PREVENTION OF KARATE INJURIES – A PROGRESS REPORT

G. R. McLATCHIE, M.B., Ch.B. and E. W. MORRIS, M.B., B.Ch., F.R.C.S.E.

Department of Surgery, Glasgow Royal Infirmary

ABSTRACT

Methods of preventing karate injuries are discussed. These fall into three groups:—

1. Prevention by control.
2. Prevention by using protective clothing.
3. Pre-fight medical examination.

The results of the above methods in reducing the incidence of injury in karate competitions are described. After a follow up one year (1102 fights) it is concluded that the incidence and severity of karate injuries has been reduced significantly thus making the sport safer.

INTRODUCTION

The medical implications of karate blows have been described by Adams (1968). Comment was passed that an understanding of the potential results of karate blows will contribute to standardising the judgement of competitions. Since little actual contact takes place during fights the effects of the blows cannot be measured directly.

McLatchie (1976), in an analysis of karate injuries quoted an injury to occur once in every four fights and a disabling injury once in every ten fights. It was further stated that protective padding appeared to reduce both the incidence and severity of injury. Injuries which have occurred in competitions between September, 1974 and November, 1975 are summarised in Table I, and Figure 1. It had been noted by the medical officer present that injuries occurred more commonly amongst the lower grade fighters. Those participants who wore some type of protective clothing in addition to the accepted groin guard (i.e. gum shields, padding of the fists, arms, legs and feet) appeared to sustain fewer injuries from their opponents. It was apparent also that these fighters inflicted fewer injuries when techniques were uncontrolled.

Following the submission of a report of these observations to the Scottish Karate Board of Control, the use of protective clothing was encouraged. However, its use was not made compulsory in competition because of the considerable resistance from several karate schools to its introduction. Although optional, 75% of all karate competitors in the area studied (The West of Scotland) chose to use protective clothing.

TABLE I

Incidence of Karate Injuries between September 1974 and November 1975

Championships	No. of Contests	No. of Injuries	Incidence of Injury
September 1974			
Scotland V Germany	12	0	—
November 1974			
Karate Union Championships	230	43	1 per 6 contests
September/October 1975			
Budokan Championships	177	20	1 per 9 contests
November 1975			
Inter-district Match (Dumfries)	30	4	1 per 7 contests
November 1975			
Karate Union Championship	295	80	1 per 4 contests
TOTAL	744	147	1 per 5 contests

PROTECTIVE CLOTHING

Examples are illustrated in plates I-VIII.

They comprise:—

1. Padding for fists, arms, feet and shins.
2. Gum shield (not illustrated).
3. Groin guards (not illustrated).
4. Head guards.

RESULTS

Since December, 1975 injuries have been noted in the championships listed in Table II. In 1102 contests the number of injuries seen by the medical officer present, was 49. It has been concluded that the higher incidence

Plates I and II — Padded glove used in full contact karate. The palm is open to allow the hands to be used for throwing manoeuvres.

Plate III — Another type of padding which extends over the wrist and lower forearm. This type of padding has been frequently used in traditional karate.

Plates IV and V — Padded footwear covering heel, instep and lateral side of foot — the kicking surface in full contact karate.

Plate VI — Padded foot and shin guard.

Plates VII and VIII — Padded head wear with malar guards, nasal guard and occipital extension.

of injury in the Scottish Championships was because fewer competitors used protective clothing. These championships bring together all the karate styles in Scotland and there are still several schools which do not encourage the use of protective clothing (See Table II and Figure 2).

Fig. 1

ANATOMICAL DISTRIBUTION OF INJURIES

1. Epistaxis accounted for 41% of facial injury; cuts 30%; concussion 15%; periorbital haematoma 6%; and tracheal injury 8%.
2. Dislocations were responsible for 25% of limb digital injuries; peripheral nerve injuries 20%; cuts and bruises to the limbs 32%.
3. Blows to the solar plexus accounted for 60% of trunk injuries; rib injuries 25%; testicular trauma 15%.

A second factor in the reduction of injuries is stricter control of contests by the referee and judges. Disqualification, instead of warning for uncontrolled techniques, is commoner. Participants are, therefore, more aware of the importance of good, well controlled techniques for scoring. The standards of karate at international level have been maintained as the Scottish Karate Team were second in the 1976 European Championships.

CONTACT KARATE

This new sport has been gaining popularity in 1976.

