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SPO1 185

Running Injuries

A Review of the Epidemiological Literature

Willem van Mechelen

Department of Health Science, Faculty of Human Movement Sciences, Vrije Universiteit en
University of Amsterdam, Amsterdam, The Netherlands

Contents

321	Summary
322	1. Incidence of Running Injuries
324	2. Severity of Running Injuries
324	2.1 Medical Diagnosis
324	2.2 Site of Injury
325	2.3 Consequences of Running Injuries
325	3. Causes of Musculoskeletal Running Injuries
326	3.1 Characteristics of Runners
326	3.1.1 Age
327	3.1.2 Gender
327	3.1.3 Anthropometrics
327	3.1.4 Malalignment
328	3.1.5 Muscular Imbalance, Restricted Range of Motion
328	3.1.6 Running Experience
328	3.1.7 Previous Injury
329	3.1.8 Participation in Other Sports
329	3.1.9 Psychological and Behavioural Factors
329	3.2 Characteristics of Running Practice
329	3.2.1 Weekly Running Distance, Running Frequency and Weekly Running Time
330	3.2.2 Training Speed and Other Indicators of Intensity of Running Performance
330	3.2.3 Stability of Running Habits
331	3.2.4 Warm-Up, Stretching Exercises and Cooling Down
331	3.3 Characteristics of the Running Environment
331	3.3.1 Shoes
332	3.3.2 Running Surfaces and Hill Running
332	3.3.3 Time of Day and Season
333	4. Prevention Through Health Education
333	4.1 Complete Rehabilitation and Early Recognition of Symptoms of Overuse
334	4.2 Training Guidelines

Summary

Running is one of the most popular leisure sports activities. Next to its beneficial health effects, negative side effects in terms of sports injuries should also be recognised.

Given the limitations of the studies it appears that for the average recreational runner, who is steadily training and who participates in a long distance run every now and then, the overall yearly incidence rate for running injuries varies between 37 and 56%. Depending on the specificity of the group of runners concerned (competitive athletes; average recreational joggers; boys and girls) and on different circumstances these rates vary. If incidence is calculated according to exposure of running time the incidence reported in the literature varies from 2.5 to 12.1 injuries per 1000 hours of running.

Most running injuries are lower extremity injuries, with a predominance for the knee. About 50 to 75% of all running injuries appear to be overuse injuries due to the constant repetition of the same movement. Recurrence of running injuries is reported in 20 to 70% of the cases. From the epidemiological studies it can be concluded that running injuries lead to a reduction of training or training cessation in about 30 to 90% of all injuries, about 20 to 70% of all injuries lead to medical consultation or medical treatment and 0 to 5% result in absence from work.

Aetiological factors associated with running injuries include previous injury, lack of running experience, running to compete and excessive weekly running distance. The association between running injuries and factors such as warm-up and stretching exercises, body height, malalignment, muscular imbalance, restricted range of motion, running frequency, level of performance, stability of running pattern, shoes and inshoe orthoses and running on 1 side of the road remains unclear or is backed by contradicting or scarce research findings. Significantly not associated with running injuries seem age, gender, body mass index, running hills, running on hard surfaces, participation in other sports, time of the year and time of the day.

The prevention of sports injuries should focus on changes of behaviour by health education. Health education on running injuries should primarily focus on the importance of complete rehabilitation and the early recognition of symptoms of overuse, and on the provision of training guidelines.

The popularity of running as a form of exercise and recreation has grown rapidly since the 1970s, first in North America and later, from the beginning of the 1980s, in Europe. One of the reasons for this worldwide trend is the low cost involved: all that is needed is a tracksuit and a pair of running shoes. Running can be performed at any time and anywhere without constraints of a schedule. Reasons for jogging include health, fitness, pleasure, relaxation, competition and personal performance (Clough et al. 1989; Ooijendijk & Van Agt 1990). More and more people are taking part in major endurance events such as the New York, Los Angeles, Amsterdam or London marathons. In Switzerland the number of regular joggers has increased by 100% over the period between 1978 and 1984, being 8% of the total population (Marti et al. 1988). According to Walter et al. (1989) the number of Canadians jogging or running doubled from 15% in 1976 to 31% in 1983. Jacobs and Berson

(1986) state that in the US there are 30 million runners of all levels, of whom 10 million run regularly and about 0.8 to 1 million enter races.

In the Netherlands in 1978, 8% of the Dutch adult population was engaged in running, while in 1984 this number had increased to 17% (Manders & Kropman 1982, 1987). This 1984 figure meets the results of a telephone survey covering 1000 respondents which was carried out between mid-July and mid-August 1985 by the Amsterdam Market Research Institute Inter/View and which indicated that there are around 2 450 000 joggers in the Netherlands (in a total population of around 14 million). Of this total around 2 million run at least once a week. Knowing that, according to the 1990 statistics of the Dutch Sports Federation, soccer with about 1 million participants is the most popular organised sport it would thus appear that running is the major national sport in the Netherlands. Running is widely considered to have a preventive