

Collegiate Athletes' Perceptions of Osteopathic Manipulative Treatment

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ABSTRACT

Introduction. Many published studies have examined the effects of osteopathic manipulative treatment (OMT), but none has evaluated its role in treating collegiate athletes. The authors examined collegiate athletes' perception of OMT.

Methods. A cross-sectional survey of a convenience sample of 592 collegiate athletes was conducted from two universities in the midwestern United States during August–September 2019. The athletes completed a 12-item survey during pre-participation physical evaluations at their respective institutions. Main outcome measures included pain, need for pain medication, stress and anxiety associated with injuries, and overall satisfaction with the OMT in recovery and return to sports. Fisher's exact test was used to evaluate association between the variables.

Results. The participation rate was 80.6% (477/592). Slightly fewer than 7% (31/477) of the athletes were familiar with OMT. Eighteen of the 31 athletes (58.1%) had received osteopathic manipulation as part of a treatment plan for injury. Of these athletes, 94.4% (17/18) reported a decreased need for pain medication and 83.3% (15/18) had reduced stress and anxiety related to their injury. One in three of them expressed interest in receiving osteopathic manipulation as a treatment option for an injury. The athletes reported general satisfaction with OMT in their recovery and return to sports.

Conclusion. The findings demonstrated the interest and benefits of OMT among collegiate athletes. This evidence supported previous findings about perceived efficacy of OMT in treating patients regardless of injury and diagnosis. Future studies need to establish causal relationship among OMT, stress and anxiety, pain, and use of pain medications. *Kans J Med* 2020;13:147-151

INTRODUCTION

Osteopathic medicine is one of the fastest-growing areas of health care in the United States with a projected 100,000 osteopathic physicians in practice by the end of 2020.¹ Nevertheless, osteopathic medicine is not as widely recognized and used as allopathic medicine. Osteopathic manipulative treatment has demonstrated efficacy in preventing and treating injuries, as well as enhancing performance in elite and collegiate athletes.²⁻⁵ Collegiate athletes often experience an array of musculoskeletal complaints that range in chronicity, severity, and complications. Evaluation and treatment of each athlete

involve history and physical examination, imaging, and some form of rehabilitation. For many collegiate athletes, osteopathic manipulative treatment can be a valuable addition to the injury management, which requires addressing acute symptoms, rehabilitation (including guidance or returning to play), and prevention of recurrence and sequelae.⁶⁻⁷

The American Osteopathic Association defines osteopathic manipulative treatment as “a set of hands-on techniques used by [physicians] to diagnose, treat, and prevent illness or injury.”⁶ It involves the use of techniques such as soft tissue, deep tissue, neural inhibition, high velocity and low amplitude articulation, and lymphatic treatments to treat structural and functional issues involving muscles, tissues, and joints. Osteopathic physicians often can treat patients without using medications and treatment can be performed in a variety of settings to best fit the needs of the athletes, including on the sidelines during a game, in the athletic training room, or at a clinic. In contrast to many medications, manual manipulation has no restrictions from the United States Food and Drug Administration (FDA) or any regulatory agency on use in the competitive athlete.

The primary purposes of this descriptive study were to (1) determine collegiate athletes' understanding of osteopathic manipulative treatment, and (2) assess the prevalence and satisfaction of athletes who had received osteopathic manipulative treatment. This was an exploratory, pilot study with no specific hypotheses. This study used the term, “osteopathic physicians”, to refer to all physicians trained in and who perform osteopathic manipulative treatment.

METHODS

Study Design and Participants. The study was a cross-sectional survey of a convenience sample of 592 collegiate athletes from two universities in the midwestern United States. Between August and September 2019, the athletes were asked to complete a short-written survey during required pre-participation physical evaluations at their respective institutions. A sample size of 100 was calculated as necessary for adequate power (> 0.85) to detect significant relationships among the variables with 1 degree of freedom, $p < 0.05$, and 0.5 effect size.^{8,9} The University of Kansas School of Medicine-Wichita (KUSM-W) Institutional Review Board granted exemption for the study as non-Human Subjects Research.

