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P. A. Smith; C. Baber; J. Hunter; M. Butler. *Measuring team skills in crime scene investigation: exploring ad hoc teams*. S. 1463–1488.

Abstract: The purpose of this study was to measure the team skills of operational crime scene examiners (CSEs). The techniques used were based on established methods and helped to gain a greater understanding of the domain of forensic investigation. The research begins with a hierarchical task analysis and then adapts pre-established methods for measuring the performance of CSEs in four UK Police Forces. The process supports comparison between prescribed methods of 'good practice' and real world practice. This has allowed the identification of the distributed skills and tasks of the CSE. Using Annett *et al*.'s HTA(T), crime scene examination can be categorised and the communications and coordination structures occurring between teams investigating a burglary considered. This makes it possible to generalise the method to situations involving ad hoc teams.

- **Keywords:** crime scene examination; teamwork; hierarchical task analysis; police investigation

Frederick M. J. Lichacz. *Augmenting understanding of the relationship between situation awareness and confidence using calibration analysis*. S. 1489–1502.

Abstract: The present study represents a preliminary examination of the relationship between situation awareness (SA) and confidence within a distributed information-sharing environment using the calibration methodology. The calibration methodology uses the indices of calibration, resolution and over/under-confidence to examine the relationship between the accuracy of the responses and the degree of confidence that one has in these responses, which leads to a measure of an operator's meta-SA. The results of this study revealed that, although the participants were slightly overconfident in their responses, overall they demonstrated good meta-SA. That is, the participants' subjective probability judgements corresponded to their pattern of SA response accuracy. It is concluded that the use of calibration analysis represents a better methodology for expanding our understanding of the relationship between SA and confidence and ultimately how this relationship can impact decision-making and performance in applied settings than can be achieved by examining SA measures alone.

- **Keywords:** situation awareness; confidence; calibration

S. J. Dixon. *Use of pressure insoles to compare in-shoe loading for modern running shoes*. S. 1503–1514.

Abstract: The primary objective of this paper was to compare in-shoe loading for different models of running shoe using measurements of force distribution. It was hypothesised that a shoe designed with minimal focus on cushioning would demonstrate significantly higher peak forces and rates of loading than running shoes designed with cushioning midsoles. Loading was compared using in-shoe peak forces for six footwear conditions. It was found that peak rate of loading at the heel provided clear distinctions between shoes. In support of the study hypothesis, the shoe with minimal focus on cushioning had a significantly higher rate of loading than all but one of the other test shoes. Data collected for midfoot and forefoot areas of the foot highlighted the importance of considering loading across the foot surface. The results of the present study demonstrate that pressure insoles provide a useful tool for the assessment of loading across the foot plantar surface for different footwear conditions. There are numerous models of running shoe for individuals to select from, with limited information available regarding the performance of the shoes during running. The current study demonstrates differences in loads across the foot plantar surface during running, indicating differences in performance for different footwear models.

- **Keywords:** force; loading rate; midsole; impact; cushioning

Jeffrey M. Schiffman; Karen N. Gregorczyk; Carolyn K. Bensel; Leif Hasselquist; John P. Obusek. *The effects of a lower body exoskeleton load carriage assistive device on limits of stability and postural sway*. S. 1515–1529.

Abstract: The study investigated the effects of using a lower body prototype exoskeleton (EXO) on static limits of stability and postural sway. Measurements were taken with participants, 10 US Army enlisted men, standing on a force platform. The men were tested with and without the EXO (15 kg) while carrying military loads of 20, 40 and 55 kg. Body lean to the left and right was significantly less and postural sway excursions and maximal range of movement were significantly reduced when the EXO was used. Hurst values indicated that body sway was less random over short-term time intervals and more random over long-term intervals with the EXO than without it. Feedback to the user's balance control mechanisms most likely was changed with the EXO. The reduced sway and relatively small changes in sway with increasing load weights suggest that the EXO structure may have functioned to provide a bracing effect on the body.

- **Keywords:** stabilogram diffusion analysis; balance; random motion; load carriage