used included the: 1) "Service Stress Index"; 2) "General Health Questionnaire" (GHQ-28); 3) "Sense of Coherence Questionnaire" (Antonovsky and Mehlum 1989); 4) "Gotland Scale for Male Depression, adapted version" (Rutz *et al*; Mehlum) and the 5) PTSS-10.

Results: A total of 239 subjects were questioned. Of these, 88.8% reported an experience-service-stress level that was greater than is the probable susceptible level. The case prevalence of PTSD was 9.1%, the possible depression-rate was 11.4%, and 13.0% reported mental-health problems.

Conclusions: The stress-coping ability of military observers was better than expected. Also, compared to stress-related disorders among troops exposed to severe trauma or who had been repatriated for medical or disciplinary reasons, the observers showed better coping-ability.

The assumed causes, additional information, and conclusions will be presented.

Keywords: coping ability; stress-related disorders; United

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Suicide in Peacekeepers: An Epidemiological Study of Suicide in 22,275 Veterans from Norwegian Peacekeeping Operations

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Introduction: Military peacekeeping and peace-enforcing operations engage a substantial number of personnel from several different countries. Increased attention has been given to the stressors inherent in peacekeeping, and to the possible negative short- and long-term health effects for the personnel involved. This study examined mortality of Norwegian army veterans from multinational peacekeeping operations.

Methods: The cohort consisted of Norwegian men having served one or more six-months terms with a United Nation's or North Atlantic Treaty Organisation's peacekeeping or peace-enforcement operation in the period 01 May 1978 through 31 December 1995 (n = 22,275). The expected number of suicides was calculated for the general population of men of the same age during the same time period, and was compared with the observed number of suicides in the veterans. Separate analyzes were conducted to examine the possible impact of elapsed time since peacekeeping service, the number of service terms, the age at the time of service, the marital status of the study population, and the methods used for suicide.

Results: A moderately increased mortality from suicide was found in the veterans (SMR = 1.4; 95% Confidence Interval (CI) = 1.1-1.8). The mortality rate from suicide was increased significantly only for the veterans for whom >10 years had elapsed since completion of the service, and the veterans who had served only one six-months term. The younger soldiers did not have any higher risk for suicide compared to the older age groups. When adjusting the risk of suicide for marital status, the mortality rate from suicide was reduced (SMR = 1.2; CI = 0.9-1.5). In addition, a clear preference for the use of firearms (55%) and carbon monoxide poisoning (20%) was found in the veterans.

Conclusion: An increased mortality rate from suicide was found in Norwegian peacekeeping veterans. Marital status and possibly increased access to firearms could account for the excess rate of suicides. Further research is needed to elucidate possible relationships between the stresses associated with peacekeeping and the subsequent suicide risk, in order guide future suicide preventive efforts.

Keywords: cohort studies; epidemiology; firearms; marital status; military; mortality; suicide; veterans

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What Shall We Do with the Depressive Conscripts?

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Introduction: Depression and its connection to failure in the compulsory conscript service were studied among Finnish conscripts. The presence of a state of depression is one of the strongest predictive factors for failure in military service. In Finland, compulsory military service is required for all males. More than 80% of all males do their conscript service. The reasons for interruption of conscript service are psychiatric in two-thirds of the cases. In 1997, 11% of all those liable to serve in the military were exempted: 4.3% on medical grounds (e.g., permanent disability), and 6.2% for applying for civil service

prior to the time of actual conscription to military service.

Subjects and Methods: In the first part of the study, 457 recruits who came to do their military service in 1993 were examined; 47 of them (10.3%) failed to do their conscript service. Of the 2,402 conscripts who wished to interrupt their compulsory military service and continue conscription as civil alternative service in 1994, 24 also were studied. All 457 recruits and the 24 who went to civil service from their unit, completed the short form of the MMPI depression subscale, which consist 22 items.

Results: The failure rate of the recruits was 10%; the reasons for their failure were psychiatric in 81% and somatic in 19%. Of the 22 items in the MMPI depression subscale, 19 were connected statistically to failure. When a recruit gave six or more risk answers, he had >8 times chance that his service would be interrupted. The depression status of those who applied to civil service resembled that of those whose service was interrupted due medical reasons. The civil servants were even more depressed than were those who failed.

Conclusion: This study emphasizes the importance of adequate classification of fitness for service. The better the classification, the less the rate of failure, the less individual suffering, and the less the waste of training capacity. It is better to both the conscript and the military to exempt unsuitable men from military service.

