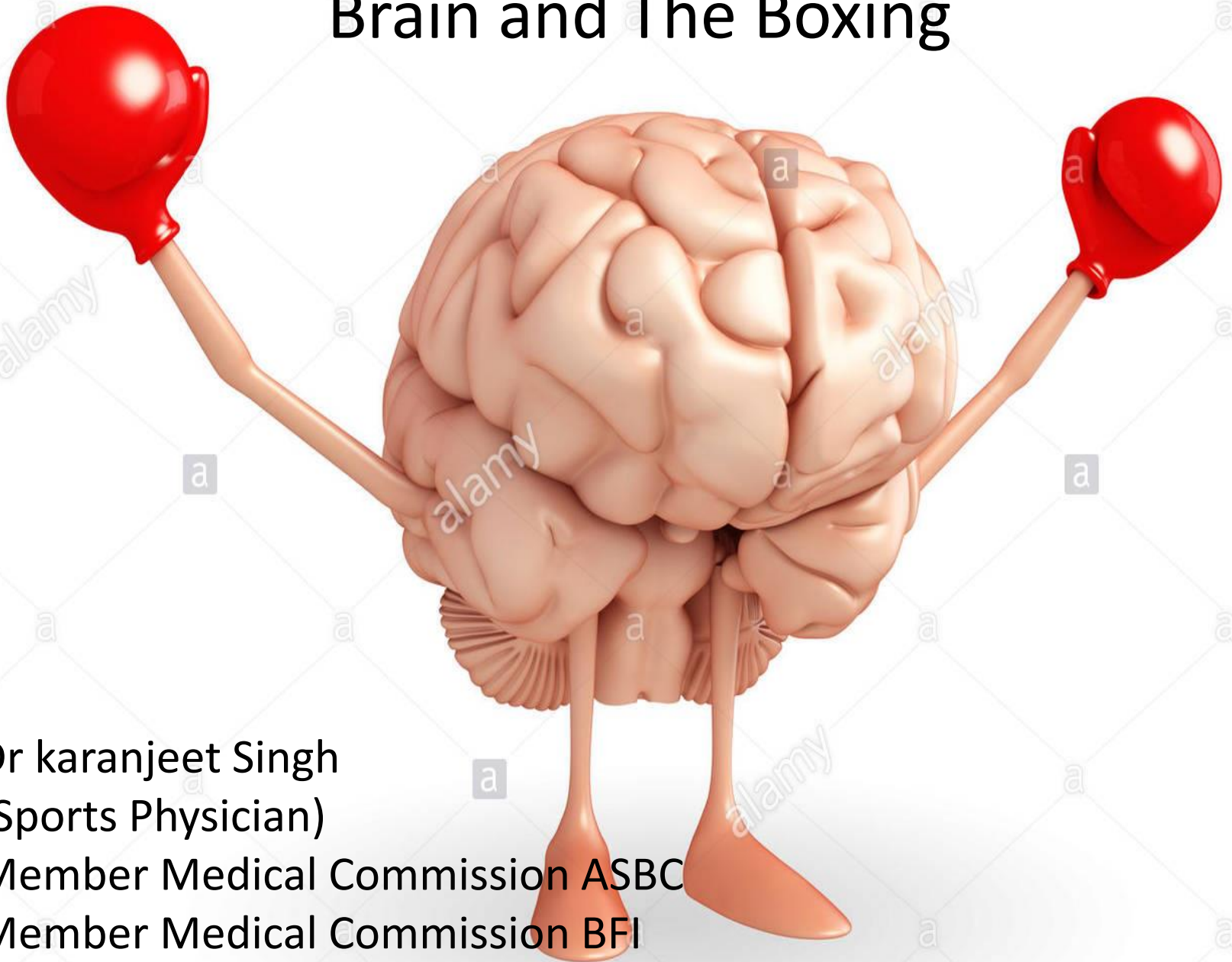


Brain and The Boxing



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- As member of team that was working so hard for years to achieve at highest level, I feel the first hand importance of protecting the boxers who already sacrifice so much for this sport

- Boxing is the sport that is associated with element of risk.
- There are several types of injury that are peculiar to pugilism
- Brain injury in boxers has always been recognized as a significant problem among ringside physicians, referees, commissions and trainers.

- Awareness and understanding surrounding brain injury and boxing is a matter of importance in order to protect the athlete in the ring.

- Why boxing is still allowed although it is clear that they punch each other and many people died due to injuries in boxing ?
- Its safer than soccer, baseball. Basketball and bicycling.
- In amateur boxing instead of pro, which uses thicker gloves, headgear, high focus on safety, more control of referee and scoring points by touching the opponent instead of hurting.

- Injury in amateur boxing mostly come from negligence or improper execution rather than from damage.

