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Original article

EFFECT OF SPORTS CHIROPRACTIC ON THE PRIMARY PREVENTION OF LOW BACK PAIN FOR TRACK AND FIELD PLAYERS

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Abstract

Introduction. Trackand fieldevents are a highly competitive and intense sport. Athletics players commonly suffer from low back pain, which is often the result of the repetitive loading and lateral movement that occurs during performance of the sport. These forces can cause injuries such as stress fractures, muscle spasms, and even disc herniation. Many of these injuries can be prevented with sports chiropractic. The goal of this study was to identify the effects of sports chiropractic on the primary prevention of low back pain among track and field Players.

Methods. Seventeen players from the Sharkia club were divided into two groups: Experimental (n = 9) and Control (n = 8). Each group trained four times a week for ten weeks, with all training modalities performed at each session. Parameters assessed were height, weight, training experience, and low back pain. All subjects were free of any disorders known to affect performance, such as bone fractures, osteoporosis, diabetes, or cardiovascular disease, and had not undergone recent surgery. The participants did not report the use of any anti-seizure drugs, alcohol, cocaine, or cigarettes. All participants were fully apprised of the aims of the study and gave informed consent before participation. The measurement procedures were in accord with ethical human experimentation.

Results. The results revealed significant differences between pre- and post-competition measurements regarding flexibility and discomfort. In conclusion, sports chiropractic was found to reduce low back pain and improve flexibility.

Conclusion. Sports chiropractic could reduce lower back pain and improve flexibility.

Keywords: sports chiropractic, flexibility, low back pain.

Introduction

Running with bad posture, suffering from excess weight, and training without being supervised by a professional can generate severe pain in the lower back, the infamous low back pain.

A system of opposing muscle groups maintains balance and movement of the body. They are in the trunk, between the belly and the back. The so-called lumbar muscles are those that allow us to stand, run and lift weight. When this area is poorly exercised or subjected to sudden or forced movements, the muscles and ligaments that are connected to the bones of the spine (vertebrae) can be damaged. In response, spasms, pain, and stiffness in the area can be generated. Low back pain is also associated with the vertebrae. The tissues between the bones of the spinal column are called intervertebral discs. These discs are made of a soft gel-like texture. The intervertebral disc creates a joint between each of the bones of the spine, which therefore allows movements of the back.When the outer lining that surrounds these discs is torn, the soft center can protrude causing a herniated disc. So,playermust rest and consult a doctor immediately.

Usually the pain has a sudden onset following one of these activities, and the player experiences stiffness, rigidity, and pain in the muscular area on either side of the spine. The common treatment for this type of injury is application of ice, followed by light stretching as mobility improves and the pain lessens. The authors believe that sports chiropractic with core strengthening could help to prepare these muscles for activity and decrease the likelihood of incurring this type of injury. The incidence of back pain among professional athletes has been reported to be as high as 75% annually. (Semon and Spengler 1981). The pain most often occurs during a soccer match.

The health profession that deals with the diagnosis, treatment, and prevention of mechanical disorders of the musculoskeletal system, and their effects on the nervous system and general health. It

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is based on manual treatments including spinal adjustment and other joint and soft tissue manipulations.

Chiropractic was founded as a health profession in the US in 1895 by a Canadian, Daniel David Palmer, who had no conventional medical training. In 1976, chiropractic sports medicine specialists first began treating Olympic athletes at the Olympic Games in Montreal. In 2002, 31% of National Football League teams used a chiropractor in an official capacity as a member of their medical staff (Moreau et al. 1991). In 2006, a study analyzing Division I NCAA college athletes at inter-collegiate sporting events in Hawaii found that chiropractic usage within the last 12 months was reported by 39% of respondents. Chiropracticand osteopathy are included in what the World Health Organization (WHO) itself calls 'traditional complementary medicine' (TCM), and values that its professionals must be certified and regulated health professionals. Both the amateur and professional players of both genders have developed an interest in chiropractic treatment (Greenberg 1996; John and Daniel 2002).

Chiropractic treatment focuses on manual adjustment or manipulation of the spine. Some experts believe that occasional chiropractic treatment can help alleviate muscle pain and ease pain in the back. Chiropractic treatment can be potentially harmful in people with swollen joints, lupus, osteoporosis, or a form of arthritis that affects the spine. Chiropractors must complete 4-year training at a chiropractic college and are enrolled in 50 states. However, chiropractors are not doctors and are not licensed to perform surgeries or prescribe drugs.

