ORIENTEERING INJURIES

Jean M. FOLAN, BSc, MB, BCh, BAO

Department of Anatomy, Trinity College, Dublin, Ireland

Jean Folan

ABSTRACT

At the Irish National Orienteering Championships in 1981 a survey of the injuries occurring over the two days of competition was carried out. Of 285 individual competitors there was a percentage injury rate of 5.26%. The article discusses the injuries and aspects of safety in orienteering.

Key Words: Orienteering. Injuries.

INTRODUCTION

Orienteering is a competitive sport where the participants must navigate between set control points in unknown terrain. Using a map and compass this is accomplished as quickly and efficiently as possible by whatever route choice the competitor interprets as best for them. A widely established sport in Scandinavia there is now an increasing interest and participation in other countries, including the UK and Ireland. The competition courses vary in length from 2.0 km to 10.0 km and on any event day there are courses suitable to all standards and ages from children through adult to veteran. Intelligence and stamina are required to complete the course rapidly taking into consideration the extremely varied nature of the terrain. Generally run in hilly, forested areas, orienteering courses present such terrain features as crags, boulders, cliff faces, gullies, rivers, streams, marshes, brambles. The varying densities of the forestry growth allied with in some areas up to 300 m of climbing add to the problems for the orienteer.

Reports of orienteering injury are few and admittedly the type of injury occurring may be classified with running injuries. Four recent publications from Finland refer to orienteering injuries. Of 147 exertion injuries in athletes under 15 years of age 4 were attributable to orienteering. These were located one in the knee, one in the leg, and two in the Achilles tendon, ankle and foot complex (Orava and Puranen, 1978). Seven cases of iliotibial tract friction syndrome out of 88 reported occurred in orienteers (Orava 1978). On reviewing athletes' leg pains, specifically overuse pain in the shin, over a five year period 7.3% were in orienteers with

a 44.2% incidence in middle and long distance runners and a 19.8% incidence in joggers (Orava and Puranen, 1979). In an 8 year review of exertion injuries in female athletes 2.8% occurred in orienteers (Orava, Hulkko and Jormakka, 1981).

The nature of the terrain, the varied level of fitness of the participants — many of whom do not train for the sport but participate each weekend — and the wide age range of the orienteers from under 10 to over 60 — were all factors which prompted this survey of injuries occurring in the sport of orienteering.

MATERIALS AND METHOD

The Irish Orienteering Championships in April, 1981 were chosen as a suitable event at which to assess the injuries that might occur. Held over two days, the Championships had the Individual competition on Day 1 and the relay competition on Day 2. The venues were in Co. Wexford in the southeast of Ireland. Written requests to team managers and competitors through notices handed out at the event centre requested that all injuries be reported to the Medical Officer who was situated at the finish on both days of the competition. Assistance was granted by local units of the St. John's Ambulance Brigade and the Red Cross Society. Data collected was minimal, age, event class, presenting complaint and how it occurred. Treatment rendered was appropriate for the injury.

In Curracloe on Day 1 of the competition there were 253 participants, 180 male and 73 female. Table 1 shows the numbers of competitors according to their com-

CAMOLIN WOOD

Map used for the Relay event on Day 2

Orienteering through open wood, map and compass in hand

TABLE I

Day 1: Individual Competition, numbers of participants with their competition class, and number of non-finishers

MALES				FEMALES			
Competition Class	No. of Participants	N/F	Disq	Competition Class	No. of Participants	N/F	Disq
H 21 A	55	3	4	D 19 A	22	2	1
H 35	19		1	D 35	7		1
H 43	14		2	D 43	4		1
H 50	7			D 50	3		
H 19	22	3	2	D 17	6		
H 17	9			D 15	6		1
H 15	14	1		D 13	13	1	2
H 13	16	1	2	D 11	2		1
H 11	5			D 10	4		
H 10	4			D 19 B	6		
H 21 B	15				73	3	7
	180	8	11				

H = Herren ♂

D = Damen ♀

D 35 = Women over 35, D 17 = Girls over 17 &c

Competition Class H 35 = Men over 35, H 17 = Boys over 17 &c

Classes H 21 B and D 19 B were non-competitive

N/F = Non-finishers, retired. Disq = Disqualified

petition classes. In the relay event at Camolin on Day 2 the competitors were divided into teams of three orienteers competing in their respective classes. There were 234 competitors on Day 2 the majority of whom – 202, had already competed on Day 1. Overall there were 285 individuals who competed in the Championship.

