

Non-lethal Restraint & Control

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Restraint & Control

- Conflict Resolution
- Handcuffs
- Batons
- Dogs
- Incapacitant Sprays
- Riot "bullets"
- Empty hand techniques
- Electrical

Restraint & Control



Restraint & Control

- Conflict resolution
 - interactive factors
 - offender behaviour
 - impact factors
 - reasonable officer responses

Restraint & Control

- Offender behaviour
 - compliance
 - verbal and gestures
 - passive resistance
 - active resistance
 - assault/ aggression
 - aggravated aggression

Restraint & Control

- Impact factors
 - imminent danger
 - sex, age, size, strength
 - skills
 - special knowledge
 - drugs
 - mental state
 - position of disadvantage
 - injury
 - number involved
 - weapons
 - officer's perceptions

Restraint & Control

- Police may have access to
 - handcuffs
 - CS/PAVA
 - side batons
 - dogs
 - ?plastic bullets
- offenders access to
 - anything

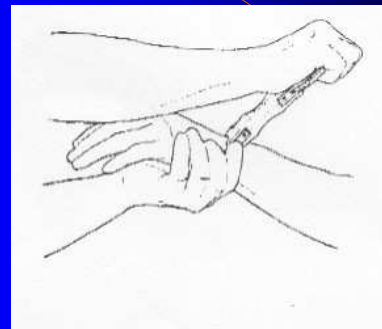
Handcuffs

- Chain
- Rigid (KwikCuffs)
 - control by pain
 - position
 - locking
 - injuries

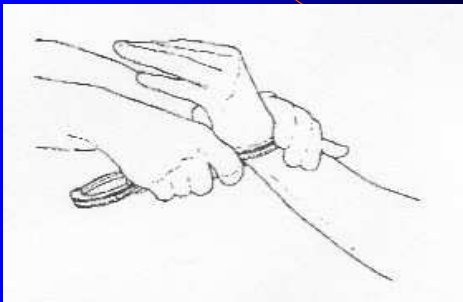
Handcuffs



Handcuffs



Handcuffs



Handcuffs

- Injuries
 - soft tissue
 - bony
 - neuropathy
 - sensory
 - motor

Handcuffs



Handcuffs



Batons



Batons

- Three main types
- - three part gravity friction lock baton made of steel (an expandable baton with two telescopic tubes that extend to a locked format with the flick of the user's wrists) e.g. ASP
- - acrylic patrol baton (APB) which is available in three lengths (22, 24 & 26 inches). The 22 and 24 inch APBs are available in solid or hollow versions. The 26 inch APB is only available in the hollow version
- - 15 inch wooden patrol baton

Batons



Batons

- Low injury potential
- legs - areas of the common peroneal, femoral and tibial nerve; arms - areas of the radial and median nerves
- expected medical complications - low probability of permanent injury, transitory bruising of the target area, transitory motor dysfunction of the affected limb

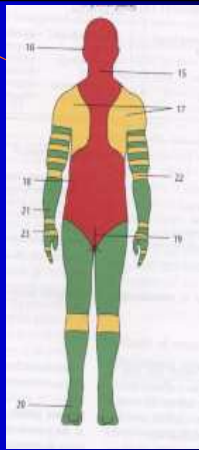
Batons

- Medium injury potential
- legs - knees and ankles, arms - wrist, elbow, hands, upper arms; clavicle
- expected medical complications - bone fractures, dislocation and soft tissue damage

Batons

- Higher injury potential
- body areas - head, neck/throat, spine, loins (kidneys), abdomen (small bowel, stomach, liver, pancreas)
- possible medical complications - risk of serious complications or death

Batons



Batons

- Blunt trauma
- Soft tissue
- Ligamentous
- Bony

Batons



Batons



Dogs

- 'Simple' bites?
- Vascular & neurological
- Soft tissue defects
- Infection

Incapacitant Sprays

- CS
- CN
- CR
- OC
- PAVA

Incapacitant Sprays

- CS
 - Corson & Staunton 1928
 - ORTHOCHLOROBENZYLIDENE MALONITRILE (5%)
 - MIBK (Methyl Isobutyl Ketone)
 - Nitrogen