At present, in Arab area, and particularly in the Arab republic of Egypt, sports chiropractic is not applied. Therefore, our objective was to investigate the effect of sports chiropractic on the primary prevention of low back pain among track and field Players.

Material and Methods

Participants

Seventeenplayers from the Sharkia club were divided into two groups: Experimental (n = 9) and Control (n = 8). Each group trained four times a week for ten weeks, with all training modalities performed at each session. Parameters assessed were height, weight, training experience, and low back pain. All subjects were free of any disorders known to affect performance, such as bone fractures, osteoporosis, diabetes, or cardiovascular disease, and had not undergone recent surgery. The participants did not report the use of any anti-seizure drugs, alcohol, cocaine, or cigarettes. All participants were fully apprised of the aims of the study and gave informed consent before participation. The measurement procedures were in accord with ethical human experimentation.

Procedures

The evaluations of the flexion and extension range of motion of the lumbar spine were made using a simple goniometer after instructing the athlete regarding positioning and the correct way to perform the test. The individuals began the test in an upright standing position, with the knees completely extended and arms in front of the body. Then, upon a verbal command from the examiner, they made slow and gradual movements for flexion and extension as far as the maximum amplitude, at which point the goniometer measurement was made. To evaluate lumbar flexion, the arms had to be flexed at 90 degrees, and to evaluate lumbar extension, the arms had to be kept fixed behind the neck. For these measurements, the iliac crest was taken as the fixed reference point, while the mobile point used was the axillary line parallel to the iliac crest interiorly, such that the fixed arm of the goniometer remained central in the lateral region of the trunk (Carla, et al. 2010).

Sorensen's Test

This test measures the time a subject can keep the unsupported trunk (from the upper border of the iliac crest) horizontal while lying prone on an examination table until he can no longer control the posture, can no longer tolerate the procedure, or until fatigue occurs (Moreau et al. 2001). Of the available assessment strategies, isometric endurance testing appears to be cost-effective and requires little or no equipment.

The procedure was carried out as follows:

The subjects were required to lie prone on a plinth with the trunk (from the upper border of the iliac crest) unsupported, with the hands either behind the head or placed across the chest.

- The researcher held down the subjects' legs with body weight. This was done to reduce the time for patient set-up during test performance.
- The subjects were required to extend the trunk until their back was in line with the remainder of the body.
- This position was to be maintained until the posture could no longer be controlled, the position became intolerable, or fatigue occurred.
- The examiner recorded the time held by each patient (in seconds) for the test. To maintain uniformity, a Swatch Irony watch was used to record the times for all athletes.

Statistical Analysis

All statistical analyses were calculated with the SPSS statistical package. The results are reported as means and standard deviations (SDs). Differences between the two groups were reported

as mean difference ± 95% confidence intervals (CIs). The Student's t-test for independent samples was used to determine the differences in physical and Sorensen's parameters between the two groups. The level of significance was set at $P < 0.05$.

Results

Table 1. Characteristics of the Athletes

Variables	N	Age (years)	Body weight (kg)	Body height (cm)	Training experience (years)
Experimental group	9	22.43±2.45	75.94±10.23	179.88±7.95	10.23±2.11
Control group	8	24.43±4.68	76.23±11.66	180.36±8.03	12..65±1.93

Table 1 shows the age and training experience of the subjects. No significant differences were observed regarding age, anthropometric characteristics, or training experience between the two groups.

Table 2. Flexibility Variables and Sorensen's Test for the Two Groups

Variables	Control			Experimental			*p*
	pre*	post*	% change	pre*	post*	% change	
Goniometer flexion	111.21 ±8.15	113.38 ± 7.87	1.91	110.7 ± 9.13	116.25 ± 8.58	4.77	0.05
Goniometer extension	39.64 ±5.68	41.11 ± 5.45	3.58	38.65 ±3.54	43.23 ± 6.32	10.59	0.01
Sorensen's Test	41.11 ± 4.91	43.59 ± 4.38	5.69	41.85 ± 7.98	50,27 ±9.64	16.75	0.01

*All results are presented as mean ± SD.

Table 2 shows the significant differences that were observed in goniometer flexion, goniometer extension, and Sorensen's Test for the control and experimental groups.

