

# KINETIC IMPACT PROJECTILES

**Kinetic impact projectiles (KIPs)**, commonly known as rubber and plastic bullets, are used for crowd-control purposes by law enforcement worldwide in multiple forms and are shot from myriad types of guns and launchers. The findings of a systematic review of medical literature carried out by Physicians for Human Rights indicate that KIPs cause **serious injury, disability, and death**. KIPs are inherently inaccurate when fired from afar and therefore can cause unintended injuries to bystanders and strike vulnerable body parts; at close range, they are likely to be lethal. Therefore, KIPs are **not an appropriate weapon** to be used for crowd management and specifically for dispersal purposes.

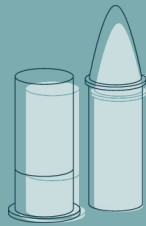
## HISTORY

The first kinetic impact projectiles used in protests were sawed-off pieces of broom handles that were shot against rioter in **Singapore** in the 1880s. **The British** also developed first wooden, then plastic, polyvinyl chloride (PVC) and rubber bullets for use in demonstrations in Northern Ireland. **The United States** began using rubber and plastic bullets during Vietnam War protests.

## DEPLOYMENT MECHANISM

KIPs are deployed from a wide range of launchers and guns. Some are **additions to rifles** also used for live ammunition, while others are **specially designed** for crowd-control weapons. Depending on the type of bullet and launcher, single or multiple projectiles may be fired at once.

**RUBBER & PLASTIC BULLETS** are solid, spherical, or cylindrical projectiles of variable sizes fired as single shots or in groups of multiple projectiles. Pellets can be made of rubber, plastic, PVC, or a composite including metal.

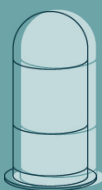


**BEAN BAG ROUNDS**, also known as flexible batons, are synthetic cloth bags filled with small metal pellets that are fit into a cartridge and expand as they travel to create a wide surface area impact.



## COMMON TYPES OF PROJECTILES

**SPONGE ROUNDS** is a term for projectiles that limit penetration of the projectile into the skin by having a tip or nose that is slightly softer. These include foam rounds with a hard foam nose or attenuated energy projectiles with a hollow nose.

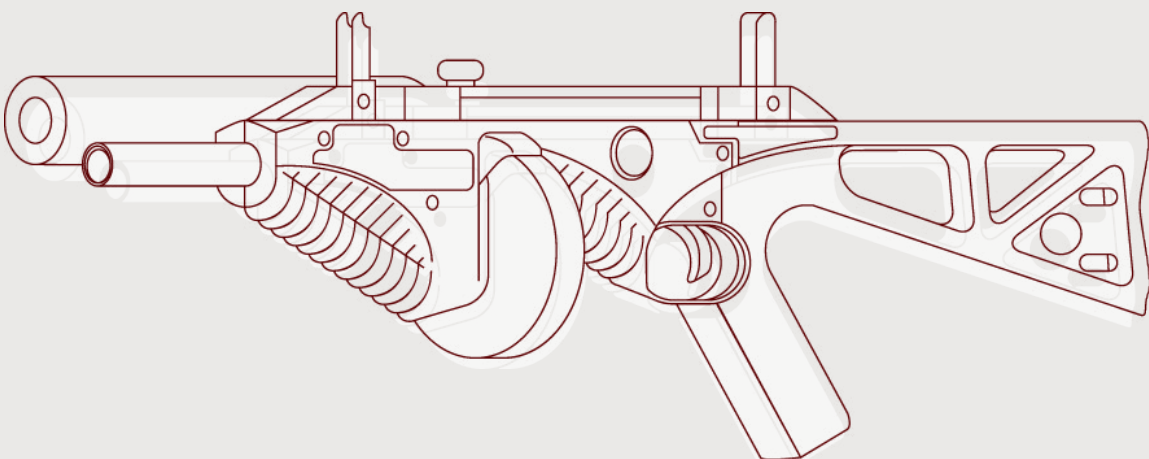


**PELLET ROUNDS** are cartridges filled with small lead, steel, or plastic/rubber pellets that spread out when fired. Metal shot such as buckshot and birdshot are considered crowd-control weapons by some countries.



## HOW THEY WORK

KIPs work by transferring kinetic energy from a weapon into a person. KIPs are purportedly designed to inflict pain and incapacitate an individual without penetrating the body. In theory, the larger shape and slower speed of KIPs should limit their ability to penetrate the skin or cause deep blunt trauma injury. However, due to their irregular shape and slower speed, KIPs are often inaccurate and therefore can strike vulnerable body parts or unintended targets.



