

9 Comparison of different evaluation methods to classify torso PPE for protection levels related to punch and push

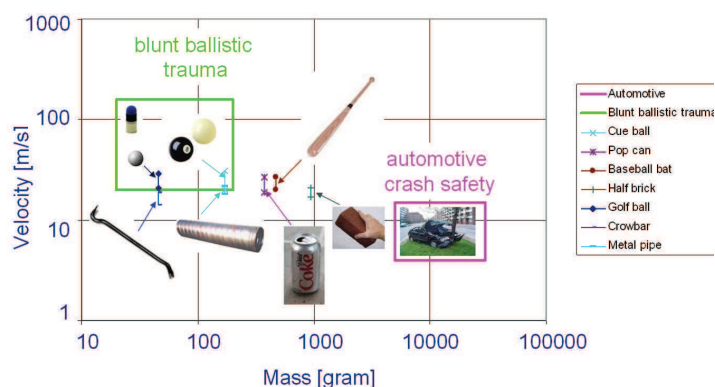
Marike van der Horst, Rogier Meijer, Mat Philippens
TNO, Defence Security and Safety
P.O. Box 45, 2280 AA Rijswijk
The Netherlands, T +31 15 2843329, F +31 15 2843939,
E-mail: marike.vanderhorst@tno.nl

Today, first responders, especially police are subject to punch and push assaults during crowd control activities, e.g. swung baseball bats, hand thrown projectiles like bricks, etc. Helmets, shields and customized ice hockey gear are currently used as personal protective equipment (PPE) for this threat. Research of methods to qualify the protection performance was performed by TNO to support the Dutch Police in upcoming selection process for future protective equipment. The methods should be repeatable and reproducible to guarantee consistent performance qualification throughout different laboratories.

This paper presents a comparison of different evaluation methods to classify torso PPE for protection levels related to punch and push. An inventory is made of performance qualification procedures and standards. These procedures were evaluated on objectivity of the test methods, criteria and relation to injury risk.

The current standards for PPE have their limitations. The relation between performance level and injury is not known. The different performance levels defined in the standards can be insignificant for the reduction in injury risk as the actual performance range may only address one injury type or severity. The protection performance of PPE can be improved for its practical significance by relating the performance to injury risk.

Therefore a pilot test series will be performed with PPE on a human surrogate which has a relation towards injury risk. The results of this pilot will be compared with tests which are performed according to a German standard for PPE, the VPAM.



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