

Chapter 14

BOXING

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Introduction

In recent years, an extensive literature has accumulated regarding the health hazards associated with boxing. Research and anecdotal reports have demonstrated that boxers are subject to both acute (e.g. contusions, concussion, intracranial hemorrhages, etc.) and chronic neurologic injuries (e.g. "punch drunk syndrome" or dementia pugilistica). This chapter is not intended to serve as a forum on the moral and ethical issues related to boxing; for that, the reader is referred to a series of articles and editorials published by the *Journal of the American Medical Association* (Enzenauer, 1994; Haines, 1994; Ludwig, 1986; Lundberg, 1986, 1994; Patterson, 1986; Sammons, 1989). Neither is it meant to be an exhaustive review on the neurologic and psychiatric syndromes associated with boxing, which can be found elsewhere (Jordan, 1987; Mendez, 1995). The intent of this chapter is to provide the practicing clinical neuropsychologist with information about some of the common changes in neuropsychological performance, which are likely to occur as a result of engaging in amateur and professional boxing.

The following areas will be presented: a) epidemiology of boxing deaths and acute neurologic injuries; b) the biomechanics and pathology of a punch; c) the effects of multiple subconcussive head blows; d) neuropsychological syndromes in boxing (e.g., acute neurologic injuries; groggy states; and chronic traumatic brain injury); e) risk factors associated with chronic trau-