TABLE II

Incidence of Karate Injuries Between December 1975 and December 1976

Championships	No. of Contests	No. of Injuries	Incidence of Injury
Scottish Karate Union (Shotokan)	442	15	1 per 30 contests
Scottish Championships	460	30	1 per 15 contests
Budokan Championships (Shotokan)	200	4	1 per 50 contests
TOTAL	1102	49	1 per 22 contests

Fig. 2

ANATOMICAL DISTRIBUTION OF INJURIES

1. Epistaxis accounted for 35% of injuries to the face, head and neck; cuts 20%; periorbital haematoma 7%; concussion 15% and tracheal injury 23%.
2. Digital dislocations accounted for 40% of limb injuries; sprains 60%.
3. Blows to the solar plexus were responsible for 60% of truncal injuries; rib injuries for 25%; testicular trauma for 15%.

As suggested by its title "full contact" is made. It is commonly practised in the United States of America and Europe. There have been few fights to date in Britain but attention has already been turned to these following the sudden death of the British Heavyweight Champion at the end of a bout. Although this was due to undiagnosed illness we feel that thorough pre-fight medical examination should be encouraged in all full-contact fighters and that this should be endorsed for subsequent contests.

Contact karate has many of the risks associated with boxing. These are described by Critchley (1957) and Williams and Sperryn (1976). Bouts last three to five, three minute rounds. The sport demands a higher level of physical fitness than the non-contact sport, in which fights last for only two or three minutes. The study of a Glasgow contact club has revealed that injuries can be reduced to a minimum in sparring by use of protective clothing. Head guards, gum shields, padded flooring and sparring with sixteen ounce gloves appear to prevent head injury. A similar study of experience with headgear in boxing substantiates this observation (Schmid et al., 1968). However, it is worth remarking that heavily padded fighters do not appeal to the spectators. Another development in sparring is the use of kidney guards, since kicks to these organs are standard offensives. Haematuria has been reported as a result of trauma after boxing competitions (Hutchison, 1976). In over 200 contact karate sparring matches no serious injuries other than bruising and minor cuts have been witnessed. However, in two national competitions when head guards are not worn, knock-outs have occurred.

The standard of fitness amongst full contact fighters has noticeably improved compared with exponents of the traditional sport. At the contact club studied all those taking part in competition undertook regular road-work, covering up to 80 miles per week. They had previously fought internationally in the traditional sport

and did not undergo such rigorous training.

CONCLUSIONS

Karate now has two forms:—

1. "No contact" karate — the traditional sport.
2. "Full contact" karate.

Both have become safer because:—

1. Strict control is exercised by the referee.
2. Protective padding and clothing are being used more frequently.

It is further recommended that thorough pre-fight medical examination become mandatory for all contact fighters. This is already a prerequisite of the traditional sport for participation in international competition.

ACKNOWLEDGEMENTS

We wish to thank the Scottish Karate Union and the Bugei-Kai Contact Club of Glasgow for allowing us to observe their members. We also express our thanks to Mr. J. S. F. Hutchison, Consultant Surgeon, Glasgow Royal Infirmary, Medical Officer to the Scottish Amateur Boxing Association, and Medical Advisor to the European Boxing Commission for his suggestions and helpful criticism.

REFERENCES

- Adams, B. 1968, *The Medical Implications of Karate Blows*. A. S. Barnes & Company, South Brunswick and New York.
- Critchley, M. 1957, Medical Aspects of Boxing, particularly from a Neurological Standpoint. *B.M.J.*, i, 357.
- Hutchison, J. S. F. 1976, Consultant Surgeon, Glasgow Royal Infirmary (Medical Officer to S.A.B.A.) (Personal Communication).
- McLatchie, G. R. 1976, Analysis of Karate Injuries Sustained in 295 Contests. *"Injury" (B.J.A.S.)* 8, 132-134.
- Schmid, L., Hajik, E. et al., 1968, Experience with headgear in boxing. *Journal of Sports Medicine and Physical Fitness*, 8, 171.
- Williams, J. G. P. and Sperryn, P. N. 1976a, in *Sports Medicine (Second Edition)*, Edward Arnold, (Publishers Ltd.) Chap. 13, 248-249.
- Williams, J. G. P. and Sperryn, P. N. 1976b, in *Sports Medicine (Second Edition)*, Edward Arnold, (Publishers Ltd.), Chapt. 18, 318-323.