Keywords: civil service; classification; conscripts; depression; exemption; failure; military service; MMPI; prediction
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Accidents and Sleepiness in a Military Setting

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Introduction: Human error has been identified as the root cause of the majority of accidents in virtually every industry examined. Agencies that compile accident statistics probably underestimate sleepiness and fatigue as contributors to accidents. There is a lack of scientific awareness in the way sleep and circadian rhythms may control alertness and performance. Work regulations that permit prolonged and dangerous schedules in which sleep is sacrificed for expediency and performance, further exacerbate the safety problem. The consequences of human error due to fatigue potentially are more serious now than before. A number of factors may contribute to sleep deprivation, and accumulated sleep deprivation can have serious consequences for performance. Sleep deprivation is characteristic of schedules that involve prolonged wakefulness, either chronic or intermittent, as well as work that is extended for many days without an opportunity for recovery and sleep. Sleepiness has been documented to impair performance, such as in causing the subject to doze off periodically. The ability to be vigilant visually and react quickly degrades as sleepiness increases. Military settings provide the most important knowledge about sleep and safety. Soldiers are subjected to long work hours, and they handle heavy equipment as well as potentially dangerous material. It has been observed that in peacekeeping operations, soldiers work long hours and are under pressure to perform in situations in which safety regulations may be inadequate and result in serious accidents.

Methods: Sleepiness was measured with the Multiple Sleep Latency Test (MSLT). Sleep latency in sets of <5 minutes constitute an increased propensity to fall asleep unintentionally. The use of MSLT tests during active peacekeeping service almost are non-existent. However, during the last 20 years,

some observations have been made concerning fatigue and accidents in Norwegian soldiers. Annually, about four casualties have been registered of which some were due directly to human error and fatigue resulting from sleep deprivation.

Results: Four incidents will be presented, each analysing relationship between sleep loss and its consequences.

Conclusion: Sleep loss and sleep deprivation during peacekeeping operations resulting in fatigue may jeopardise optimal functioning of military personnel who otherwise are in good health. It is imperative that military planners pay attention to adequate sleep schedules and sleep conditions in order to prevent fatigue. Each soldier must be aware of the hazards of duty if he is not fully alert and awake. Mechanical devices that monitor sleep/wakefulness are available, and they may be of value for signaling to each individual when he is in danger of falling asleep unintentionally.

Keywords: accidents; error, human; fatigue; military; Multiple Sleep Latency Test; peacekeeping; performance; safety; sleep
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Early Treatment with Hydrocortisone and/or U0126 Inhibits the Synthesis of Reactive Oxygen Species (ROS) after Gunshot Injuries in Pigs

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Introduction: Several external stimuli, including trauma, increase the endogenous production of reactive oxygen species (ROS). These substances spontaneously attack proteins, nucleic acids, lipids, and other important biological molecules. In addition to their direct toxic effects, several pro-inflammatory signalling cascades are induced. The MAP-kinase cascade is a key system in which extracellular signals are transformed into intracellular responses. The purpose of this study was to investigate how the production of ROS is influenced by corticosteroids. The mechanisms for activating granulocytes, especially the importance of extracellular-signal-regulated kinase (ERK), also were investigated.

Material and Methods: The study was done as part of a training course in war surgery organised by the Norwegian Defense Medical Headquarter at Lahaugmoen Camp. Seventeen pigs (45–55 kgs) were used for the experiments. During general anesthesia, the left femoral artery was exposed and catheterized for blood analysis and for monitoring purposes. The animals were brought to the shooting range and exposed to a standardized insult: one gunshot hitting the right femur from a distance of 25m, and one pistol shot to the left upper abdomen from close range. First-aid treatment was instituted, and the animals were transported to a nearby field hospital for surgery. The animals were randomized into two groups. Group I (n = 9) received hydrocortisone 250mg IV, and Group II (n = 8) received a similar IV injection of saline. The injection was given 5 min after the last shot. Blood samples were drawn before the shooting (baseline = 100%), immediately after the hydrocortisone was given, and 60 min after the shooting. Circulating granulocytes were isolated, and the production of ROS was measured by a fluorometric method. Granulocytes from nine randomly chosen animals (5 from Group I and 4 from Group II) were treated in vitro with the ERK inhibitor U0126.