

Chiropractic utilization in Taekwondo athletes

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The purpose of the present study was to examine chiropractic utilization following a sport-related injury among National Team members and other high level Taekwondo athletes.

Methods: Retrospective surveys were conducted among Canadian male and female Taekwondo athletes (Group A, n = 60) competing in a national tournament and National Taekwondo team athletes (Group B, n = 16) at a training camp.

Results: A response rate of 46.7% (Group A) and 100% (Group B) was achieved. Twenty five percent (n = 4) of Group A athletes reported never seen a doctor of chiropractic (DC) regarding their injuries. Over 12% (n = 2) reported visiting a DC often, while just over 6% (n = 1) reported that they usually visited the DC following an injury. When injured, over 36% (n = 7) of the National Team members visit their family physician, over 15% (n = 3) visit a chiropractor or physiotherapist and the remaining athletes (n = 6) equally visit osteopaths, massage therapists, or athletic therapist following an injury.

Conclusion: There is a lack of information surrounding chiropractic utilization in the majority of sports and minimal research published regarding the health care utilization of Taekwondo athletes. Chiropractors, and particularly those with extensive athlete contact, should endeavour to further utilization studies.

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Le but de la présente étude était d'examiner l'utilisation de la chiropratique à la suite d'une blessure sportive au sein des membres de l'équipe nationale et autres athlètes de haut niveau qui pratiquent le taekwondo.

Méthodes : Des enquêtes rétrospectives ont été menées parmi des athlètes de taekwondo canadiens (hommes et femmes) (Groupe A = 60) participant à un tournoi national et des athlètes de l'équipe nationale de taekwondo (Groupe B, n = 16) à un camp d'entraînement.

Résultats : Un taux de réponse de 46,7 % (Groupe A) et de 100 % (Groupe B) a été atteint. Vingt-cinq pour cent (n = 4) des athlètes du Groupe A ont déclaré n'avoir jamais vu de docteur en chiropratique (DC) à propos de leurs blessures. Plus de 12 % (n = 2) ont déclaré voir souvent un DC, alors qu'un peu plus de 6 % (n = 1) ont déclaré voir habituellement un DC à la suite d'une blessure. En présence d'une blessure, plus de 36 % (n = 7) des athlètes de l'équipe nationale vont voir leur médecin de famille, plus de 15 % (n = 3) vont voir un chiropraticien ou un physiothérapeute et le reste des athlètes (n = 6) vont voir, en nombre égal, des ostéopates, massothérapeutes ou thérapeutes en sport à la suite d'une blessure.

Conclusion : Il existe un manque d'information entourant l'utilisation de la chiropratique dans la majorité des sports et très peu de recherche publiée sur l'utilisation des soins de santé par les athlètes de taekwondo. Les chiropraticiens et surtout ceux qui sont

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souvent en contact avec des athlètes doivent s'efforcer de faire mener plus loin les études portant sur ces utilisations.

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MOTS CLÉS : taekwondo, arts martiaux, expérience, chiropratique, utilisation, fournisseur de soins de santé

Background

In recent years, there has been an increase in the amount of research associated with chiropractic utilization by the general public and specific groups. A recent descriptive review provides a comprehensive overview of chiropractic and complementary and alternative medicine (CAM) use.¹ The review demonstrated that although utilization rates vary, they are generally within a range of six to twelve percent. Not surprisingly, most of those seeking care from chiropractors are suffering from low back pain versus organic or visceral conditions.¹

Although research regarding chiropractic use in general has increased, there continues to be a paucity of information regarding chiropractic utilization by athletes. There is a large amount of research which reports the chiropractic management of specific sports diagnoses. Even so, only a few studies report chiropractic utilization rates among athletes. To this point, research has merely included studies of intercollegiate athletes, the national football league, and the all-african games.^{2–4} There has been minimal information published regarding the health care utilization of Taekwondo athletes. In a previous study, the current authors attempted to address key areas such as training habits, injury care, and dietary practices used by competitive Taekwondo athletes.⁵ A review of the literature did not reveal any new Taekwondo-specific relevant studies related to the current topic beyond what was assessed previously.⁵

Further research to identify health care utilization, referral patterns, injuries treated, treatment outcomes are needed among athletes. This population group may be seen as highly motivated to improve their recovery rate and outcome following an athletic injury. Chiropractors, especially those with additional sports-injury related training, can play an important role in assisting athletes return to their sport. The purpose of the present study was to examine the type of health care practitioners visited,

and specifically chiropractic utilization, following a sport-related injury among National Team members and other high level Taekwondo athletes.