Study Instrument. As a suitable validated instrument in the literature was not found, a 12-item questionnaire was created (Appendix A) to measure the athletes' perceptions of osteopathic manipulative treatment. The proposed questions were first reviewed by two sports medicine physicians and three sports medicine fellows, all of whom had experiences in osteopathic manipulative treatment. A group of four collegiate athletes (two males and two females) then vetted the questions for comprehension and time to take the survey to ensure that questions have face validity. The athletes who vetted the questions did not participate further in the study.

Statistical Analyses. Standard descriptive summary statistics were used to create a demographic profile and describe the athletes' satisfaction of osteopathic manipulative treatment. Fisher's exact test was used to evaluate association between the variables. All analyses were two-sided with alpha of 0.05. The IBM SPSS (Statistical

RESULTS

Of the 592 eligible collegiate athletes, 477 agreed to participate in the study for a participation rate of 80.6%. As shown in Table 1, over half (56.4%) of the participants attended a National Collegiate Athletic Association (NCAA) Division I program and about half (50.3%) were male. Thirteen different sports were represented, with the largest group from track and field (25.6%).

Slightly fewer than 7% (31/477) of the athletes reported prior knowledge about osteopathic manipulative treatment. Of these athletes, 58.1% (18/31) had received osteopathic manipulation as part of their treatment plan for an injury (Figure 1). Nearly 40% (7/18) of those athletes participated/competed in track and field (Table 2). The 18 athletes with prior experiences of receiving osteopathic manipulative treatment reported general satisfaction with the treatment in decreasing their pain (M [mean] = 3.8, SD [standard deviation] = 1.3; Range: 1 to 5). They also indicated general satisfaction with the treatment in their recovery and return to sport (M = 3.8, SD = 1.4; Range: 1 to 5).

Fisher’s exact tests were performed to examine the relationship between the athletes’ familiarity with osteopathic manipulative treatment, institution (Division I vs. Division II), and sex (male vs. female). There was a significant relationship between the athletes’ institution and familiarity with osteopathic manipulative treatment ($\chi^2[1, n = 211] = 8.22, p = 0.004; \text{Phi} = 0.20$). Athletes from the NCAA Division I compared to NCAA Division II institution were eight (88.9% vs. 11.1%) times more likely to have received osteopathic manipulation as part of their treatment plan. There was no significant relationship between sex (male vs. female) and familiarity with osteopathic manipulative treatment.

Overall, 94.4% (17/18) of the athletes who had received osteopathic manipulative treatment noted a decreased need for pain medications. In addition, 83% (15/18) of those athletes believed that the treatment was beneficial in reducing the stress and anxiety associated with their injuries. Slightly over 72% (13/18) of the athletes who had received osteopathic manipulative treatment would recommend the treatment to other athletes.

As shown in Table 3, more of the athletes who were unfamiliar with the treatment would be interested in having their team’s physician offer osteopathic manipulation as part of an injury treatment plan (73.4 vs. 26.6, $p = 0.04$). One in three of the athletes who had not received osteopathic manipulative treatment expressed interest in receiving osteopathic manipulation as a treatment option for an injury (Table 3).

Table 1. Demographic profile of participating athletes.

Characteristics	Participants (N = 477)
Sex, no. (%)	
Male	240 (50.3)
Female	236 (49.5)
Missing	1 (0.2)
Institution	
NCAA Division I	269 (56.4)
NCAA Division II	208 (43.6)
Type of Sports	
Track and field	122 (25.6)
Baseball	84 (17.6)
Basketball	45 (9.4)
Cheer	41 (8.6)
Softball	41 (8.6)
Tennis	25 (5.2)
Golf	24 (5.0)
Soccer	22 (4.6)
Volleyball	19 (4.0)
Wrestling	18 (3.8)
Bowling	17 (3.6)
Dance	16 (3.4)
Triathlon	2 (0.4)
Missing	1 (0.2)

Table 2. Participants with prior OMT experiences and sports in which they participated.

