Corporate boxing matches for charity: a personal point of view

Peter S Benny

ABSTRACT:

Boxing and other combat sports receive constant exposure and support in the media. Corporate boxing matches are a popular method of raising money for charity. However, charity fights are more dangerous for the contestants than other sanctioned bouts. In a world where head trauma and concussion in sports is under constant scrutiny, the ethics of raising funds by deliberate concussive forces to the head needs to be reassessed.

In November 2018, my son-in-law took part in a charity boxing bout. He was struck by a blow that fractured his orbit and rendered him unconscious, so when his head hit the floor, he received a severe cerebral injury from which he died four days later. The money he raised for a children's charity is small compensation for the family he left behind. No tragedy like this occurs in isolation and analysis of the associated issues is paramount to protect the participants in such fundraising events in the future.

Around 400 corporate/charity bouts have occurred in New Zealand in recent times and two of these have resulted in the death of a participant and other participants have had significant head trauma.[1] At each Olympic games about 450 bouts occur and no deaths have been recorded since 1936 when a fighter died mysteriously from blood poisoning.[2] So, fighting for charity appears to be more dangerous than other branches of the boxing industry. It is the role of the New Zealand Coronial Service to investigate such unexpected deaths, establish causation, identify avoidable factors, and then suggest potential changes that may prevent further tragedies. Unfortunately, like many parts of our legal and public services, the coroners are under resourced and overwhelmed. It is now more than four years since this event occurred and the Coronial Service is yet to decide when an inquest will be held.

Initially, following my son-in-law's death, corporate/charity boxing matches were stopped. However, after pressure from the stakeholders who benefit from such competitions, they were restarted after in-house changes were made to the rules regarding corporate/charity competitions.[3] The changes were to try and make the bouts safer and more accountable. They were made without the benefit that an outside inquiry by the coroner could have provided. If the coroner were to provide guidelines for the continuation of corporate/charity boxing on the basis of this accident, what would they be? To do this, there must first be an understanding of the social background in which these events occur and what happens in the lead up to the fight. There then needs to be an explicit evidence-based investigation of the risks the fighters are taking in boxing for charity.

In a compassionate society, charity and sharing have an import role in helping those of that society in greatest need.[4] All members of society are encouraged to give to charities to help the less fortunate. Charities receiving that income need to be aware where their funding comes from so as to set limits on the sources. Is it ethical for charities to benefit from two people purposely attempting to cause concussion in each other?

It is not illegal for two humans to mutually agree to try and strike the other's head in boxing or other martial arts. However, in most other contact sports—rugby union, rugby league, football, or AFL, etc—a player who accidentally or otherwise makes forceful contact with another player's head receives a severe sanction. It is illegal for someone to strike another person's head without his or her permission outside of sport, and the punishment will be dependent on the severity of the violence and its sequelae.

Chronic Traumatic Encephalopathy (CTE) was first described in boxers who presented with symptoms such as behaviour or personality change, or movement disorders such as ataxia or memory loss.[5,6] CTE is a neurodegenerative disorder that was originally referred to as "punch drunk" or "dementia pugilistica" and was associated with repetitive concussive or sub-

concussive head impacts as mild traumatic brain injuries (mTBI). It has been found to also occur in those participating in contact sports such as rugby union, rugby league, football, and also in victims of domestic violence and members of the armed forces. This understanding has led to major changes in the management of mTBI in most contact sports. There has been an emphasis on real time identification of head contact and removal of the injured participant from play so a thorough head injury assessment (HIA) can be performed.[7]

In boxing and some other martial arts, because the purpose is to induce head impact, then it would be expected that regulations and refereeing would be aimed at minimalising the risks to participants. Olympic and amateur boxing stopped the use of head protection in 2016 because its use was associated with an increase in the incidence of concussion.[8] Amateur boxing regulations mandate the referee to stop the fight at a knockdown for a count of 10. If there is a knockdown and the boxer regains his or her feet, then there is a mandatory eight count to allow the referee to assess for concussion before restarting the fight.[9] In corporate/charity fights, if the referee believes either fighter may be concussed, he or she can stop the fight for a standing eight count to check the fighter's cerebral status before restarting. The fight must be stopped if there are three standing eight counts in one round of three minutes. The ring side medical practitioner can stop the fight if he or she believes a fighter has been concussed and can assess a fighter during the rest break or if requested by the boxer's corner attendants. The standing eight count does not apply to professional boxing.

