

Provision of physiotherapy at the Tsing Ma Bridge international marathon and 10 km race in Hong Kong

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Abstract

This report examines the delivery of sports physiotherapy at the Tsing Ma Bridge marathon and 10 km race in Hong Kong. The incidence, type of injury encountered, and treatment modalities selected are examined. The report also highlights the flexibility required when planning the provision of such a service.

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The Tsing Ma Bridge International marathon and 10 km race scheduled for 4 May 1997 was one of the many events to celebrate the completion of the world's longest suspended

road-rail link. The event attracted international runners from Great Britain, Canada, Australia, Denmark, Germany, Taiwan, Macau, Brunei, Kazakhstan, and New Zealand. A total of 5500 runners entered the competition, with 900 runners participating in the marathon and 4600 in the 10 km run, making it the biggest running event ever in Hong Kong.

Preparation

Twenty physiotherapists volunteered to help in the provision of on field services during the race. The planning of physiotherapy coverage was based on the nature of the course, the expected weather conditions, number of runners, and their fitness levels.

As the road had not yet been opened for public transport, detailed planning of emergency evacuation, proper deployment of physiotherapy, and medical coverage was crucial. The physiotherapy team manager visited the site twice and it was decided that the physiotherapy depots would be situated at the half marathon site and the finishing line. A medical doctor and a St Johns Ambulance team were also present at the finishing line to cover any possible medical emergencies.

The runners began at the eastern entrance of the Tsing Ma Bridge, then traversed the entire 3.5 km long Lantau Link, continued along the North Lantau Expressway and onward to the turning point at Tai Ho. The runners for the 10 km race made their turn at the Lantau Toll Plaza. The whole route was relatively flat.

The weather during May to August is usually hot and humid with occasional showers and thunderstorms. The average temperature is 25.9°C with mean relative humidity of 83% and wet bulb temperature of 23.7°C. The wet bulb globe temperature range of 23-28°C is classified as high risk for distance running by the International Marathon Medical Directors Association.¹ Owing to the likelihood of heat injury, the event was scheduled to start at 7 30 am for the marathon and 8 30 am for the 10 km race. Anticipating the hot weather, physiotherapy equipment was prepared on the basis of the possibility of having to deal with heat stroke and dehydration.

The event

The mean temperature three days before the competition was 26.5°C with relative humidity of 81%. The Royal Observatory forecasted a hot and humid day. However, the weather turned out to be completely opposite to what

Table 1 Statistics of the injured runners

	No of injuries		
	Total (n=71)	Marathon (n=46)	10 km run (n=25)
Age range (years)	15-61	21-61	15-49
Mean (SD) age (years)	34.97 (9.34)	36.74 (8.78)	37.71 (9.84)
M:F	59:12	42:4	17:8
Previous experience			
None	24	16	8
10 km race	16	—	16
Marathon	31	30	1
Current medication	3 (NSAIDs)	3 (NSAIDs)	Nil
Time of injury			
During race	37	28	9
After race	34	18	16
Exacerbation of old injury	24	12	12
Site of injury*			
Head	1	1	—
Shoulder	1	1	—
Abdomen	2	—	2
Thigh	33	24	9
Knee	14	7	7
Leg	39	31	8
Ankle	6	5	1
Foot	5	2	3
Nature of injury			
Soft tissue	52	37	15
Muscle cramps	9	5	4
Skin problem	1	—	1
Faint/dizzy	1	1	—
Gastrointestinal problem	1	—	1
Other	7	3	4
Types of injury			
Contusion	7	6	1
Strain	48	32	16
Sprain	11	6	5
Other	5	2	3
Treatment provided			
Ice	5	1	4
Strapping and taping	1	1	—
Massage only	27	15	12
Manual stretching only	6	1	5
Dressing	1	—	1
Massage and manual stretching	27	26	1
Ice and massage	2	1	1
Other — cooling, rest	2	1	1

*These figures represent the frequencies of the site of injury with which the runners reported. Multiple areas are also accounted under individual region. NSAID, non-steroidal anti-inflammatory drug.

was expected. Strong thunderstorms roamed the area before the commencement of the race and heavy rain continued during the five hours of competition.

Results of physiotherapy service

A data entry sheet was used to document the record of each runner requiring physiotherapy services. Apart from the profile of the athlete, details of the nature of the complaint, type and site of injury, relevant past history, and the treatment given were recorded by the treating physiotherapist.

Table 1 summarises the statistics of the injured runners. Seventy one (59 men, 12 women) required physiotherapy services, 65% (n = 46) in the marathon and 35% (n = 25) in the 10 km race. Twenty four participants indicated that they had had no previous experience in either 10 km or marathon competition. Twenty four (34%) runners stated that their injuries were chronic in nature. None of the runners had a history of major medical illness and only three had been taking non-steroidal anti-inflammatory drugs before the race. The incidence of lower limb injuries, at the thigh, knee, and leg, was the highest. The most common injury was soft tissue (73%), with muscle cramps ranked second (13%). Of the soft tissue injuries, 68% (n = 48) were muscle strains, followed by ligamentous sprain (n = 11, 15%) and contusion injuries (n = 7, 10%). Massage and/or manual stretching were the most frequently used treatments (85%). Cryotherapy contributed only 10% of all the services rendered. Follow up services were available on request.

Discussion

The sudden change to cool weather and thunderstorms obviously alleviated possible heat stress problems. The mean temperature re-

corded was 24.7°C with a total rainfall of 37.9 mm. One runner reported dizziness after the race, probably caused by exhaustion, and required medical attention.

It is difficult to comment on the rate of injuries other than those reported at the physiotherapy depot. However, the incidence of runners seeking physiotherapy service (1.3%) and the percentage of soft tissue injuries were similar to those in the 1980 Melbourne marathon study.² The incidence of muscle cramps (13%) was lower than reported in the 1980 Melbourne marathon study (19%) and the Grandma's marathon 1995 (36.4%).^{2,3} As muscle cramps are mostly caused by mineral loss and dehydration as a result of profuse sweating,⁴ the weather conditions on the day of the race, markedly reducing the chance of dehydration and hyperthermia, probably explain this.

Conclusion and recommendation

The results of this on field physiotherapy service are comparable with those reported for other marathon races. Under more adverse weather conditions, it is expected that the injury rate would have been higher. Physiotherapists should therefore be flexible when making contingency plans, adapting to sudden changes in climatic conditions.

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- 3 Crouse B, Beattie K. Marathon medical services: strategies to reduce runner morbidity. *Med Sci Sports Exerc* 1996;28:1093-6.
- 4 Wilmore JH, Costill DL. Thermal regulation and exercise. In *Physiology of sport and exercise*. Wilmore JH, Costill DL, eds. Baltimore: Human Kinetics, 1994:241-57.