Incapacitant Sprays

- lachrymation (tears) (<15 mins);
- pain (<30 mins);
- blepharospasm (eyelids closed) (<30 mins);
- conjunctival erythema (redness) (<30 mins);
- reduced visual acuity (blurred vision) (<30 mins);
- photophobia (sensitivity to light) (<60 mins);
- periorbital oedema (swelling around the eye);
- damage to the ocular surface from the direct trauma of a high-pressure jet;
- iritis may develop as a non-specific response and occurs in about 50% of those sprayed with the standard 5% concentration;
- conjunctivitis; corneal abrasions due to rubbing the eyes

Incapacitant Sprays

- nose discomfort, pain & rhinorrhoea (<30 mins);
- sneezing & coughing;
- sore throat;
- shortness of breath
- bronchospasm (rare);
- laryngospasm (rare);
- tracheitis;
- bronchitis (rare);
- pulmonary oedema may develop 12 to 24 hours after excessive exposure (rare);

Patients with pre-existing respiratory disease, such as asthma or bronchitis, are more at risk of severe effects

Incapacitant Sprays

- burning sensation & erythema (<24 hrs);
- chemical burns, blistering;
- allergic contact dermatitis (rare - but if in a police officer regularly exposed to CS may require changes in work practice);
- leukoderma (rare);
- initiation or exacerbation of seborrhoeic dermatitis (rare); aggravation of rosacea (rare)

Incapacitant Sprays



Incapacitant Sprays



Incapacitant Sprays



Incapacitant Sprays

- CN (Mace)
 - l-chloroacetophenone
 - most toxic
 - deaths have occurred - respiratory

Incapacitant Sprays

- OC
 - Oleoresin Capsicum
 - 4 active vanillyl fatty acid amides

Incapacitant Sprays

- PAVA
 - pelargonic acid vanillyamide

Incapacitant Sprays

- www.fflm.ac.uk

Riot Weapons

- Plastic bullets (baton rounds)
 - distance
 - accuracy
 - tumbling of rubber bullet
- Bean bag (flexible baton)
- "Tear Gas"
- Water cannon

Riot Weapons

- Plastic Baton Round
 - 10 cm x 3.7 cm

Empty Hand

- Training requirements
- Minimal damage
- Arm locks and holds
- Pressure point control and knee and elbow strikes may be used
- If excessive force is used, either directly by the officer or as a result of the restrained person moving, joints such as the wrist, elbow or shoulder can be strained to varying degrees. Other soft tissue injuries may be found.
- Neck restraints are not taught, as there is a clear risk of grave injury or fatality and should be avoided at all costs.

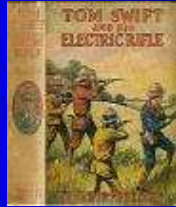
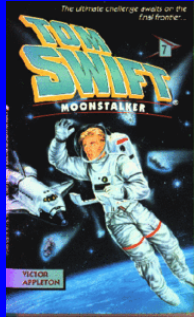
Empty Hand



Electrical



Electrical



TOM SWIFT AND HIS ELECTRIC RIFLE

VICTOR APPLETON

Electrical

- Stun Gun
- TASER
 - [Thomas A Swift Electrical Rifle]
 - 50000 v
 - 1-3 mA
 - myoclonic spasm / KO
 - injury
 - secondary
 - primary rare
 - coincidental