The use of HIA is significantly different to the above in most other sports. This reflects the emphasis in most sport that the head is sacrosanct and head injury and its sequelae must be avoided. Take, for example, the regimen put in place for the Rugby Union elite matches.[7] All games have independent match-day doctors with access to video replays. If the match officials or doctors suspected there is an incident of head impact by a player or players, the players are notified, and videos are reviewed by the independent doctor. If head impact is confirmed, then an on-field assessment must occur, and if the player showed signs of concussion the player must be withdrawn permanently from the match. If there were no signs the player must be withdrawn for further assessment. These guidelines are similar to those in most contact sports and are based on the 2017 Berlin Concussion in Sport Group Consensus Statement.[10]

The off-field assessment is a clinical evaluation (HIA) by either the team or match-day doctor. The doctor is aided by screening tools (SCAT5) and video.[11] If concussion is confirmed, the player is withdrawn. If the player shows no signs of concussion, they can return to play after 10 minutes, but not before. Anyone having an HIA, whether they pass or otherwise, must be further reviewed within 3 hours. It is difficult to find many similarities between this regimen or others in similar sports and that used in boxing. In the 2019 Rugby World Cup, the proscriptive nature of the rules received criticism because they possibly affected the outcome of games. If these rules were used in charity boxing matches, they would most certainly affect the match outcome. In boxing there is also evidence that after a match some boxers show evidence of concussion that was not identified by any officials during the match.[12]

The management of mTBI or Sports Related Concussion (SRC) in contact sport and martial arts is currently based around accurately identifying and then carefully treating concussion. Since the reporting of the Berlin Guidelines there has been an exponential growth of publications regarding SRC. It is believed that reducing the incidence of concussion and dealing with it properly will probably reduce long-term sequelae such as CTE. Boxing should be at the forefront of this issue given that the purpose of boxing is to establish dominance by inducing concussion. The etiology and prevention of CTE is more complex than simply dealing well with concussion. Recently the Scottish Football Association banned the heading of the ball by 12 year olds and younger.[13] This was based in part on the findings of MacKay et al. that professional footballers had a significantly increased risk of mortality from neurodegenerative disorders.[14] Whether this is due to heading is not proven, although data does suggest that sub-concussive impacts of heading do result in an acute cerebral injury that would necessarily precede chronic damage.[15] The sub-concussive head contact that occurs with routine boxing sparring sessions results in the same acute brain response that occurs with heading.[16]

In amateur and professional boxing, boxers are graded on their weight and experience. Those new to the sport fight others of similar experience and skill. As they learn and develop their skills, they progress to fight boxers who also display better skills and success as they move up the competitive levels. This system protects fighters

from unexpectedly meeting someone of dangerously better skills or power. The elite fighters at the top competitive levels have significantly advanced physical and mental characteristics despite having similar morphometrics. Elite fighters have greater self-efficacy and self-control. Chen et al. found that elite boxers were able to self-control their aggression better than novice boxers.[17] In 2013, the scoring system for amateur boxing changed from counting the number of blows to the target area, the abdomen and thorax above the belt and the head anterior to the ears, to the 10 point must system (TPMS). Under TPMS there are four criteria assessed by the judges to decide the winner of each three rounds. These criteria are the number and quality of blows to the target area, tactical and technical domination of the bout, fighter competitiveness, and lack of rule infringements. This is more subjective than the previous scoring, using the criteria of superiority, dominance, and competitiveness. In elite boxing competitions, review of outcomes using this system suggest the winner is the fighter who lands the highest percentage of blows to the target area compared with total blows thrown, and not the total number of blows landed on the target area.[17] These fighters have superior reflexes, and ability to defend and read their opponent's actions. Warnick and Warnick suggested that the best predictors of winners in boxing was their age, the total number of fights (win or lose), and the outcome of their most recent fight.[18]

Charity boxing has grown in popularity in our society. This growth reflects that there is a reward for all involved in this process. The reward will depend on whether the entity is the corporate event organiser, the benefitting charities, the audience, the boxing authorities, or the participants. That reward must be profitable to those groups if they are to maintain their involvement. The reward to the participants must be greater than the perceived risks of head injury and death, otherwise the events would not occur. What are those rewards?