Methods

Subjects

Two groups of subjects were recruited for this study. The first set of athletes, called Group A, was described in a previous study by the current authors.⁵ These athletes were sixty Canadian male and female Taekwondo athletes competing at a national-level tournament. A total of 28 respondents with an age range of 16 to 29 years returned the distributed questionnaire. Four females and 18 males completed the questionnaire. An additional six participants did not indicate their gender on the returned questionnaires. The second set of athletes, called Group B, were 16 male and female Canadian National Taekwondo Team athletes competing at a training camp. All 16 athletes completed and returned the survey. The gender distribution was equal among these 16 athletes.

Instrumentation

A twenty-one-item questionnaire described in a previously published study was used to obtain a general profile of the Group A athletes.⁵ The current study was interested only in the data which corresponded to which type of health professional was consulted following an injury. The Group B survey was a 24 item questionnaire with the same areas of focus as the original survey. Modifications to the new survey included removing the injury profile questions, adding two more protective gear options, and asking two specific questions regarding chiropractic care for injuries. Again, for the purpose of this study, only the questions surrounding forms of treatment sought were of interest. Neither questionnaire has been tested for validity or reliability.

Table 1 *Health care providers sought for treatment*

Health Care Provider Visited	Group A (n = 28) %	Group B (n = 16) %
None	25	0
Medical Doctor	10.7	36
Doctor of Chiropractic	10.7	18
Physiotherapist	10.7	18
Acupuncturist	3.6	0
Multiple Providers	14.4	38

Procedure

The procedure for data collection among the competitive Taekwondo athletes was described in detail previously.⁵ The first author (MK) also worked as the health care provider and lecturer at the Canadian National Team training camp. The survey (Figure 1) was discussed in detail with the athletes and informed consent was obtained prior to its distribution. Once athletes finished completing the survey, it was immediately returned.

Statistics

The Statistica Release 6 and 7 statistical packages were used for all analyses. Descriptive statistics, chi-square, t-tests and Mann-Whitney U tests were used. When inputting data, it was noted that certain variables had missing responses. In these instances, the number of participants who completed the questions was used to calculate the results.

Results

The mean age of the Group A competitors was just over 22 years, with a mean height and weight of 68.6 inches and 148 pounds, respectively. Seventy-five percent (n = 21) of these athletes had six or more years of Taekwondo experience, with over 57% (n = 16) of individuals having eight or more years experience. The mean age of the National Team members was just over 23 years, with a mean height and weight of 67.9 inches and 147 pounds, respectively. Over 12% (n = 2) of the Group B athletes had six or more years of Taekwondo experience, while over 87% (n = 14) had eight or more years experience.

Our study failed to detect any differences in age, height, and weight between the two groups of athletes, although

there was a significant difference for number of years practicing Taekwondo ($p = 0.026$). None of the National Team athletes had less than six years of experience while years of experience in Group A spanned from one year and up.

Injury Care

Table 1 provides a summary of treatment providers sought by both groups of athletes. A variety of care was sought by the Group A athletes and this was described previously.⁵ Because a modified questionnaire was distributed to the National Team athletes, the injury care profile for this group of athletes is dissimilar to that reported for Group A. When injured, over 36% (n = 7) of the National Team members visit their family physician first. An equal number (n = 3, over 15%) visit a chiropractor or physiotherapist following an injury. The remaining athletes (n = 6) equally visit osteopaths, massage therapists, or athletic therapist following an injury. Some athletes chose more than one option when answering this question, indicating that they chose to be co-managed for their injuries.