On Day 1 in Curracloe the weather was extremely wet and cold with a strong northeast wind blowing down the adjacent beach and sand dunes from the Irish Sea. This Curracloe wood and its map was unusual for Irish orienteers. The terrain with numerous steep sandy slopes and depressions is more akin to the terrain and contour detail that prevails in Scandinavia and it demanded skilful technique and fitness from the competitors. The Camolin wood on day 2 for the relay competition was a more traditional Irish wood with numerous forest paths and features.

RESULTS AND DISCUSSION

Table II illustrates the injuries recorded on each day of the competition according to the competition class. The number of injuries on Day 1 with 253 competing was 7 representing a 2.76% incidence for that day. The 8 injuries on Day 2 with 232 competitors shows a 3.41% incidence. Taking into consideration that 202 orienteers

TABLE II

Injuries reported

DAY 1

Competition Class	Injury
D 19 A	Right ankle sprain
D 17	Left ankle sprain
D 50	Right gastrecnemius strain
D 19 A	Right Achilles tendonitis
D 19 A	Grazed right hand
D 19 A	Conjunctival irritation
M 35	Conjunctival irritation

DAY 2

D 19 A	Cut and blistered heels
M 17	Cut and blistered heels
D 17	Cut and blistered heels
M 19	Cut and blistered heels
M 19	Left semimembranosus strain
M 21 A	Bruised right foot
M 21 A	Bruised left thigh
M 21 A	Fractured proximal phalynx on right great toe

competed on both days and that there were 285 competitors in total, with 15 injuries over the two days there was a percentage injury rate of 5.26%.

Running down slope to the finish

Table III represents data on the length of the individual courses and the time taken by the fastest and slowest competitors. On some of the courses orienteers were out in the woods for over three hours. This may be due to technique inexperience with inadequate navigation between controls, or to a lack of physical fitness. A combination of both factors must be considered. The longer a period of time an orienteer is out in the woods and exposed to the elements the more likely are errors of judgement and route choice.

In considering the safety of the orienteer when he is out in the woods the regulations of the sport demand that certain precautions be adhered to. Namely, that potentially hazardous areas be indicated to the orienteers, it is advised that participants wear full body clothing to protect from the inevitable multiple scratches and all should carry a whistle in case of accident. The closing time for the event is listed at the starting area, the organisers have a record of all who officially commenced the courses and all orienteers must report to the finish area even if they have not completed the course. The onus is on the organisers to ensure that there are no further orienteers out in the woods at the end of the day's competition.

An aspect of safety at an event that should provide concern is the car parking arrangements. At Camolin on Day 2 of these Championships an orienteer intent on

TABLE III

Course length, with the fastest, average and slowest time on each course

Competition Class	Course Length (km)	Winning Time (Minutes)	Average Time (Minutes)	Slowest Time (Minutes)
H 21 A	11.5	71.50	121.32	229.52
H 35	10.0	76.19	104.39	128.38
H 43	8.0	85.08	117.00	159.50
H 50	5.0	61.54	94.16	134.57
H 19	9.5	79.20	111.56	139.37
H 17	8.0	71.59	97.37	195.26
H 15	6.0	52.12	71.24	97.55
H 13	4.5	47.20	85.39	118.44
H 11	3.5	35.09	64.12	105.59
H 10	3.0	25.33	50.32	60.48
H 21 B	8.0K	Non-competitive		
D 19 A	9.5	81.49	121.36	182.50
D 35	5.5	105.04	120.46	146.29
D 43	5.0	91.03	113.04	147.14
D 50	5.0	81.38	145.51	236.06
D 17	6.0	74.10	81.07	91.07
D 15	4.5	54.37	79.01	106.06
D 13	3.5	31.35	54.12	87.01
D 11	3.0	39.13	39.13	—
D 10	3.0	29.45	55.49	64.45
D 19 B	6.0	Non-competitive