The strong association of acts of generosity and happiness is well documented and therefore the contestants of charity boxing may thus be rewarded with improved happiness.[19] It is instinctual and ingrained in many primates, including humans, to fight for dominance in physical confrontation. An individual's status in their group's hierarchy is increased if more of the group witness that dominance.[20] As societies mature, the instinctual drive to physical dominance has been regulated by laws and given an outlet in sport, particularly contact sports. Boxing gives those desiring to challenge themselves against others an opportunity to demonstrate their dominance within their group.[21] This opportunity could be perceived as adequate reward for taking part in a charity boxing match and its inherent risks. The need for dominance versus generosity will vary from contestant to contestant.

In charity boxing most potential fighters are novices and have very limited documented experience on which to judge their status as a boxer. Without that information it is possible to mismatch fighters on morphometric factors and age alone. If in two morphometrically and age matched contestants, one is primarily driven by altruism and the other driven solely by the desire to dominate, potentially these differences would only be obvious during a mismatched match.

The increasing sanctity of the head in most contact sports has magnified the difference between combat sports and all other contact sports. Boxers get rewarded for hitting their opponent's head, whereas in other sports the team and player are penalised. In boxing, contestants are penalised for either purposeful or accidental blows to the genital region, below the belt, and fighters are all checked before the match to make sure they are wearing genital region protection.[9] In other sports, a purposeful fist to the genital region would be penalised, as would the use of the fist anywhere on the body. Why is the head not sacrosanct but the genital region is in boxing? Is a blow to the genitals more dangerous than the head; is reproduction more important than cognition? Someone is much more likely to die from a blow to the head than a blow to the genital region. This may make sense for committed, well-trained amateurs or professionals, but not novice charity boxers.

The changes that are occurring in contact sports due to the increasing incidence or publicity of CTE will continue.[22–24] With these changes, there will be progress in early, more accurate, and easier diagnosis and prevention of sub-concussive and concussive impacts and managing those to prevent long-term sequelae. These may be in part driven by litigation.[25] Bearing in mind this probable change, what should a forward-thinking coroner suggest after reviewing a boxing death from traumatic head injury? The coroner could suggest changes to the matching of contestants, and more careful medical assessment of fighters before the competition to identify risk factors of

potential CTE if further concussion occurs. This may be genetic risk.[26] There is a need for a very real and fully informed consent process. The current risk of a 1-in-200 chance of death in New Zealand is certainly not spoken about. Neither are the potential risks of depression, suicide, and ocular changes.[27–29] The potential enforcement of head protection and better floor padding may prevent "king hit" mortality, but the elephant in the room is that in boxing the contestant's head is the target for trauma.

Unfortunately, it is not possible without a law change to ban corporate/charity boxing. Public Policy is the prerogative of an elected government, not the coroner. To introduce management for head trauma, as in other sports, would be difficult in a contest of three 3-minute rounds. If competitions are to continue to provide rewards to the stakeholders, then the only way they can continue into an era of enlightened brain protection is to make the head sacrosanct, as in other contact sports. The target area would then be above the belt and below the head. Being very much aware of the trauma of infertility, I cannot recommend allowing punches below the belt as suggested by others, although it would add to the gladiatorial nature of corporate boxing.[30]

The recommendations of a coronial inquiry are required to be specific to an individual person or agency. They are not generic or for the public at large. The author is not aware of position statements on corporate boxing from any medical organisations in Australasia. The presence of a reputable, widely accepted position statement on corporate boxing from medical authorities of our region would be a firm basis to move forward to avoid further deaths and morbidity.

COMPETING INTERESTS
The author has no competing interests apart from his relationship to the boxer who died, and the fact he took part in the annual school boxing tournament for 2 years before it was seen as inappropriate and stopped 60 years ago.

