

## **Abstract 1<sup>st</sup> European Symposium on Non-Lethal Weapons**

### **Safety evaluation of Pepper Spray as a police weapon**

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In several countries pepper spray (PS) is used by police forces as an incapacitating agent. Earlier studies indicated that it is an effective weapon in man-to-man situations. However, the safety of PS needs some more investigation. Due to effects of the main component of PS, capsaicin on the lungs, asthmatic people may show increased sensitivity. This aspect has been investigated in a well-known animal model, the with ovalbumin (OVA) sensitized and challenged guinea pig.

To estimate the maximal risk, conscious guinea pigs were exposed to very high doses of artificially aerosolized PS. Most OVA-sensitized and -challenged guinea pigs had severe asthmatic symptoms and even died after a 10 min exposure. Non-asthmatic control animals were less sensitive, although some died. To expose guinea pigs in a more realistic fashion, PS was sprayed directly into the guinea pig face for 1 or 4 sec. This only resulted in development of mild symptoms, although asthmatic animals were somewhat more sensitive. Some anti-asthma drugs appeared able to counteract these symptoms.

These experiments show that asthmatic animals were more sensitive, but realistic exposure to PS appeared not dangerous. To obtain maximal certainty, additional research with (asthmatic) human volunteers would be necessary.

In the particular test condition used, only a very small fraction of the PS appeared to be inhalable. The relevance of this fact for technical specifications of pepper sprays will be discussed.