Notes and Miscellanea

Incidence of Boxing Injuries in the Royal Air Force in the United Kingdom 1953-66

T. N. N. BRENNAN and P. J. O'CONNOR

From the R.A.F. Hospital, Ely, Cambs, and the Central Medical Establishment, Royal Air Force, London, W.1.

Statistics of injuries arising in amateur boxing in the Royal Air Force in the 14 years 1953-66 are given. There were 240 injuries including two deaths in the 14 years. During the seven years 1960-66, four men out of every thousand entering the ring received injuries to the head or neck which kept them off work for 48 hours or more. No case of the punch-drunk syndrome was seen.

In recent years the injuries suffered by boxers have been the subject of worldwide interest. The evidence presented by those who regard boxing as an unacceptably dangerous sport and those who disagree with this view has been so conflicting and has come from so many sources that objective assessment of the hazards of this sport has not hitherto been possible. The divergence of opinions which exists was shown at a symposium on the medical aspects of boxing arranged by the British Association of Sport and Medicine in London in November 1963 (Bass, Blonstein, James, and Williams, 1965).

There have been many reports of injuries arising in the boxing ring: some (Critchley, 1957, 1965; Kaplan and Browder, 1954; McCown, 1959) were descriptions of acute injuries whereas others (Critchley, 1957, 1965; Mawdsley and Ferguson, 1963; Spillane, 1962) described syndromes which appear to have arisen many years after boxing injuries may have occurred. However, there was often little evidence of an association between those syndromes and the subject's admission that he boxed to a greater or lesser extent as a young man. There was usually no attempt to distinguish between the sequelae of professional and amateur boxing or to estimate the number of boxers who sustained no injury during their career. Two papers (Mawdsley and Ferguson, 1963; McCown, 1959) on the

neurological sequelae of boxing described 15 men with cerebral lesions who had boxed frequently in the past but these papers showed neither the incidence of such syndromes among boxers in general nor whether such illnesses occurred in people who had never boxed.

In this paper we describe the injuries suffered by Royal Air Force amateur boxers in the United Kingdom during the 14 years 1953-66. We list the boxing injuries which caused absence from work for 48 hours or more, the nature of these injuries, the number of days under treatment, and the permanent damage caused. We also estimate the incidence of injuries per 'man-bout' boxed during the seven years 1960-66, as the Royal Air Force began a very strict control of boxing in 1959. We use the term 'man-bout' to count the number of occasions on which a Royal Air Force boxer entered the ring. The incidence of injuries per man-bout is a measure of how often accidents occur to boxers.

Boxing in the Royal Air Force is controlled by the Royal Air Force Boxing Association (RAF BA) under the rules of the Combined Services Boxing Association. The RAF BA organizes and controls its own medical scheme, which was introduced in October 1959. This scheme depends for its success on three factors: first, the issue of a medical record card to each registered RAF boxer, without which he is not permitted to take part in competitive boxing under CSBA rules; second, a system of medical examinations which is intended to ensure that

a boxer is physically fit before he enters the ring; and third, the duty of the Association officials supervising a tournament (the official in charge, the referee, and the tournament medical officer) to protect boxers from excessive punishment by stopping contests which are ill-matched and ensuring adequate time for recovery from injury by periods of suspension.

Detailed recording of all bouts was begun in 1959 as an integral part of the RAF BA medical scheme. These records describe the method of win, particulars of any injuries suffered, and details of any suspension on medical grounds. They are sent to the responsible official at the Ministry of Defence after each tournament.

The official of the RAF BA at the Ministry of Defence is responsible for the issue of a medical record card to each registered Royal Air Force boxer. The medical record card must be produced before the boxer enters the ring for any bout arranged under CSBA or ABA rules and is in effect his amateur boxing licence. On the card are recorded the date and the occasion of each bout, the result, and details of any medical suspensions. The issue and completion of the medical record cards are carefully supervised, so that the possibility of a boxer holding two medical record cards is reduced to a minimum. As a result of this control procedure a boxer who has incurred suspension from boxing or boxing training because of a knockout or undue punishment in his last bout is prevented from boxing during a period of suspension. The Ministry of Defence official who issues these medical record cards also maintains full parallel records of all official tournaments and of each boxer taking part in them, showing the results of all bouts and details of suspensions incurred. The Ministry official scrutinizes these records and draws the attention of the Medical Adviser to the RAF BA to any cases which may require further consideration, such as a boxer who has been suspended twice within a relatively short period. A suspension from boxing for the rest of the season usually follows such a review.