CORRESPONDING AUTHOR INFORMATION
Peter S Benny: Retired Obstetrician and Gynaecologist subspecialising in reproductive endocrinology and infertility. Past Medical Director of Reproductive Medicine Units in New Zealand and Australia. 36 Okains Bay Rd, RD1, Akaroa 7581. Ph: +64 27 436 4245. E: pete.benny@xtra.co.nz

REFERENCES

1. Rowe D. Why corporate boxing is getting people killed. The Spinoff [Internet]. 2018 Nov 8 [cited 2023 Mar]. Available from: https://thespinoff.co.nz/society/08-11-2018/why-corporate-boxing-is-getting-people-killed
2. Wikipedia. Olympic and Paralympic deaths [Internet]. Wikipedia; 2022 [cited 2023 Mar]. Available from: https://en.wikipedia.org/wiki/Olympic_and_Paralympic_deaths
3. Broderick L. Charity fights back on. The Star [Internet]. 2021 Oct 21 [cited 2023 Mar]:15. Available from: https://www.yumpu.com/en/document/read/65927119/the-star- october-21-2021
4. McKay FH, Lindberg R. The important role of charity in the welfare system for those who are food insecure. Aust N Z J Public Health. 2019 Aug;43(4):310-312. doi: 10.1111/1753-6405.12916.
5. DeKosky ST, Blennow K, Ikonomovic MD, Gandy S. Acute and chronic traumatic encephalopathies: pathogenesis and biomarkers. Nat Rev Neurol. 2013 Apr;9(4):192-200. doi: 10.1038/nrneurol.2013.36.
6. Pierre K, Molina V, Shukla S, Avila A, Fong N, Nguyen J, Lucke-Wold B. Chronic traumatic encephalopathy: Diagnostic updates and advances. AIMS Neurosci. 2022 Dec 19;9(4):519-535. doi: 10.3934/Neuroscience.2022030.
7. RW Staff. What is HIA? Rugby's Head Injury Assessment Explained. Rugby World [Internet]. 2020 Feb 22 [cited 2023 Mar]. Available from: https://www.rugbyworld.com/tournaments/rugby-world-cup-2019/what- is-hia-88881#28kO8XDI2XqEytbz.99
8. Loosemore MP, Butler CF, Khadri A, McDonagh D, Patel VA, Bailes JE. Use of Head Guards in AIBA Boxing Tournaments-A Cross-Sectional Observational Study. Clin J Sport Med. 2017 Jan;27(1):86-88. doi: 10.1097/JSM.0000000000000322.
9. International Boxing Association. AIBA Technical & Competition Rules [Internet]. Switzerland: International Boxing Association; 2021 Sep 20 [cited 2023 Mar]. Available from: https://www.iba.sport/wp-content/uploads/2021/09/AIBA-Technical-and-Competition-Rules_20.09.21.pdf
10. McCrory P, Meeuwisse W, Dvořák J, Aubry M, Bailes J, Broglio S et al. Consensus statement on concussion in sport held in Berlin, October 2016. Br J Sports Med. 2017 Jun; 51(11):838-847. doi: 10.1136/bjsports-2017-097699.
11. Echemendia RJ, Meeuwisse W, McCrory P, Davis GA, Putukian M, Leddy J et al. The Sport Concussion Assessment Tool 5th Edition (SCAT5): Background and rationale. Br J Sports Med. 2017 Jun;51(11):848-850. doi: 10.1136/bjsports-2017-097506.
12. Moriarty JM, Pietrzak RH, Kutcher JS, Clausen MH, McAward K, Darby DG. Unrecognised ringside concussive injury in amateur boxers. Br J Sports Med. 2012 Nov;46(14):1011-5. doi: 10.1136/bjsports-2011-090893.
13. Siva N. Scotland to ban heading in children's football. Lancet. 2020 Jan;395(10220):258. doi: 10.1016/S0140-6736(20)30118-5.
14. Mackay DF, Russell ER, Stewart K, MacLean JA, Pell JP, Stewart W. Neurodegenerative Disease Mortality among Former Professional Soccer Players. N Engl J Med. 2019 Nov 7;381(19):1801-1808. doi: 10.1056/NEJMoa1908483.
15. Di Virgilio TG, Hunter A, Wilson L, Stewart W, Goodall S, Howatson G et al. Evidence for Acute Electrophysiological and Cognitive Changes Following Routine Soccer Heading. EBioMedicine. 2016 Nov;13:66-71. doi: 10.1016/j.ebiom.2016.10.029.
16. Di Virgilio TG, Ietswaart M, Wilson L, Donaldson DI, Hunter A. Understanding the Consequences of Repetitive Subconcussive Head Impacts in Sport: Brain Changes and Dampened Motor Control Are Seen After Boxing Practice. Front Hum Neurosci. 2019 Sep 10;13:294. doi: 10.3389/fnhum.2019.00294
17. Chen X, Zhang G, Yin X, Li Y, Cao G, Gutiérrez-García C et al. The Relationship Between Self-Efficacy and Aggressive Behaviour in Boxers: The Mediating Role of Self-Control. Front Psychol. 2019 Feb 19;10:212. doi: 10.3389/fpsyg.2019.00212.
18. Warnick JE, Warnick K. Specification of variables predictive of victories in the sport of boxing. Percept Mot Skills. 2007 Aug;105(1):153-8. doi: 10.2466/pms.105.1.153-158.
19. Dunn EW, Aknin LB, Norton MI. Spending money on others promotes happiness. Science. 2008 Mar 21;319(5870):1687-8. doi: 10.1126/science.1150952.
20. Majolo B, Lehmann J, de Bortoli Vizioli A, Schino G.

