

RUNNING INJURIES AND THE ASSOCIATED FACTORS IN MARATHON RUNNERS

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INTRODUCTION: Running is one of the most popular exercises. Injuries associated with running therefore attract more attention in recent years. The purpose of this study was to investigate the distribution of lower extremity running injuries and to evaluate the possible risk factors linking to the occurrence of these injuries.

METHOD: A total of 1116 participants of 2005 ING Taipei International Marathon, including runners in the groups of full marathon, half marathon, 10km, and 3km, were surveyed. We used a self-developed questionnaire to collect data on personal characteristics, running and training conditions, and injury profiles. Chi-square statistics and multivariate logistic regression modeling were used to examine the possible relationship between the presence of injuries and various predictor variables.

RESULTS: After excluding subjects with incomplete data, 969 questionnaires entered the process of data analysis. Of the 969 entrants, 583 (60.2%) reported lower extremity pain or injuries. More male runners suffered from injuries than female runners ($p=0.021$). Knee was the most common painful site (20.7%) while the lower leg cramp was the most popular problem during running (23.4%). Several risk factors were associated with lower leg pain and injuries (Table 1).

Table 1 Odds ratio for associated risk factors of various locations of pain and injury

Risk factor(s)	OR (95%CI)	Risk factor(s)	OR (95%CI)
<u>Ankle pain</u>		<u>Foot pain</u>	
Increased running distance		Increased running duration	
20-30 Vs <10 km/week	2.55 (1.31-4.96)	>60mins Vs <30 mins	3.18 (1.62-6.26)
30-40 Vs <10 km/week	2.98 (1.31-6.76)	Constant distance/time Vs none	0.62 (0.39-0.99)
Incline path Vs none	1.66 (1.00-2.75)	<u>Sprains</u>	
Artificial lanes Vs none	2.21 (1.35-3.62)	Different distance/time Vs none	1.77 (1.16-2.71)
<u>Knee pain</u>		Insole with medial arch Vs none	1.97 (1.02-3.83)
Soft type of insole Vs none	0.63 (0.45-0.87)	Anatomical abnormality	
Warm-up: No Vs yes	0.48 (0.26-0.90)	Genu varum Vs none	2.88 (1.33-6.22)

CONCLUSION: This study disclosed that various risk factors were linked to injuries in the lower extremity. The practitioner could use these information in preventing running associated injury and pain.

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