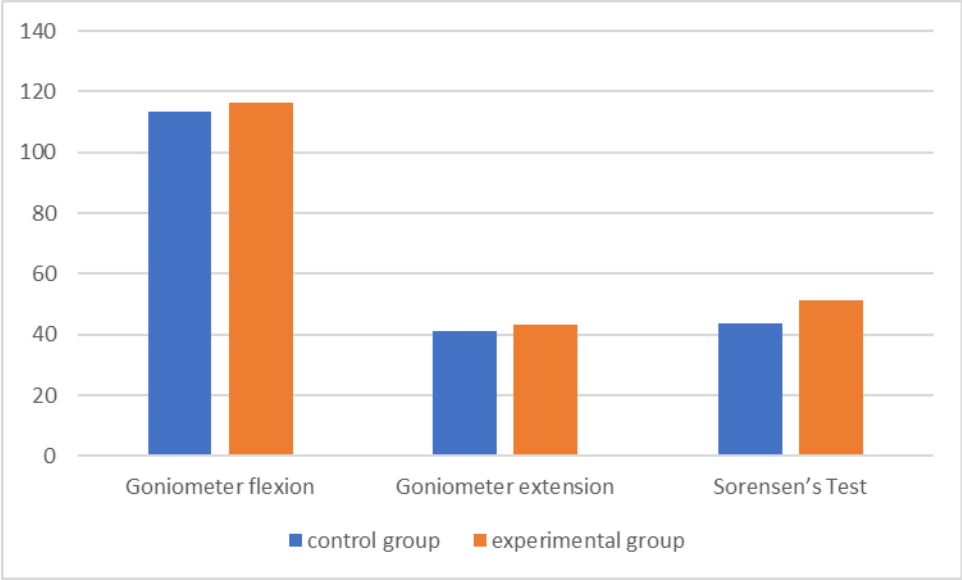

Fig 1 shows the differences that were observed in goniometer flexion, goniometer extension, and Sorensen's Test for the control and experimental groups.

Discussion

The goal of this study was to identify the effects of sports chiropractic on the primary prevention of low back pain among track and field Players. The results indicated that sports chiropractic reduced low back pain levels and improvement of goniometer flexion and extension. These results support the hypothesis that sports chiropractic may be used for the primary prevention of low back pain among elite soccer players. Chiropractic is a healthcare profession and sufficient evidence exists that manual therapy, which may include spinal manipulation (as practiced by chiropractors) can be an effective treatment for chronic low back pain. According to the General Chiropractic Council (GCC), chiropractic is "a health profession concerned with the diagnosis, treatment and prevention of mechanical disorders of the musculoskeletal system, and the effects of these disorders on the function of the nervous system and general health".

Many studies have concluded that manual therapies commonly used by chiropractors are generally effective for the treatment of low back pain (Rubinstein et al. 2010; Dagenais et al. 2010), as well as for the treatment of a lumbar herniated disc associate with radiculopathy (Leininger et al. 2011; Hahne et al. 2010), neck pain, and other conditions (Bronfort et al. 2010).

Generally, chiropractors maintain a unique focus on spinal manipulation and treatment of surrounding structures. Chiropractic treatment can produce symptom relief from health conditions as mundane as muscle soreness and as problematic as Parkinson's disease, while also being associated with some major effects on many other physical (and mental) health issues such as cancer, vertigo, and even blindness. At present, mainstream medicine is beginning to understand the effects of this holistic, alternative treatment choice, perhaps because chiropractic care's long-term health benefits are being properly recognized across the medical spectrum.

According to (Amr hamza et al. 2015) Perform a full stretch after workouts. It is estimated that 80% of adults experience back pain. The World Health Organization stated that this problem is one of the main causes for which people stop working. Low back pain is characterized by pain in the lower back (above the tail) and is the product of a inflammatory process that involves the muscles responsible for supporting the spine. Running has a strong impact on the spine, which is why it is recommended that athletes perform strengthening exercises for the muscles around the back. Strengthening is one of the most successful preventive measures. Why? Because it helps balance the muscles, lubricates the joints, benefits posture and preserves the health of the spine. A mild low back pain can last a day or two and the pain generally decreases with rehabilitation and rest exercises.

Practical Applications

Sports chiropractic could reduce lower back pain and improve flexibility.

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