Method

Details of all airmen who are off duty for 48 hours or more because of illness or injury are recorded in full on Royal Air Force documents. For this reason the sickness statistics in the closed community of the Royal Air Force are extremely accurate. This information is coded on punched cards. We have examined over one million punched cards for the period 1953-66 and extracted all cases due to boxing which occurred under official supervision.

By combining the information from the punched cards for injuries caused in boxing with the data from

the RAF BA, it has been possible to measure the incidence of boxing injuries in the Royal Air Force in the United Kingdom.

Results

In the period 1953-66, 240 Royal Air Force amateur boxers sustained injuries in the ring which resulted in the loss of 2,627 working days (Table I). These accidents included 142 injuries of the head and neck; 139 of these men returned to duty after a mean period off work of nine days. There were 39 injuries to the upper limbs which resulted in a mean period off duty of 12 days. All other injuries due to boxing totalled 59. These men returned to work after an average stay in hospital of 16 days. In the

TABLE I

BOXING INJURIES SUSTAINED BY RAF CONTESTANTS
1953-66, SHOWING NUMBER OF INJURIES AND SITE

Year	Site of Injury			
	Head and Neck	Upper Limbs and Shoulders	Other	Total
1953	15 (12) (+ 1 died)	7 (14)	3 (27)	26 (14)
1954	20 (9)	5 (22)	9 (35)	34 (18)
1955	20 (9)	4 (15)	10 (10)	34 (10)
1956	13 (7) (+ 1 invalidated)	2 (3)	7 (15)	23 (9)
1957	13 (6)	2 (29)	7 (13)	22 (11)
1958	5 (15)	2 (6)	6 (13)	13 (12)
1959	7 (7) (+ 1 died)	4 (5)	3 (6)	15 (6)
1960	20 (8)	6 (8)	3 (3)	29 (8)
1961	1 (5)	2 (7)	6 (20)	9 (16)
1962	7 (7)	1 (13)	3 (6)	11 (7)
1963	4 (5)	0 (-)	0 (-)	4 (5)
1964	8 (9)	1 (22)	1 (6)	10 (10)
1965	4 (5)	3 (9)	0 (-)	7 (7)
1966	2 (14)	0 (-)	1 (14)	3 (14)
Total	139 (9) (+ 2 deaths) (+ 1 invalidated)	39 (12)	59 (16)	240 (11)

The mean number of working days lost is given in parentheses. See Table II for details of three men who did not return to work.

period 1953-66 there were two fatal head injuries due to boxing and one injury which resulted in invaliding (Table II).

Table III shows how often Royal Air Force boxers have been injured since the RAF BA tightened their safety precautions in 1959. The injury rate varied widely from year to year, but on

TABLE II
DETAILS OF THREE MEN WHO DID NOT RETURN TO
DUTY AFTER BOXING INJURIES

Year	Casualty Detail	Disposal
1953	Head injury	Died: cause, laceration of brain
1956	Head injury	Invalided from RAF: cause, post-concussional state
1959	Head injury	Died: cause, laceration of brain

average out of every 1,000 men entering the ring, 6.2 sustained an injury which made them unfit for work for some days. Of the 6.2, 3.9 were injured on the head or neck. There have been no fatal injuries and no invalidings as a result of boxing in the Royal Air Force since the new regulations were introduced in the 1959/60 season.

Table IV shows that out of 11,820 man-bouts, 2,706 (837 plus 1,869), or less than one quarter,

ended prematurely either because a contestant was counted out or because the referee stopped the bout. Contests are stopped because the boxers are unevenly matched or if one contestant risks further injury by continuing. Medical suspension from boxing for a period varying from a few weeks to a whole season followed on 952 occasions. Medical suspension is invoked when the RAF BA officials consider that a man has sustained punishment the results of which may or may not require medical treatment but could have an adverse affect on his health, especially if closely followed by further boxing injuries. In the opinion of the medical adviser to the RAF BA about one third of the 952 medical suspensions followed concussive blows to the head. This figure of about 300 minor head injuries in 11,820 man-bouts may be the most important statistic in measuring the dangers of boxing as a sport.

