

AP MINE BLAST EFFECTS ON SURROGATE LOWER LEG

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Defence Research Establishment, Valcartier (DREV) in cooperation with CCMAT (Canadian Centre for Mine Action Technologies) and DRES (Defence Research Establishment, Suffield) have started a R&D program on the protection of dismounted soldiers and deminers against AP blast mines. One step of this program consists of understanding the physics of blast load transmission to the lower leg, understanding the leg wound mechanisms and quantifying these effects. These objectives are addressed by performing experimental and numerical work on a simulated simplified lower leg (SLL). This paper presents the current results of the experimental work. To compare their relative behaviour, the SLL was designed using three types of simulated bones and two types of simulated muscular tissue. During the experiments, the force transmitted to the leg and the leg displacement were measured. The amount of bone and tissue damaged and lost, the pressure wave in the muscle simulant as well as the strain wave in the simulated bone were also measured. These measurements enabled the assessment of the biofidelity of the simulant materials.