INTRODUCTION

Many forensic questions are leading into a discussion of injury-mechanism. A human punch is frequently the reason of injuries due to blunt traumatic violence (Missliwetz, 1990). Up to now these cases have been evaluated through experience, but not through objective collected physical properties. The aim of this study is to develop a suitable method for collecting physical data characterising the human punch. With these data it should be possible to explain the cause of trauma on crime victims by the principle of cause and effect.

METHODS

Using a MOTION ANALYSIS system with eight cameras [240fps] the punching motion of several test subjects was captured. The volunteers punched three objects of different weight with maximum effort. Velocities of the test subject’s fist and of the object were collected (see Figure 1). Additionally the ground reaction force and the torque with respect to the vertical axis of the subject were measured by a KISTLER force plate.

RESULTS AND DISCUSSION

Description of intra- and inter-individual differences in the measured parameters will be presented. Maximum velocities of the hand varied between 8 m s\(^{-1}\) and 12 m s\(^{-1}\) despite the fact that punching techniques spread in a wide variety. This fact becomes evident from various shapes of ground reaction force and torque curves.

REFERENCES