Table IV also shows that the ratio of medical suspensions to man-bouts for the first three years of

TABLE III
NUMBER OF MAN-BOUNTS BOXED BY RAF CONTESTANTS 1960-66, INJURIES SUSTAINED IN THESE BOUTS, AND INCIDENCE OF INJURIES PER THOUSAND MAN-BOUNTS

Year	No. of Man-bouts	Head and Neck		Upper Limbs and Shoulders		Other		Total	
		Cases	Rate per 1,000	Cases	Rate per 1,000	Cases	Rate per 1,000	Cases	Rate per 1,000
1960	2,190	20	9.1	6	2.7	3	1.4	29	13.2
1961	2,582	1	0.4	2	0.8	6	2.3	9	3.5
1962	1,964	7	3.6	1	0.5	3	1.5	11	5.6
1963	1,626	4	2.5	—	—	—	—	4	2.5
1964	1,186	8	6.7	1	0.8	1	0.8	10	8.4
1965	1,384	4	2.9	3	2.2	—	—	7	5.1
1966	888	2	2.3	—	—	1	1.1	3	3.4
Total	11,820	46	3.9	13	1.2	14	1.2	73	6.2

TABLE IV
NUMBER OF CONTESTS WHICH ENDED PREMATURELY (COUNTED OUT PLUS REFEREE STOPPED BOUT) AND RESULTING SUSPENSIONS

Year	Man-bouts	Counted Out	Referee Stopped Bout	Bouts Stopped or Counted Out/100	Medical Suspensions
1960	2,190	141	361	22.9	182
1961	2,582	190	382	22.2	155
1962	1,964	158	280	22.2	109
1963	1,626	125	262	23.8	154
1964	1,186	72	208	23.6	125
1965	1,384	97	238	24.2	161
1966	888	54	138	21.6	66
Total	11,820	837	1,869	—	952

detailed recording (1960-62) was 6.6%, whereas for the four-year period 1963-66 the ratio was 10%. While there has been this increase in medical suspensions the number of recorded injuries sustained in the ring has remained low, and it is suggested that the increase in medical suspensions reflects a more rigid application of safeguards by referees and tournament medical officers. It is considered of interest to note that the proportion of bouts which were either stopped or ended in knock-outs has remained fairly constant throughout the seven years (Table IV).

Discussion

Many doctors would accept that the acute injuries arising from carefully supervised amateur boxing are not excessive. The important question is whether chronic traumatic encephalopathy (the punch-drunk syndrome) occurs after amateur boxing. Critchley (1968, personal communication) states that he has seen the syndrome in an amateur. During the 14 years 1953-66 no case of the punch-drunk syndrome was diagnosed in the Royal Air Force and neither, during that time, did any man claim that boxing had impaired his mind. One of us (P. J. O'C.) has worked in the Neurology Unit of the Royal Air Force for the past 13 years and it is unlikely that such cases were overlooked. It may be that our period of observation is too short as most of the men leave the Royal Air Force before the age of 56. If chronic traumatic encephalopathy does occur in amateur boxing and if it is due to repeated cerebral concussion, then the incidence of concussion in Royal Air Force boxers may be the most important statistic.

There is no yardstick which we can use to decide if the number of boxing casualties is excessive or acceptable. There have been two deaths from amateur boxing in the Royal Air Force during the 14 years under review, showing that boxing carries a risk to life. Apart from the two fatal accidents permanent damage has been rare. One out of 240 casualties in 14 years was left with disabilities

which necessitated his being invalided from a Service which demands a high standard of physical fitness. This figure is very much smaller than we would have expected in the light of criticisms of the sport. No death or serious injury has occurred in Royal Air Force boxing since the introduction of the RAF BA medical scheme. It may be that neurological or other sequelae may yet develop because the period of observation has been too short. Our findings do suggest, however, that amateur boxing, properly controlled, may confer the benefits of this traditional British sport with an acceptable minimum of risk.

The opinions expressed in this article do not necessarily represent the opinions held by the Medical Directorate of the Ministry of Defence (RAF).

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