

## **Artikel zu biomechanischen und bewegungstechnischen Gesichtspunkten des Crosslaufs / Articles dealing with biomechanical and technical aspects of cross-country running**

Canham, D. (SIRC 001776)

***Cross-country techniques illustrated  
(Crosslauf-Techniken im Bild)***  
New York: A.S. Barnes, 1953, 96 p.

Gambetta, V. (BISp; SIRC 117757)

***Cross country ... a technique sport  
(Crosslauf ... eine technische Sportart)***  
Track & Field quart. Rev., Kalamazoo (Mich.) 82 (Fall 1982), 3, p. 14

The philosophy emphasized in this article is that cross country is a unique sport that demands a different technique and mental set. Two aspects make cross country unique: 1. It is a team sport for distance runners. To be a good team, five runners must run closely together in as tight a group as possible. 2. Cross country is a technique sport - all things being equal, the runner with the best technique will be the winner. In cross country there is more room to apply strategy and tactics than in any other type of running. Training for cross country does not differ much from training for the longer distances in track, except that there should be a greater emphasis on technique. The focus should be on hill technique (uphill running, downhill running, cresting the hill), and turn technique (wide, narrow and blind turns).

Kuhn, S.; Gallagher, A.; Malone, T. (SIRC 340928)

***Comparison of peak torque and hamstring/quadriceps femoris ratios during high-velocity isokinetic exercise in sprinters, cross-country runners, and normal males  
(Vergleich der Spitzen-Drehmomente und dem Verhältnis von ischiocruraler Muskulatur zu Quadrizeps femoris während isokinetischer Belastungen mit hoher Geschwindigkeit bei Sprintern, Crossläufern und untrainierten Männern)***  
Isokinetics & Exerc. Sci., Stoneham (Mass.) 1 (1991), 3, pp. 138-145

The purpose of this study was to compare the overall peak torque per kilogram body weight (peak torque/kg) and hamstring to quadriceps femoris (H/Q) peak torque ratios between 13 male intercollegiate sprint athletes, 10 male intercollegiate cross-country runners, and 11 normal males at angular velocities of 271, 375, 472 and 583 deg/sec. A modified Cybex II isokinetic dynamometer was used for all data collection. The dominant leg of each subject was tested at all four test velocities and the non-gravity-corrected peak torque/kg values of the hamstrings and quadriceps femoris as well as the H/Q peak torque ratios were analyzed. The results were: (1) Sprinters produced a significantly greater values for both hamstrings and quadriceps femoris than normals at 271, 472, and 583 deg/sec and significantly greater quadriceps femoris peak torque/kg than cross-country runners at 583 deg/sec. (2) Cross-country runner produced significantly greater peak torque/kg hamstring values than normals at 472 deg/sec. (3) No significant differences were found for H/Q peak torque ratios between groups at each speed or between speeds for each group. (4) The absolute differences between peak torque/kg values of the hamstrings and the quadriceps femoris decreased with increasing velocity for all groups. (5) Cross-country runners' hamstring peak torque/kg values exceeded the quadriceps peak torque/kg values at 583 deg/sec.

Morris, A.; Lussier, L.; Bell, G.; Dooley, J. (SIRC 138920)

***Hamstring/quadiceps strength ratios in collegiate middle-distance and distance runners  
(Das Kraftverhältnis zwischen isciocruraler Muskulatur und Quadrizeps femoris bei College-Mittel-  
und -Langstreckenläufern)***

Physician & Sports Med., Minneapolis (Minn.) 11 (October 1983), 10, pp. 71-72, 75-77

The authors study the hamstring/quadiceps strength ratios of collegiate cross-country and middle-distance runners. Twelve subjects were tested on a Cybex II isokinetic dynamometer at various speeds. Results indicate a variation of knee flexion/extensor ratios with angular joint velocity.

Uher, Martin (BISp)

***Running for the "hill" of it  
(Hügellaufen)***

Scholast. Coach, New York (N.Y.) 49 (November 1979), 4, pp. 70-72, 97-99

"To lean or not to lean?" That is the question that has perplexed many a coach and runner with respect to running uphill. The author explains the mechanical principles and the laws of physics with respect to uphill running and arrives at the conclusion that in order to remain upright in negotiating hills, runners must lean.