Taser

- Small hand held battery powered device delivering repetitive low current, high voltage impulse shocks to incapacitate a person allowing further restraint.
- Compressed nitrogen or rifle primer charge acts as a propellant to fire two metal barbs (8 mm in length with a 1 mm high barb about 3 mm from the tip – they are not 'fish-hooked' in shape) connected to the unit by up to 6.4 m of fine wire to the skin or clothing of the target.
- Contact of both barbs allows completion of a circuit through which the 50,000 volt pulses pass.
- As the distance to the target increases, so will the separation between the two barbs at impact. Increasing the separation of the barbs on the target leads to greater effects as more muscle groups are affected by the voltage pulse

Taser

- The current flowing into the body is sufficient to induce temporary disruption of voluntary muscle control and intense pain
- The Taser may also be used in 'stun' or 'probe' mode, in which the handset's electrodes are pressed directly against an individual's skin or clothing.
- In stun mode, pain (rather than muscle contraction) is the principal local response because of the narrow separation of the electrodes.
- The UK police use X26 and M26 Tasers, which have been deployed operationally within the UK since 2003 and in use operationally for several years before that in the US and Canada.
- The X26 is the newest variant of the Taser and is the one most commonly used in the UK

Taser

- Unintended adverse effects from the use of Tasers are classed as:

Primary: Immediate or delayed consequences of current flow in the body. In addition to the intended effect of painful muscle contraction, there has been speculation that the Taser current may exert effects on cardiac rhythm. No fatalities associated with Taser use have been unequivocally linked to a direct action of the Taser current on the heart. Taser barbs have penetrated eyes, the skull and the chest.

Secondary: Physical trauma directly associated with Taser use, mainly injuries arising from falls. The head is the region most at risk. Two deaths in the United States have resulted from fatal head injuries sustained during Taser-induced falls. Mild rhabdomyolysis has been reported. Thoracic vertebral compression fractures have been documented – and such injuries may be primary effects. Pharyngeal perforation, possibly secondary to sudden diaphragm contraction during Taser discharge, has been described.

Coincidental: Injuries not directly attributable to Taser (for example, use of baton or irritant spray, self-inflicted wounds or gunshot wounds).

Taser

- Medically significant head injury resulting from uncontrolled falls is rare: standing subjects generally either freeze on the spot or collapse in a semi-controlled manner. However, there have been two US reports of fatal head injuries incurred by Taser induced falls, and the possibility of head injury should be considered.
- A number of deaths have been reported in North America during, or after, exposure of subjects to Taser discharge; these deaths have been principally attributed to excess consumption of illicit drugs or to physiological stress imposed by extreme physical activity and restraint, frequently compounded by drug abuse or underlying cardiac disease.
- No death has yet been unequivocally attributed to the effects of the Taser device alone. However, full clinical assessment is essential particularly in the presence of other factors such as drugs, alcohol, cardiac disease and following violent struggles.

Taser

- Falls may result in abrasions, scratches, minor lacerations, swellings and areas of redness on the skin
- Minor secondary trauma from barb penetration of the skin will occur. Some barb penetrations will be associated with small, circular, local burns; these are areas of skin where current has entered the body. May also see burns underneath clothes that have been penetrated
- There is currently no evidence for any long-term clinical effect attributable to the primary effect of the Taser
- Secondary effects, including cataract from orbital penetration and back pain after vertebral compression fractures, have been reported

Taser

- Death in Vancouver airport, Canada, in October 2007 after restraint and tasing by police
- Braidwood Commission
- Commission recommended that officers should not tase someone unless they are "causing, or about to cause, bodily harm" rather than merely defying an officer's order
- Paramedic care should be called when any elderly, pregnant or emotionally disturbed people are tased

Taser

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Taser

- 7 Han JS, Chopra A, Carr D. Ophthalmic injuries from a TASER. *CJEM* 2009;11:90-93. (Two earlier cases of globe penetration are also cited.)
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New Devices



Extended Range Electronic Projectile (XREP)

Summary

- Multiple methods of restraint
- Officers and prisoners sustain injuries
- Be aware of modes of actions and complications
- Undertake full assessment looking for injuries and documenting them
- Be aware of appropriate treatments
- ? Any long-term effects

