

Ballistic Simulation used in a Suicide Case

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Introduction

Depending on the shooting distance, homemade firearms might cause catastrophic harm. A male victim was discovered dead with a head wound that was presumed to have been caused with a homemade gun shooting modified bullet. Following the autopsy, the question of whether the improvised gun found on the scene was capable of inflicting such a wound surfaced. The ballistic parameters and wounding pattern of the improvised gun were evaluated using an experimental approach, which was then compared to the actual instance. To mimic and approximate the behaviour of the projectile when striking and penetrating the victim's head, ballistic gelatin with an integrated bone simulant was used. Experimental shoots with the same makeshift gun and similar projectiles confirmed that the bullets' path was retained in gelatin. The experimental shootings allowed for better observation and documentation of the wounding pattern, validating the initial premise that the retrieved homemade gun inflicted the wound seen during the victim's autopsy.

Description

An 81-year-old man with a piercing gunshot wound to the head was located dead in a supine position outside his house in an open field area. The skull wound and the nasal cavity had both bled profusely. During the police inquiry, a rusted gun-shaped device and an unspent cartridge were located beside the body. The fatality-causing bullet was not found due to the scene's placement in an open field region. A suicidal note was also discovered on the deceased's clothing, which contained claims about a three-year plan to commit suicide as well as forgiveness requests from anybody the deceased may have unintentionally wounded in the past. His relatives claimed he had been depressed for a long time without taking any of the authorised medications. The death was assessed as a potential suicide by police officials based on evidence obtained at the scene.

Homemade weapons may be harmful and deadly for any user, and they are rarely examined before being used for the first time. The literature on this topic is limited, but it has developed in recent years. Homemade firearms can be used for a wide range of purposes, including protection, self-defence, homicide, sport, illicit hunting, and finally suicide. Nonetheless, reports of suicides committed using homemade firearms are extremely uncommon. In addition, killings and accidents with homemade weapons are extremely rare.

It's worth noting that, according to a 1995 poll in Canada, 28% of pupils admitted to carrying a weapon to school, most of which were handmade.

These rifles are commonly referred to as "country-made firearms" in India. In the United States, these are known as "zip guns," and they are either primitive manufactured firearms or firearms converted from a blank/tear gas cap gun. They were popular in the 1950s, mostly in metropolitan areas, due to their ease of building and plentiful materials/parts. Homemade firearms are less popular in Western Europe, Australia, and the United States these days, but they are still used in criminal cases in India, South Africa, and Israel [1-5].

Conclusion

Depending on the shooting distance and the anatomical region impacted, homemade firearms used as "firearm alternatives" may cause serious injuries. A ballistic examination and experimental shots with the same weapon and similar type of projectiles can be undertaken in suspected suicides committed with a handmade gun to determine the functionality and capabilities of the recovered firearm to produce fatal damage. Ballistic gelatin with an included bone model can be used to imitate head wounds suffered by handmade firearms, as seen in this case. The results showed that the higher the projectile's impact velocity, the longer the bullet path in ballistic gelatin, just like in a human gunshot victim.

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