Type of Sport	Participants (n = 18)
Track	7 (38.9)
Volleyball	4 (22.2)
Golf	2 (11.1)
Basketball	1 (5.6)
Soccer	1 (5.6)
Cheer	1 (5.6)
Baseball	1 (5.6)
Softball	1 (5.6)

Data expressed as number (%)

OMT = Osteopathic manipulative treatment

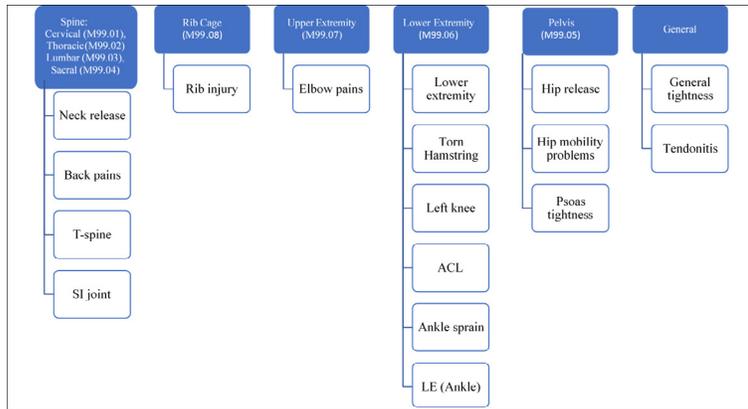


Figure 1. Participants' injuries associated with the body regions (these are not based on osteopathic billable regions).

Table 3. Relationship of participants' familiarity and prior experiences with OMT with interest in OMT.

Interested in OMT?						
Measures	Yes	No	Total	χ^2	<i>p</i> value	Phi
Familiar with OMT? no. (%)				14.39	.04	0.23
Yes	25 (83.3)	5 (16.7)	30 (100)			
No	323 (73.4)	117 (26.6)	440 (100)			
Total	348 (74.0)	112 (26.0)	470 (100)			
Ever received OMT? no. (%)				34.78	.03	0.62
Yes	17 (94.4)	1 (5.6)	18 (100)			
No	143 (75.0)	49 (25.0)	192 (100)			
Total	161 (76.7)	49 (23.3)	210 (100)			

OMT = Osteopathic manipulative treatment

DISCUSSION

This is the first known study to provide information regarding collegiate athletes' perception of osteopathic manipulative treatment. The findings showed that a significant number of collegiate athletes were unfamiliar with osteopathic manipulative treatment. These findings were disappointing as osteopathic manipulative treatments have been reported as effective in managing pain associated with competition and injuries, improving performance during competitions, and contributing to injury prevention.^{2,3} Possible reasons for this high proportion of athletes unfamiliar with the treatment include low exposure, limited understanding of osteopathy among athletes and trainers, and inadequate explanation of the treatment by providers. Despite the low awareness and low exposure to the treatment, the findings showed that many athletes who had not received the treatment were open to having their team's physician offer osteopathic manipulation as part of treatment plan for an injury.

These encouraging findings suggested the need for more education to highlight the efficacy and potential benefits of osteopathic manipulative treatment to collegiate athletes and their trainers. Individuals attending emergency departments have been more open to osteopathic manipulative treatment if they fully understand it.¹⁰ Osteopathic professionals should strive to provide a thorough explanation of osteopathic manipulation treatment to athletes and trainers, including discussion about indications, alternatives, risks, and benefits. The osteopathic provider should collaborate with athletes, trainers, and appropriate others (e.g., parents) to develop effective comprehensive management plans that incorporate the athlete's understanding and preferences. Sports medicine physicians have a unique opportunity to inform collegiate athletes about osteopathic treatments and to identify those who could benefit from such treatments. Primary care sports medicine fellowships could consider integrating information and training in osteopathic manipulative treatment to serve their athletes better.

The athletes who had received osteopathic manipulative treatment reported satisfaction with the treatment modalities in decreasing their injury-related pain and stress and in enhancing recovery and return to activity. The findings support other reports of the benefits of osteopathic manipulative treatment.²⁻⁴ In studies focusing on hospitalized patients,¹¹⁻¹⁴ the elderly,^{15,16} and children,¹⁷⁻¹⁹ patients have reported perceived satisfaction with osteopathic manipulative treatment.

