

THE EFFECTS OF ELASTIC GROIN WRAPPING ON THE KINEMATICS OF ICE SKATING

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KEY WORDS: ice skating, elastic groin wrap, stride length, stride width, adductor strain.

INTRODUCTION: Groin injuries are among the most common injuries seen in ice hockey, accounting for as many as 10-12% of total injuries sustained (Anderson & Strickland, 2001; Emery & Meeuwisse, 2001). The return to competition from a groin injury depends on the perceived pain, muscular strength and the ability of the athlete to skate. The application of an elastic groin wrap may allow the athlete to return to play at a quicker rate by limiting the player's range of motion (ROM) and thus preventing further damage. However, limiting a player's ROM may affect the skating abilities. The purpose of this study is to investigate the effects of elastic groin wraps on active hip ROM and the kinematics of ice skating.

METHODS: Eighteen female NCAA Division 1 ice hockey players volunteered for this study. On two separate days, the subjects were tested on ice performing a 15.20m full-speed test, a 6.10m acceleration test, and the Gilling agility test (Gilling, 2001). Nine subjects were randomly chosen to wear elastic groin wraps during the first on ice testing day, the remaining 9 subjects wore the elastic groin wrap on the second testing day. The times to complete each test were recorded using an electric timing system. During the full speed test the subjects were video-recorded from the side and the back to obtain stride length, stride width, stride frequency, push-off distance and push-off width. Off ice, the subjects were video-taped while performing active ROM tests for hip abduction, extension, and flexion, with and without elastic groin wraps applied. The Peak Motus System was used to determine the listed variables from the video recordings of the on- and off-ice testing. Paired samples t-tests were used to check for significant differences between the groin wrap and no groin wrap testing conditions.

RESULTS AND DISCUSSION:

Table 1 Summary of preliminary results. Listed are the mean results (\pm standard deviation).

Conditions	Full Speed Test [s]	Acceleration Test [s]	Gilling Agility Test [s]	Hip Abduction [deg.]	Hip Extension [deg.]	Hip Flexion [deg.]
Groin wrap	1.797 (± 0.611)	1.498 (± 0.781)	22.971 (± 0.783)	41 (± 5.2)*	11 (± 7.8)*	131 (± 6.2)
No groin wrap	1.786 (± 0.690)	1.544 (± 0.101)	23.100 (± 0.758)	44 (± 3.8)*	16 (± 7.1)*	131 (± 6.8)

Note: * significant difference between conditions, $p \leq 0.05$

So far, results indicate that elastic groin wrapping limits active hip ROM in abduction and extension, but it does not seem to negatively affect skating times. Further analysis of the components of ice skating will allow us to determine the effects of elastic groin wraps on ice skating technique.

REFERENCES:

- Anderson, K., & Strickland, S. (2001). Hip and groin injuries in athletics. *American Journal of Sports Medicine*, 29, 521-533.
- Emery, C., & Meeuwisse, W.H. (2001). Risk factors for groin injuries in hockey. *Medicine and Science in Sports and Exercise*, 33, 1423-1434.
- Gilling, B.L. (2001). Assessing selected physiological and performance components of a men's D-I collegiate ice hockey team over the course of a season. Unpublished Thesis, Bemidji State University.