Fitness-related benefits of dominance in primates. Am J Phys Anthropol. 2012 Apr;147(4):652-60. doi: 10.1002/ajpa.22031.
21. Dunn EC, Humberstone CE, Iredale KF, Martin DT, Blazevich AJ. Human behaviours associated with dominance in elite amateur boxing bouts: A comparison of winners and losers under the Ten Point Must System. PLoS One. 2017 Dec 29;12(12):e0188675. doi: 10.1371/journal.pone.0188675.
22. Australian Medical Association. Concussion in sport – 2019 [Internet]. Australia: Australian Medical Association; 2019 Feb 11 [cited 2023 Mar]. Available from: https://www.ama.com.au/position-statement/concussion-in-sport-2019
23. Elkington L, Manzanero S, Hughes D. Concussion in Sport Australia, Position Statement [Internet]. Australia: Australian Institute of Sport, Australian Medical Association, Australasian College of Sport and Exercise Physicians and Sports Medicine Australia; 2019 Feb [cited 2023 Mar]. Available from: https://www.sportaus.gov.au/__data/assets/pdf_file/0005/683501/February_2019_-_Concussion_Position_Statement_AC.pdf
24. Harmon KG, Clugston JR, Dec K, Hainline B, Herring S, Kane SF et al. American Medical Society for Sports Medicine position statement on concussion in sport. Br J Sports Med. 2019 Feb;53(4):213-225. doi: 10.1136/bjsports-2018-100338.
25. Thorpe D. Concussion, Chronic Traumatic Encephalopathy and Sport in a Legal Setting. J Law Med. 2019 Dec;27(2):294-315.
26. Jordan BD, Relkin NR, Ravdin LD, Jacobs AR, Bennett A, Gandy S. Apolipoprotein E epsilon4 associated with chronic traumatic brain injury in boxing. JAMA. 1997 Jul 9;278(2):136-140.
27. Fralick M, Sy E, Hassan A, Burke MJ, Mostofsky E, Karsies T. Association of Concussion with the Risk of Suicide: A Systematic Review and Meta-analysis. JAMA Neurol. 2019 Feb 1;76(2):144-151. doi: 10.1001/jamaneurol.2018.3487.
28. Bianco M, Vaiano AS, Colella F, Coccimiglio F, Moscetti M, Palmieri V et al. Ocular complications of boxing. Br J Sports Med. 2005 Feb;39(20):70-4; discussion 70-4. doi: 10.1136/bjsm.2003.006643.
29. Montenigro PH, Alosco ML, Martin BM, Daneshvar DH, Mez J, Chaisson CE et al. Cumulative Head Impact Exposure Predicts Later-Life Depression, Apathy, Executive Dysfunction, and Cognitive Impairment in Former High School and College Football Players. J Neurotrauma. 2017 Jan 15;34(2):328-340. doi: 10.1089/neu.2016.4413.
30. Chapman S. Codswallop: how to stop boxing deaths and brain injury with a simple rule. The Conversation [Internet]. 2017 May 26 [cited 2023 Mar]. Available from: https://theconversation.com/codswallop-how-to-stop-boxing-deaths- and-brain-injury-with-a-simple-rule-78386