When Group A athletes were asked how often a doctor of chiropractic (DC) was seen regarding their injuries, 25% (n = 4) reported never and over 56% (n = 9) reported that they seldom visited a DC. Over 12% (n = 2) reported visiting a DC often, while just over 6% (n = 1) reported that they usually visited the DC following an injury. National Team Members were also asked which injuries they would visit a chiropractor for. Thirty percent of respondents (n = 6) reported they would see a DC for all their injuries and 30% (n = 6) reported they would visit a DC for low back and neck injuries. Fifteen percent

1. *How many years have you been practicing TaeKwonDo?*
~ a. 1 ~ b.2-3 ~ c. 4-5 ~ d. 6-7 ~ e. 8+
2. *How many times/week do you practice TKD?*
~ a. 2 ~ b. 3 ~ c. 4 ~ d. 4 ~ e. 7+
3. *How many hours/sessions do you practice TKD?*
~ a. 1 ~ b. 2 ~ c. 3 ~ d. 4 ~ e. 5+
4. *Is the frequency of your training:*
~ a. Just Right ~ b. Like To Increase ~ c. Like To Decrease
5. *Is the duration of your training:*
~ a. Just Right ~ b. Like To Increase ~ c. Like To Decrease
6. *How many times/week do you spar or practice sparring techniques?*
~ a. 1-2 ~ b. 3 ~ c. 4 ~ d. 5-6 ~ e. 7+
7. *How long/session hours do you spar or practice sparring techniques?*
~ a. 1 ~ b. 2 ~ c. 3 ~ d. 4 ~ e. 5+
8. *Generally, I stretch (_____) training.*
~ a. Before ~ b. After ~ c. Both
9. *I do a warm-up other than stretching before Kicking:*
~ a. Always ~ b. Sometimes ~ c. Never
10. *I do a cool-down other than stretching after training:*
~ a. Always ~ b. Sometimes ~ c. Never
11. *How often do you wear protective gear when training:*
~ a. Always ~ b. Sometime ~ c. Never
12. *If you do, which ones?*
~ Elbow Pads ~ Shoes
~ Shin Pads ~ Gloves
~ Head Gear ~ Instep Pads
~ Chest Protector ~ Mouth Guard
~ Groin Guard ~ Knee Guard
13. *Do you fast before competition?*
~ Yes ~ No
14. *If Yes, what do you do?*
~ a. Do not eat and drink ~ and do aerobic exercises.
~ b. Do not eat but drink ~ and do aerobic exercises.
~ c. Do not drink but eat ~ and do aerobic exercise
15. *Do you feel ready for the competition today?*
~ a. Yes ~ b. No ~ c. Yes, But Nervous ~ d. No, and Nervous
16. *If No, what is the problem?*
~ a. Not enough training ~ b. Coach ~ c. Parents ~ d. Peers ~ e. Personal
17. *If Coach, what is the Problem?*
~ a. Coach does not like me. ~ b. I do not like the coach
~ c. Not enough directions. ~ d. Too much directions.
~ e. Communication Problems ~ f. can not trust coach(s) judgement.
18. *Are your parents supportive of your involvement in TKD?*
~ a. Yes ~ b. No ~ c. Does Not Apply
19. *Is your spouse or significant other supportive of your involvement in TKD?*
~ a. Yes ~ b. No ~ c. Does Not Apply
20. *What Is Your:*
~ Gender _____
~ Age _____
~ Weight (lbs) _____
~ Height (ft) _____
21. *I am:*
~ a. Left-Handed ~ b. Right-Handed ~ c. Both
22. *Who do you visit first when you are injured?*
~ a. Family Physician ~ b. Doctor of Chiropractic
~ c. Doctor of Osteopathic ~ d. Physiotherapist
~ e. Naturopathic Doctor ~ f. Massage Therapist
~ g. Athletic Therapist
23. *How often do you visit a doctor of Chiropractic for your injuries?*
~ a. Never ~ b. Seldom ~ c. Often ~ d. Usually ~ e. Always
24. *For which injuries would you visit your doctor of chiropractic?*
~ a. All my injuries ~ b. Only low back injuries
~ c. Low back and neck injuries ~ d. Headaches
~ e. Peripheral joint injuries (e.g. Ankle, Knee, etc) ~ f. None

Figure 1 Taekwondon Athletes Profile Survey

($n = 3$) and 10% ($n = 2$) noted they would see a chiropractor for peripheral joint injuries and headaches, respectively. Fifteen percent ($n = 2$) of respondents reported they would not see a chiropractor for any of their injuries. Some athletes responded to more than one item when answering this question.

