

Bottle rockets can cause serious eye injuries in children

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Bottle rockets can cause significant eye injuries in children, often leading to permanent loss of vision, according to a report posted online today that will appear in the May print issue of *Archives of Ophthalmology*.

Of the estimated 9,200 emergency department admissions resulting from fireworks-related injuries each year, about 1,400 cases involve the eyes, according to background information in the article. A disproportionate number of these injuries are caused by bottle rockets. Bottle rockets are about half the size of a normal firework and consist of three main parts: an explosive-filled core, a nose cone that guides the fireworks' flight and a guide stick, which stabilizes the rocket. "Injuries may result from direct high-velocity contact with the intact rocket, from parts of the rocket that may break off during flight or from neighboring debris propelled by the force of the rockets' combustion," the authors write.

Mehnaz Kahn, M.S., and colleagues at Vanderbilt University Medical Center, Nashville, report on 11 eyes in 10 patients (eight boys and two girls) age 18 or younger who were seen for [eye injuries](#) caused by bottle rockets between 2006 and 2009. Eight of the 10 patients were injured within a month of July 4; eight were launching bottle rockets at the time of injury and two were bystanders. None were using protective eyewear at the time.

Of these, injuries included defects in the epithelium lining the cornea (seven eyes), bleeding in the front of the eye (six eyes), traumatic inflammation of the iris (two eyes), iridodialysis or a tear of the iris (four eyes), cataract (four eyes), retinal dialysis or a type of retinal tear (one eye) and bleeding into the eye's vitreous fluid (two eyes).

Eight of the eyes required initial treatments such as surgical removal of the lens or corneal debridement (removal of damaged corneal tissue).

Three patients required additional procedures, including muscle surgery and placement of a new lens.

Of the 10 eyes with follow-up, the most recent visual acuity was 20/30 or better in four eyes and 20/200 or worse in six eyes. Permanent visual impairment was usually due to traumatic maculopathy, or damage to the part of the retina responsible for central vision.

"This study demonstrates that bottle rockets can cause significant ocular injury in children and adolescents and, in turn, cause their parents and themselves to incur expenses through emergency department visits, surgical interventions and days missed from school and work," the authors conclude. "If children, adolescents and parents choose to launch bottle rockets, it is important for parents not only to supervise children and adolescents in the vicinity of bottle rockets but also to ensure that protective eyewear is being used."

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