- Each year, 13 boxers on an average die in the ring (CNN)
- Between 1890 to 2011 its estimated that 1604 boxers died as a result of injuries sustained in the ring

- However, the death rates in boxing have slowed down in the last few decades. All of these efforts have focused on reducing the number of blows to the head that athlete sustain during the bout, and throughout their career.

Understand Brain

- Think of brain as jelly ball wrapped in sheet and encased within in a stainless steel jello mold.
- Jelly ball represent the brain, the sheet Dura and the stainless steel mold as skull.



When boxer suffer a blow to the head the brain shakes back and forth inside the skull causing injuries to both sides of brain.



Brain injury in boxing can be divide into two categories

- Acute brain injury – a) Concussion
 - b) Subdural
hematoma
 - c) Cerebral
contusion
 - &
- Chronic Brain Injury

- Acute brain injury occurs during a bout.
- In other words, the injury is temporally related to the blow
-



Concussion

- A concussion occurs when a blow to the head shakes the brain violently inside the skull
- As the brain shakes series of chemical and blood flow changes essentially cause a short circuit in the brain, which result in a transient disruption of normal brain function

result – boxer feel

- Headache
- Nausea
- Vomiting
- Visual disturbance
- Confusion
- Balance issues
- Gait abnormalities
- Loss of consciousness

- It is important to understand that greater than 95% of concussion don't involve loss of consciousness.
- Symptoms generally dissipate in 7 to 10 days but can go as long as three weeks.
- Sometimes rarely boxers develop post concussion syndrome, in these cases symptoms may persist more than 3 months.

- During the time period when a boxer is still symptomatic from the concussion, he or she is susceptible to a serious and potential fatal brain injury, in the event another strike to the brain.
- Therefore it is of paramount importance that a ring side physician has the ability to recognize when a concussion has occurred .
- Ringside doctor must stop to the bout and provide immediate and appropriate medical care.

Subdural hematoma

- Remember our analogy from earlier.
- The sheet that surrounds jelly ball is dura
- This tough sheet that covers the brain and separate it from skull
- There are series of veins called “bridging veins” that exist between the dura and the brain surface.
- After the blow to the head brain violently shakes inside the skull causing small bridging veins to tear
- Resulting in bleeding and clot formation.

- The collection of blood and clot is known as Subdural Hematoma
- If not diagnosed and treated immediately may cause severe pressure in the brain and death can occur.
- Infact most death occur in the ring are secondary to the subdural hematoma.

- Symptoms are similar to the concussion
- Headache
- Nausea
- Vomiting
- Visual disturbance
- Confusion
- Balance issues
- Gait abnormalities
- Loss of consciousness
- However they are more severe and increase with short period of time.

The final category of acute brain injury

is

- A CEREBRAL CONTUSION

- A.K.A

- A “BRAIN BRUISE”

- MINIMAL BLEEDING OCCURS IN THIS INJURY IN VERY SMALL VESSEL IN THE BRAIN.
- When boxer fall on the ring and head hits the canvas

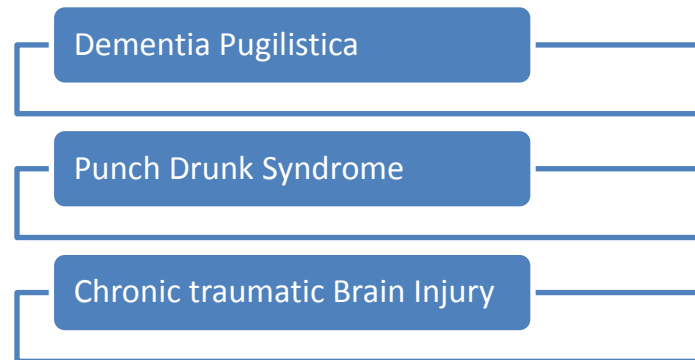
symptoms

- Its similar to the concussion but its severity is less
 - Headache
 - Nausea
 - Vomiting
 - Visual disturbance
 - Confusion
 - Balance issues
 - Gait abnormalities
 - Loss of consciousness
-
- Its resolves in short period of time

Chronic brain injury

- Its common injury to both Amateur and professional boxers
- Brain is exposed to the repetitive concussive and sub concussive blows to the head over along period.
- Seen with long carrier in boxing with reducing skills.