Several comparison analyses were performed using Pearson's chi-square test. Several of these values were not of statistical significance, and thus not reported. The rationale for only reporting frequencies is due to the small sample size of the study, making the use of other analyses like Pearson's or Fisher's Exact Test erroneous.

Discussion

The objective of this retrospective investigation was to identify chiropractic utilization among Taekwondo athletes. The first step of examining utilization rates by the general public is well documented. Researchers, and particularly those with extensive athlete contact, should endeavour to further utilization studies. There is a lack of information surrounding chiropractic utilization in the majority of sports.

The treatment of musculoskeletal injuries is a primary component of chiropractic training and sport chiropractors have additional expertise. At the present time, the Canadian Chiropractic Sports Sciences Residency Program (SSRP) is one of the most comprehensive and recognized in the world. The SSRP has been provided at the Canadian Memorial Chiropractic College (CMCC) as a paid full-time program and also as a university based Master's degree program. The SSRP is a two year full-time program at CMCC and 4–5 year program as a university based program. In order to be eligible to write the College of Chiropractic Sports Sciences (Canada) (CCSS(C)) fellowship exam, the resident must successfully complete the core courses, 1000 hours of placements with sports teams, sports clinics, an orthopaedic surgeon, and sports rounds. The written requirements include four book reports, four case reports, one literature review and one original research project of publishable quality. (www.ccssc.ca)

With their expertise, chiropractors are well-positioned to treat athletic injuries. Even so, little research has been conducted to examine the prevalence of chiropractic use in the treatment of sport-related injuries. Over the years, the knowledge of chiropractic utilization by the general

population has increased. In a study examining the practice patterns of Ontario chiropractors in 2001 to 2002, nearly one third of patient visits could be attributed to lumbar pain, while the average number of treatments per patient per year was 8.6.⁶

A national survey in the U.S. estimated that approximately 12% of the population had visited a chiropractor in the past 12 months.⁷ Users were more often female, Caucasian, more educated, not retired, and had better health coverage compared with non-users. Of the respondents whom had never visited a chiropractor, 60% reported they would not be willing to use a professional other than a medical doctor as their primary care provider. A substantially smaller percentage of non-users were reported in the current study with 25% of competitive-level Taekwondo athletes and 15% of National Team members having never seen a chiropractor. This discrepancy might be explained by the presence of a team chiropractor for the national athletes. At the time of the second survey (Group B), the primary author (MK) had been travelling with the Canadian National Team for three years as the Team Doctor providing care for acute injuries at competitions.

Very few studies have examined chiropractic utilization by athletes. One study investigated the use and role of sports chiropractors in the National Football League (NFL).³ The head athletic trainers of the 36 NFL teams reported the chiropractic utilization of team members. Seventy-seven percent referred athletes to a chiropractor for various conditions. These included low back pain (61%), stingers and burners generally associated with neck injuries (31%), and headaches (8%). Eighty-six percent of the respondents reported that there was a role for DCs in the NFL and all the trainers felt this to be a different role than that of the team physician.

The prevalence and type of CAM use among intercollegiate athletes at a Hawaiian university was also examined.² Fifty-six percent of respondents reported using CAM therapies in the past year. This result is higher than previously reported utilization rates.^{1,7} Although there was a significant difference in use among females and males (67% versus 49%, respectively), no difference between the various sports teams was reported. Massage therapy was the most commonly used CAM (38%), followed by chiropractic (29%) and acupuncture (12%). Forty-three percent of respondents reported receiving

care from both medical doctors and CAM providers. This is in accordance with our study and others which reported that chiropractic was often used in conjunction with other interventions.¹

Nook and Nook⁴ reported that 1957 chiropractic treatments were rendered during the All African Games between September 12–23, 1995. Six thousands athletes participated in these Games. A total of 1135 first visits (58% of the total number of treatments rendered) and 822 follow-up visits (42% of total number of treatment rendered) were provided. Almost 38% of chiropractic treatments were used by track and field athletes (742 treatments), followed by wrestling (283 treatments, 14.7%), and gymnastics (159 treatments, 8.1%). Taekwondo athletes received 89 treatments. The Nook et al. study described chiropractic utilization during a single international sporting event.⁴ In contrast, the current study examined the overall trends of chiropractic utilization among Taekwondo athletes .

