Abstract Submitted
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Investigation of Ballistic Penetration through Tibia Soft Tissue Simulant[1] THUY-TIEN N NGUYEN, Department of Physics, Imperial College London, SPYROS D MASOUROS, Department of Bioengineering, Imperial College London, GARETH R TEAR, WILLIAM G PROUD, Department of Physics, Imperial College London, INSTITUTE OF SHOCK PHYSICS AND THE CENTRE FOR BLAST INJURY STUDIES, IMPERIAL COLLEGE LONDON, UK TEAM
— High energy trauma events such as from explosions and ballistic weapons can cause severe damage to the human body. The resulting injuries are very complex and their mechanism is not fully understood. Secondary blast injuries, effectively ballistic traumas, to the extremities are commonly reported, especially to the tibia. The aim of this study is to quantify the effect of parameters such as projectile mass and velocity, and impact location on injury thresholds in the leg. The bones of the leg were set in biofidelic gelatin tissue simulant. A 32-mm-bore gas gun was used to launch a sabot carrying a carbon steel projectile 0.5 to 1.1 g in mass at the sample with speeds of 50 to 300 m/s. Penetration depth and impact velocity were recorded. The effect of different postures - such as standing and non-weight bearing on injury were considered. The resulting injuries were scored clinically and their correlation with the various impact parameters was calculated.

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