- It was first describe in 1928 in the journal of the American medical Association.
- It was earlier called as



- Now it is called – **CHRONIC TRAMAUTIC ENCEPHALOPATHY (CTE)**

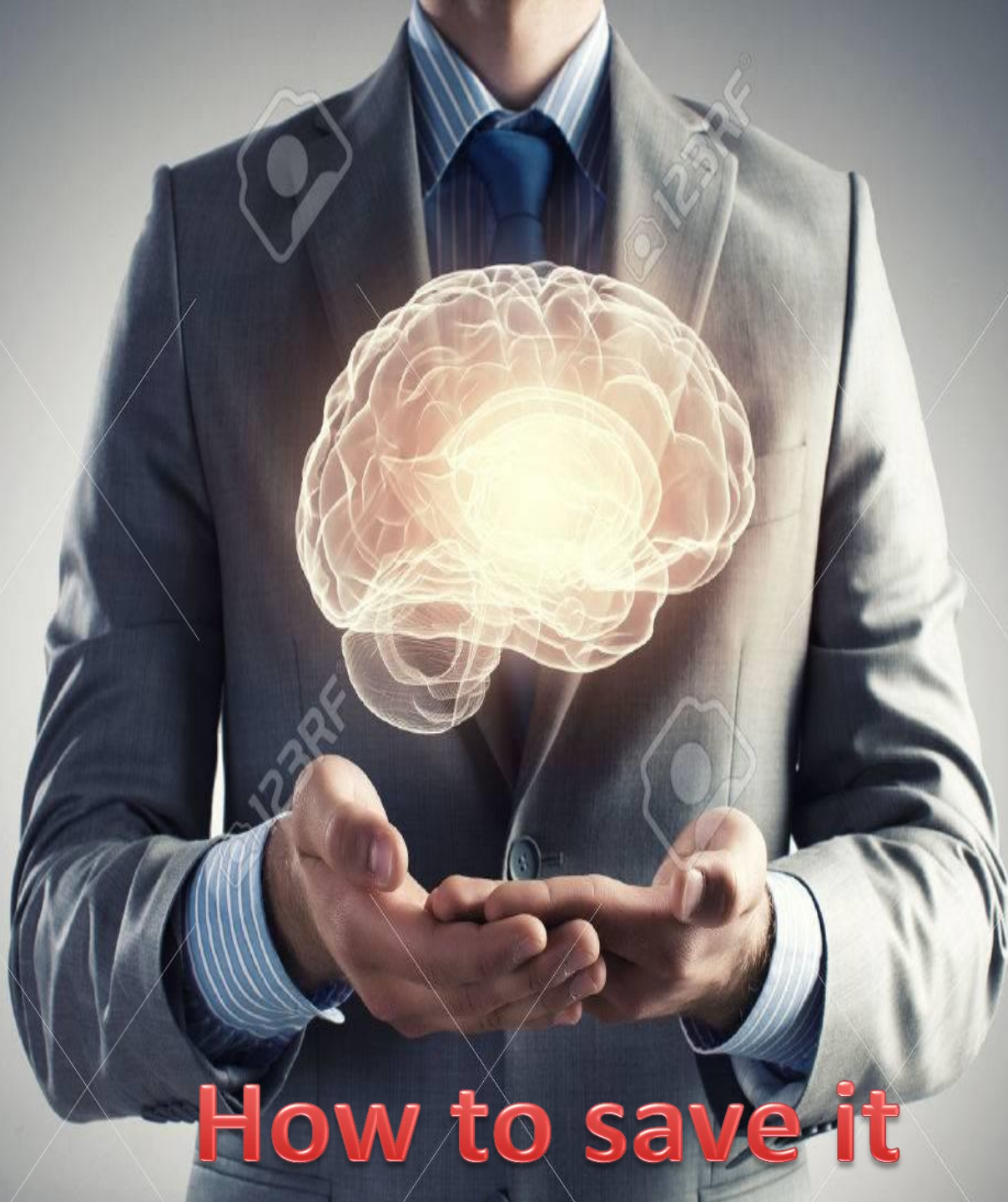
- Appears later in life after retirement
- Peak incidence when boxers is in his/her fifties.
- 20% of professional boxers develop.
- Chemical reaction in the brain that takes place over the period of time
- There is damage to the brain (nerve) cell which no longer function in the same way and boxer present with variety of function.

symptoms

- Emotional liability
- Mood swings
- Personality changes
- Fits of anger
- Depression
- Sometimes suicidal ideation.
- Others- tremors, difficulty in walking
- Cognitive disorders- memory impairment
- Can lead to dementia
- And ultimately to premature death.

Few facts

- Greater number of strikes to the head during his carrier
- Greater number of KO
- Rough boxers who “can take a punch”
- Long carrier with decrease skill in later part.
- Some people posses a gene that doesn't allow the brain to repair itself after the injury.
 - There is no proper treatment for this



How to save it

- Use proper precaution during school fight, sparring and boxing in the ring.
- Quality of equipments (headgears and gloves) should be checked.
- Federation, commission, referee, trainer and medical team should be very particular about rules and regulation for the safety
- Fare play, respect and follow rules.

summary

- Boxing is admirable sports which requires aerobics, anaerobic , strength and techniques.
- It is the duty of federation, commission and ringside doctors to maintain a close alliance for the protection of boxers.
- There should be open and honest communication and sharing of the knowledge between people working for boxing for the safety of boxers.



**Thanks
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