Injury Location and Care

When reviewing injury location reported in the current study, it was not surprising, that the lower extremity received the most injuries. This was also true for all subsequent injuries reported (up to five per athlete). These results are consistent with those of several other studies.^{8,9} The upper limb was the second most frequently injured region, with the head being the least frequently injured. Sprains and strains were the most common injuries, followed by contusions, which is similar to other research.⁸ Other reports have listed contusions and concussions as the most common forms of Taekwondo-related injuries.^{10,11} Zemper et al. reported that contusions were the predominant type of injury in his study of injury rates recorded during the 1988 US Olympic team trials for taekwondo.⁹ Injury location will likely be sport-specific. For instance, lumbar injuries were reported as the most commonly occurring injury among NFL athletes.³ This could be explained by the high axial load placed on the spine during both weight training and on-field play.

Following injury, a variety of care was sought by the current study's athletes. Interestingly, one quarter of the athletes chose not to seek any form of treatment. This could perhaps be accounted for by the athlete's perception of the injury being relatively minor, or being able to

manage it without medical advice. Several health professionals were consulted by the injured athletes. These included medical doctors, physiotherapist, chiropractors, acupuncturists, and massage therapists. In addition, several athletes consulted multiple therapists. Athletes are generally anxious to return to their pre-injury status, and often become impatient with long-term therapy. This may explain why multiple health professionals were consulted. Also, some health professionals realize the benefit to a multidisciplinary approach, and use a network of referral sources when necessary.

A review of the literature revealed that although users reported confidence in the diagnostic and treatment skills of DCs, there was evidence of misinformation about the scope of chiropractic. Thirty seven percent of users were unsure if DCs could perform minor surgery or prescribe non-narcotic drugs.⁶ Referral rates from medical practitioners vary between 2% to 83%.¹ This large variation may be due to a lack of knowledge of chiropractic training and skills, previous negative experience with chiropractic patient care, or limited or no financial incentives for referral. It is obvious that there continues to be a lack of knowledge concerning the breadth of skills and ability possessed by a well-trained chiropractor. Research in the field of utilization by athletes could potentially expand this knowledge among the general public, athletes, and other health care providers.

There are limitations in the present study which need to be addressed. Firstly, one of the most important methodological short-comings is that neither of the questionnaires has been validated. There is very little reported research regarding pre-competition habits among Taekwondo athletes. As such, the authors felt it necessary to develop the questionnaires, knowing that there would be issues with its validity. In addition, much of the data was skewed to one end of the scale being measured on the questionnaire. This may have led to results that were not significant. This could be attributed to several questions constructed in a manner which would not adequately detect differences. The results from this study should be used with caution and as a means to enhance future studies in this area. In addition, the small sample size significantly affected statistical analysis. The response rate among the Group A athletes was low and factors contributing to this are discussed elsewhere.⁵ In addition, a self-report retrospective survey may be affected by poor recall

and perception bias. As mentioned previously, the questionnaires used in this pilot study were vague regarding several concepts. Key definitions were not provided on the questionnaire. Future studies should ensure that all concepts are clearly defined in order to reduce subject confusion and hopefully avoid missing responses or poor response rates.

Conclusion

The results of this study are primarily descriptive. Even so, they provide interesting insight into utilization patterns among Taekwondo athletes. Future studies should focus on both injury type and type of care sought for said injury. One of the goals of this study is to encourage other researchers and clinicians involved in various sports to identify injury patterns and health care utilization patterns associated with these. Research in this area provides an important opportunity to improve consumer knowledge about chiropractic training and practice scope.

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