## HEALTH EFFECTS

KIPs can cause **blunt** or **penetrative trauma**. Penetrative injuries are those that pierce the skin or soft tissue. Blunt injuries are those that cause internal damage without breaking the skin barrier.

### EYES

Direct trauma to the eye from KIPs nearly always causes total blindness in that eye, due to rupture of the globe (eyeball) as well as trauma to nearby structures. KIPs can also penetrate through the eye socket and enter the brain, causing brain injury.

### CARDIORESPIRATORY SYSTEM

KIPs can cause bruising of the lungs or heart, and penetration into the chest may cause serious, possibly fatal injuries such as bleeding, pneumothorax, and heart attacks.

### MUSCULOSKELETAL SYSTEM

Injuries to the muscles and bones may cause sprains, bruises, and fractures. Deeper injuries can cause permanent damage to the neurovascular structures, leading to amputations or compartment syndrome.

### BRAIN

Blunt trauma to the brain can cause concussions and bruising inside the brain (contusions) as well as different types of bleeding in the brain (intracranial hemorrhage) and skull fractures. KIPs have also been known to penetrate the skull or enter the brain tissue, causing hemorrhage, injury to the spinal cord, and severe brain injury from the foreign body.

### HEAD AND NECK

The delicate structures of the face and neck are particularly vulnerable to traumatic injury. The bones of the face and skull, the spinal cord, and the blood vessels in the neck are all close to the skin surface.

### ABDOMINAL

Blunt injuries can cause bleeding in the solid organs such as the liver, kidney, and spleen; penetrative injuries can also cause bleeding, perforations, and urogenital injuries.

### SKIN AND SOFT TISSUE

KIPs can cause bruising and contusions of the skin and soft tissue, as well as superficial and deep lacerations, some of which may cause muscle or nerve damage as well as bleeding.

## FINDINGS ON INJURIES FROM A LITERATURE REVIEW AND RESEARCH

A systematic review conducted by Physicians for Human Rights of medical literature on kinetic impact projectiles over the past **25 years** identifies **1,925** people who suffered injuries, **53** of whom died, and **294** people who suffered permanent disabilities. While these findings do not enable estimates of prevalence, they indicate that KIPs have resulted in significant morbidity and mortality.



### DEATHS

**49%** of deaths resulted from direct strikes to the head and neck and **23%** resulted from blunt injury to the brain, spine, or chest.



### PERMANENT DISABILITY

Permanent vision loss was the most common permanent disability. Some **84%** of eye injuries resulted in permanent vision loss.



### INJURY SEVERITY

**70%** of all those who were injured had severe injuries that required professional medical assistance.



### BULLET'S COMPOSITION

Bullets with metal in them, such as rubber-coated metal bullets, shotgun pellets, and metal composite bullets, are more dangerous because they travel at higher speeds and hit the body much harder.



### FIRING DISTANCE

Firing distance correlates with the severity of injuries. Some types of KIPs have a muzzle velocity similar to that of live ammunition, and therefore close-range firing of KIPs can result in severe injuries and disabilities.

## VARIABLES THAT CAN EXACERBATE INJURIES



### SITE OF IMPACT

Impacts to the head, neck, face, and other vulnerable body parts can exacerbate injury severity.



### DELAYED ACCESS TO MEDICAL CARE

Overburdened medical facilities, checkpoints, delayed presentation because of fear of arrest or reprisal, or failure of medical personnel to recognize injury are all factors that can delay access to medical care.

## POLICY RECOMMENDATIONS

✓ **INDISCRIMINATE KIPS THAT FIRE MULTIPLE PROJECTILES, SUCH AS SHOTGUN PELLETS, SHOULD BE PROHIBITED IN THE CONTEXT OF PROTESTS.**

✓ **KIPs in general are not an appropriate weapon for crowd managements** and, specifically, for dispersal purposes. Most cannot be used effectively and safely against crowds. At close ranges, levels of lethality and patterns of injury of some KIPS become similar to those of live ammunition. At longer ranges, KIPs are inaccurate and indiscriminate. Some KIPs are lethal in close range and ineffective at longer distances which make safe use difficult.

✓ **Rubber-coated metal bullets are not safe** and should be prohibited.

✓ **Some types of KIPs are able to provide a less lethal and accurate alternative.** Deployment of those KIPs should be restricted to circumstances where a threat to life or a threat of serious injury exists, and where all other means to protect lives are inapplicable.

For more information, see Physicians for Human Rights and INCLO, *"Lethal in Disguise: The Health Consequences of Crowd-Control Weapons."* (March, 2016).

