

How old is too old to fight in boxing?

Abstract

Professional boxing is a popular combat sport worldwide. It is a physically demanding sport, and professional boxers are usually in their mid to late 20's. At around 35-years of age most boxers begin to show signs of physical decline. Boxers hence begin to retire from professional boxing around 35-years of age. Recently older combatants are entering the ring and cage to ply their trade. These are either former professional combatant who is choosing to come out of retirement or celebrities who are getting pitted against each other in exhibition boxing matches (popularly referred to as celebrity boxing). Many of these "combatants" are on the wrong side of 40, have little to no formal training in combat sports and poor physical conditioning. Boxing and MMA are referred to as combat sports. Neurological, orthopedic, and ophthalmological injuries are common. While some are life threatening others has the potential to cause lifelong disability. Boxers sometimes die in the ring due to acute traumatic subdural hematoma (SDH). Concern is hence raised for the health and wellbeing of these older athletes. Should an athlete above the age of 40 compete in professional boxing? How old is too old to fight in boxing?

Keywords: boxing, combat sports, injuries, older athlete, traumatic brain injury

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Commentary

Boxing is a young man's sport. Most boxers peak in their late 20's and early to mid 30's. Boxing is also a sport wherein the danger of suffering acute traumatic brain injury (TBI) is omnipresent. Boxers continue to die in the ring or in the immediate aftermath of a bout on account of traumatic SDH.¹ Other acute TBIs reported in boxing include subarachnoid hemorrhage (SAH), intraparenchymal hemorrhage (IPH), intraventricular hemorrhage (IVH) and dissection of the great vessels of the neck. Apart from head injuries, orthopedic and ophthalmological injuries are also common in boxing. When they occur in the ring during a bout, they are usually not life threatening but do carry the potential for causing long term disability and discomfort. Apart from acute TBIs, boxers are also prone to chronic neurological insults which result from repetitive head impact exposures (HIEs). These include chronic posttraumatic headaches, chronic posttraumatic dizziness, chronic posttraumatic mood and behavioral changes, posttraumatic Parkinsonism, and chronic traumatic encephalopathy (CTE). It is important to remember that CTE is not a disease that is unique to American Football. Boxing medical literature is replete with colorful terms such as dementia pugilistica, punch drunk syndrome, slug nutty among others. Careful analysis of these case descriptions suggests that reported entities are either CTE or variants of CTE.

Currently boxers above the age of 40 are classified as high-risk fighters by many athletic Commissions in the United States and around the world. The primary reason for this is concern that a fighter above the age of 40 is at greater risk for injury and bodily harm. Is this a valid concern?

Review of medical literature reveals that the incidence of SDH is highest in the fifth through seventh decades of life with highest incidence in adults aged 70-79 years.² Outcomes in acute SDH following TBI vary according to age. One study showed that mortality following surgical evacuation was significantly higher in older patients (50% above 70 years, 25.6% between 40 and 70 years and 26% below 40 years). Elderly patients also had poorer outcomes as compared to younger patients even after surgical evacuation.³

Given the age susceptibility to traumatic SDH, it can be argued that a 45-year-old boxer is unlikely to have a higher predilection for sustaining a traumatic SDH from HIE as compared to a 27-year-old

boxer. An older combatant though is likely to have a poor outcome if he were to suffer a SDH in the ring.

Head impact exposures over the course of the combatant's professional career add up predisposing him to chronic neurological injuries associated with boxing such as CTE. The link between appearance of clinical symptoms of CTE such as slurring of speech, gait disorder, Parkinsonism and CTE pathology remains poorly defined.⁴ As a result delay in diagnosis and misdiagnosis is not uncommon. In the absence of a definitive and validated biomarker for CTE and dementia pugilistica, concern is raised that an older combatant harboring an early stage of this devastating brain pathology may enter the ring with disastrous results.⁵

Another medical concern for an older combatant relates to the cardiovascular system. The incidence of essential hypertension, diabetes mellitus and dyslipidemia increase with age. These along with unhealthy lifestyle choices such as sedentary lifestyle, unhealthy diet and smoking may further contribute to cardiovascular disease. Justifiably there is concern that an older combatant with latent coronary artery disease (CAD) may suffer an acute coronary event while in the ring or cage. It is prudent to screen older combatants for latent CAD with electrocardiogram (EKG), echocardiogram (ECHO) and exercise stress test. Cardiovascular risk assessment though should be done on a case-by-case basis with some athletes warranting a formal clearance from a cardiologist.⁶

Conclusion

In a sport such as boxing where every punch thrown at the opponent's head is thrown with the intention of winning via knockout, HIEs are common. There is a high incidence both acute and chronic neurological injuries. Every fighter should thus be considered a high-risk fighter in boxing irrespective of age. A younger combatant is as susceptible to acute neurological injury as compared to his older counterpart. Older age is a relative exclusion criterion for participation in combat sports. While an argument can be made that no age is too old to fight in boxing, older combatants do warrant closer medical supervision leading up to the fight to determine brain and cardiovascular fitness to fight. When older combatants enter the ring, every attempt should be made to match them with respect to age, ring experience, boxing skills and weight.

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Conflicts of interest

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