Orienteering through dense vegetation

his route to the next control ran from the cover of the woods onto the path of an oncoming car moving from a place where car parking was forbidden. The athlete's reflexes enabled him to jump on the bonnet of the car and he sustained mild thigh bruising. The organisers must ensure that all car parking be in a restricted area and that if the competition courses must traverse roads, adequate warning notices must be posted for the oncoming traffic.

The weather on Day 1 in Curracloe with the strong northeast wind blowing sand into the wood provided a problem for two of the orienteers who developed a conjunctival irritation. Interestingly, both of these competitors were wearing contact lenses.

The nature of the terrain took its toll of injury. The athlete who sustained the fracture of the proximal phalynx of his great toe recalls stubbing his foot against exposed tree roots. The two ankle sprains, semimembranosus strain and the Achilles tendonitis were in fact all old injuries incurred in the previous weeks of competition. The persistence of the orienteers in competing with injury is perhaps explained that the National Championships are the most important event of the year for the majority of competitors.

On Day 2 there was a preponderance of orienteers presenting with blistered and cut heels, sustained on the previous day's competition. These athletes were advised on zinc oxide taping of potential blister sites. This injury

was more noticeable with a certain type of orienteering shoe.

The occurrence in orienteers of multiple small scratches, cuts and bruises sustained whilst running through thick and thin vegetation are accepted casually by the orienteer and not considered worth reporting to the Medical Officer. In view of the risk of contracting Tetanus all orienteers should be advised as to the necessity for adequate up-to-date anti-tetanus immunisation.

Running down a slope to the finish

As with any sporting event the most exciting part in an orienteering event is at the finish area. Here seconds may mean the difference in winning and losing and as the competitors in individual competition all commence their courses at different times often the winner of the event is not known until the final times are calculated. This was well illustrated at the 1982 Irish Championships where in the most competitive class H 21 A was

won by a mere second. The run in to the finish line was where one competitor received albeit a minor hand injury in her anxiety to finish well aligned with physical tiredness.

The Medical Officer at any sporting event must be prepared for injury not only in the competitors but with the spectators. One case at this event was a finger laceration in a 2 year old boy. Whilst playing in the sand dunes he cut his hand on an old tin can.

SUMMARY AND CONCLUSION

In Table IV a summary of the data from this survey on orienteering injuries is presented.

TABLE IV

Summary

Total number of competitors Day 1	253
Total number of competitors Day 2	232
Competitors who competed on Day 1 and 2	202
Total number of individuals competing at the Championships	285
Number of injuries Day 1	7 = 2.76%
Number of injuries Day 2	8 = 3.41%
Total percentage of injury for the Championships	5.26%

In conclusion, the challenge in orienteering is presented by the terrain and environment through which events are run allied to the technical expertise and physical fitness of the orienteer. These factors influence the occurrence of injury in orienteering and should be taken into consideration in the training of orienteers, the planning of courses and the organisation of orienteering events.

ACKNOWLEDGEMENTS

The author acknowledges the assistance given by the following:

Ajax Orienteering and Athletic Club
St. John's Ambulance Brigade, Curracloe
Irish Red Cross Society, Camolin
County Hospital, Wexford
Pat Flanagan, photography

REFERENCES

- Orava, S. and Puranen, J., 1978 "Exertion injuries in adolescent athletes". *Brit.J.Sports Med.* 12 (1): 4-10.
- Orava, S., 1978 "Iliotibial tract syndrome in athletes". *Brit.J.Sports Med.* 12 (2): 69-73.
- Orava, S. and Puranen, J., 1979 "Athletes leg pains". *Brit.J.Sports Med.* 13 (3): 92-97.
- Orava, S., Hulkko, A. and Jormakka, E. "Exertion injuries in female athletes". *Brit.J.Sports Med.* 15 (4): 229-233.