The most notable findings of the study were decreased need for pain medication as well as perceived reduction of stress and anxiety in the athletes who had received osteopathic manipulative treatment for an injury. These findings supported results of a study that found a relationship between perceived reduction in stress and reduction in pain with osteopathic manipulative treatment in the hospitalized patient.¹⁴ As pain, stress and anxiety are inter-related, reduction in stress and anxiety reported by the athletes may have contributed to the reduced need for pain medications.^{20,21} Our findings also demonstrated that a majority of the study participants played in track and field sports as there are more track and field athletes competing at the Division I level.²²

Limitations. Our study had several limitations. The results were limited to collegiate athletes from universities in Midwestern United States. Although the response rate of 80% is large, responses of the nonparticipant athletes could have changed the results of the study. Second, results of the study were limited to the athletes of two universities in the midwestern United States and the findings may not be generalizable to athletes in other areas. Second, the data set was unbalanced as several important sports sanctioned by the NCAA, such as football, fencing, gymnastics, rolling, lacrosse, ice hockey, water polo, swimming, rifle, and soccer, were not played in the participating universities, therefore, not represented in this study. This lack of representatives could affect generalizability of the study. Third, as this is a nonexperimental study, a causal relationship between osteopathic manipulative treatment, stress and anxiety, pain, and use of pain medications could not be established, nor can we know whether one preceded the other. Additional interventional research is warranted. Fourth, to reduce the chance of compromising anonymity,

information about the athletes' year of participation was not collected. An athlete who had played for a couple of years could have more injury. Future studies could evaluate association between years of participation and familiarity with osteopathic manipulative treatment. Finally, the study was conducted during the athletes' pre-participation physical evaluations. It is possible that the desire or need for more attention from the trainers could have biased the responses.

CONCLUSION

Among the collegiate athletes who had received osteopathic manipulative treatment in this study, a vast majority reported beneficial effects, including reduced stress and anxiety, as well as reduced use of pain medications. Additional study is warranted to establish causal relation between the treatment, reduction in stress and anxiety, reduction in pain, and use of pain medications. The improved methodology may clarify the role of osteopathic manipulative treatment in college athletics.

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Keywords: osteopathic manipulative treatment, sports medicine, athletes, stress, pain

Appendix A

Collegiate Athletes' Perception of Osteopathic Manipulative Treatment Survey

Osteopathic Manipulative Treatment (OMT): Performed by a physician (generally, an osteopath physician or D.O.) that includes using the hands for treatment (manipulation) in order to treat conditions of the skin, soft tissue, muscles, and bones. Purpose is to help with musculoskeletal pain/injuries.

1. I'm a student of: (circle one)
1. NCAA Division I 2. NCAA Division II
2. What is your gender? (circle one)
1. Male 2. Female 3. Other (please specify) _____
3. What sport do you participate in? (circle one)
1. Basketball 2. Soccer 3. Cheer 4. Track/field 5. Volleyball 6. Tennis 7. Bowling 8. Triathlon 9. Baseball 10. Softball
11. Wrestling 12. other _____
4. Have you heard about OMT before? (circle one)
1. Yes 2. No (if "No" skip to question 12)
5. Have you ever received OMT as part of your treatment plan for an injury? (circle one)
1. Yes 2. No (if "No" skip to question 12)
6. If you have had OMT, please write the injury or problem for which you received the OMT below: _____
7. How satisfied were you with the OMT in recovery of the injury and your return to sport? (circle one)
1. Very dissatisfied 2. Dissatisfied 3. Neutral 4. Satisfied 5. Very satisfied
8. How satisfied were you with your pain relief after the OMT? (circle one)
1. Very dissatisfied 2. Dissatisfied 3. Neutral 4. Satisfied 5. Very satisfied
9. Do you feel the OMT decreased your need or frequency for pain medicines? (circle one)
1. Yes 2. No
10. Do you feel the OMT helped reduce stress/anxiety associated with your injury? (circle one)
1. Yes 2. No
11. Have you recommended OMT to other athletes as a treatment option for their injuries? (circle one)
1. Yes 2. No
12. Would you be interested in having a team physician offer you OMT for injury treatment? (circle one)
1. Yes 2. No