

D11 The Injury Potential of Fidget Spinners

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The goal of this presentation is to highlight the injury potential of fidget spinners, in particular from sharp points or edges that can cause injury when the spinners are used inappropriately as weapons.

This presentation will impact the forensic science community by assisting attendees in understanding the key issues related to the ability of fidget spinners to create stabbing or slashing injuries and other factors that can be relevant to injuries arising from fidget spinner design and manufacture.

Fidget spinners are essentially toys that have a planar multi-lobe structure that spins around a central bearing. Common designs have two or three lobes, and the bearings are contained in a central circular pad or bearing race with a hole through it. The operator either spins the toy while holding the center pad with opposing digits or places the central hole over a finger and spins the device around the digit. These spinners are typically made of metal or plastic, and a wide range of different metal alloys have been used, including brass, titanium, die-cast aluminum, and stainless steel. The bearings at the center of each spinner are made of ceramic or stainless steel and provide exceptionally low friction. As a result, these spinners spin easily and are balanced by weights on the outside that aid balance and retain rotational speed. Fidget spinners reportedly benefit those who have difficulty concentrating or need to relieve nervous energy and/or stress. Some educational institutions have embraced the spinners for aiding attention while others have banned them. There is no scientific evidence that spinners help treat symptoms of autism or Attention-Deficit Hyperactivity Disorder (ADHD).

Fidget spinners have become incredibly popular and retail for low prices (typically <\$10). The spinners are typically designed to provide the user with long spin times from an initial impulse, low vibration, and provide a distinctive sensation and noise. Some spinners contain battery-powered Light-Emitting Diodes (LEDs).

While most fidget spinners are designed and intended as toys, there are some issues with the spinners that can potentially lead to injury. Some spinners are now on the market that have sharp points and are marketed as “ninja.” The design of such spinners can be used to inflict injury.

The injury potential of fidget spinners falls into four categories, all of which are related to failure to meet European Conformity (CE) standards or their international equivalents: (1) manufacturing quality — some spinners have manufacturing defects that leave sharp metal burrs; (2) selection of materials of manufacture and the composition of paints, for example; (3) small parts and corresponding age-appropriate warnings (such as whether the spinners contain batteries that could be accessed or swallowed by small children); and, (4) sharpness of the points and blades and whether or not these can create injury.

This presentation reports on an investigation into the sharpness of the points and blades of a range of fidget spinners that are available in the United Kingdom market and their potential for injury. The spinners are marketed as “ninja shuriken” spinners or “dragon blade” spinners. The points on some of the spinners are sharper than that recommended by the European Standard BS EN 71-1:2014 Safety of toys. Part 1: Mechanical and physical properties.

This presentation will illustrate that, although the edges of the spinner blades were dull, the points of some spinners tested are sufficiently sharp to penetrate both tomato and pork skin when used with a stabbing action. Attendees will understand the key issues for fidget spinners that are being designed and marketed to appear threatening and may be used inappropriately as weapons.

Fidget Spinners, Sharpness, Penetration