



Research Article

SCREENING FOR IDENTIFICATION OF SHOULDER PATHOLOGY IN YOGA PRACTITIONERS - AN OBSERVATIONAL STUDY

Sidhpura Disha S¹, Desai Manali S^{2*} and Kumar Ajay³

¹DPO's NETT college of Physiotherapy, Thane, India

²Musculoskeletal Department, DPO's NETT college of Physiotherapy, Thane

³DPO's NETT college of Physiotherapy, Thane

ARTICLE INFO

Article History:

Received 11th April, 2018

Received in revised form 4th

May, 2018 Accepted 23rd June, 2018

Published online 28th July, 2018

Key words:

Yoga, yoga injuries, Asana, shoulder pain, shoulder special tests, supraspinatus /rotator cuff injury.

ABSTRACT

Background: Yoga demands strength and flexibility to be performed safely. It has been reported that yoga has also been known to cause musculoskeletal pain in healthy individuals due to unsafe practices, advanced techniques. Previous retrospective studies showed that along with knee, shoulder is the second most common injured joint in yoga practitioners. So there was a need to identify and screen shoulder pathologies in regular yoga practitioners.

Method: A cross sectional observational study conducted in yoga classes for 1 year and included 70 yoga practitioners, aged 20-40 yrs. Subjects were selected on the basis of inclusion and exclusion criteria. Those subjects with shoulder pain were identified and selected for clinical testing for shoulder pathology. 8 special tests were performed on the affected shoulder.

Results: Among 70 subjects, 51 (72.85%) were identified with no shoulder pain, 17 (24.28%) had shoulder pain. Among 17 shoulder pain subjects, 11(64.70 %) gave negative response on special tests, 6 gave positive response for special tests i.e. Hawkins's Kennedy, Empty Can test and drop arm test.

Conclusions: Our study showed that supraspinatus muscle and rotator cuff muscles of shoulder joint are more prone to get injured due to unsafe and unsupervised Yoga practices, wrong biomechanics and advanced postures.

Copyright©2018 Sidhpura Disha S et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

The ancient discipline of yoga, is a combination of muscular activity and mental focus on self, breath, and energy. The practice of yoga demands specialized training.¹⁴

Yoga postures demand strength and flexibility to be performed safely and provide benefits. Particularly in large classes where adequate personal supervision and instructions may not be possible, new yoga practitioners may attempt to perform postures that their bodies are not ready to accommodate leading to injuries. Movements if performed incorrectly, may cause injury.¹⁴

The growing popularity of yoga has created a need to identify this potential risks and benefits due to yoga. Despite large number of population practicing yoga, very few case reports are available in literature on injuries caused in yoga practitioners. The reported areas identified for common musculoskeletal injuries in body due to yoga were knee, shoulder, neck, low back.

Previous imaging retrospective studies done on musculoskeletal injuries in yoga practitioners showed tears of the supraspinatus, glenoid labrum.¹⁴

The shoulder complex, is composed of the clavicle, scapula and humerus. The intricately designed articular surfaces provide mobility to the joint. The glenohumeral joint has greater mobility and flexibility than any other joint in the body making it prone to injuries and instability. It is easy and common to overwork and overload the connective tissues and over-stretch the ligaments due to lack of stability and improper mechanics in the shoulder girdle while performing yoga asanas.¹²

There is a less consensus on the potential risk on shoulder joint due to wrong, improper practice of Yoga Asana. So, there is a need for studies to evaluate the limitation and potential risk of yoga as a method of wellness. Again, very less literature is available on the anatomical structures which are more affected in shoulder joint. To address a large group of yoga practitioners, one must know the extent of the problem in the community. Hence, our aim to screen and identify shoulder pathologies in regular yoga practitioners in Mumbai suburban.

*Corresponding author: **Sidhpura Disha S**

DPO's NETT college of Physiotherapy, Thane, India

MATERIALS AND METHOD

70 Yoga Practitioners aged 20-40 years were selected on the basis of inclusion and exclusion criteria. Inclusion criteria was Daily practicing Yoga for at least 3 months, Individuals presenting with shoulder pain. Exclusion Criteria was Severe shoulder pain and disability on SPADI scale SPADI score > 60%, Hypertensive, Diabetic, Cervical and Lumbar pathologies, Neurological, cardiovascular, gastrointestinal conditions, Pregnant women, those practicing only pranayama. the study was approved by the Institutional Ethical Review Board. All the subjects were informed about the aim, the method of the study and protection of their rights. Informed written consent was taken from all subjects who participated in the study.

Procedure

The study was approved by Institutional Review Board. informed written consent was taken of the subjects. The purpose, need and aim of the study was explained to the subjects. 70 subjects were selected with interview method. Those identified with shoulder pain were further assessed for shoulder pathology using following special tests.

Hawkin’s Kennedy test for supraspinatus paratenonitis/tendinosis or secondary impingement. Drop arm test for tear in the rotator cuff complex. Supraspinatus empty can test for a tear of the supraspinatus tendon or muscle, or neuropathy of the suprascapular nerve. Lateral rotation lag sign (infraspinatus “spring back” test) for infraspinatus and teres minor. Active compression test of o’brien for labral abnormalities, SLAP (Type II) or superiorlabral lesions, Lift-off test- a lesion of the subscapularis, apprehension test for glenohumeral instability, subluxation, dislocation, or impingement, speed’s test - bicipital paratenonitis or tendinosis.⁶ Shoulder pathology of this subjects was noted down and used for descriptive statistical analysis.

RESULTS

In our study, among 70 yoga practitioners, 51(72.85%) had no shoulder pain, 17(24.28%) presented with shoulder pain. This 17 practitioners with shoulder pain, 11(64.70%) showed negative response to all the shoulder special tests, 5(29.41%) showed positive response for Hawkin’s Kennedy and Empty can test while 1(5.88%) was positive for drop arm test. Accidental findings were also noted down of 1(1.42%) back pain and 1(1.42%) cervical pain.

Table 1 Distribution of identified musculoskeletal injury among yoga practitioners

Total no. of yoga practitioners	70
Without shoulder pain	51
With shoulder pain	17
Other Area	Back pain -1 Cervical pain - 1

Table 2 Distribution of specific shoulder pathology using clinical testing

Number of yoga practitioners with shoulder pain	17
Practitioners with special tests negative	11
Hawkin’s kennedy and empty can positive	5
Drop arm positive	1

DISCUSSION

The study was done to find out the specific structure more commonly injured in shoulder. Yoga is thought to have great physical and mental benefits but the popularity of yoga has created a need for evaluating the potentials risks of yoga. There is great variability in yoga practices and teaching styles, so caution is required and yoga practices should be tailored to the individual. There is a lot of competitive spirit in new yoga practitioners for attempting postures which their body is not ready for. A study done by Thomas Le Corroller described the imaging appearances of musculoskeletal injuries related to yoga and showed the most frequently encountered injuries were tendinous lesions , including tears of the supraspinatus, Achilles, and peroneus brevis tendons and fibrocartilaginous tears involving the medial meniscus, acetabular labrum, glenoid labrum, and lumbar disk with extrusion¹⁴. Holger Cramer had conducted a systematic review of published case series and reports in which 76 uniques cases of adverse events of yoga were included.⁷

Our observational study was to select yoga practitioners with shoulder pain who were evaluated with shoulder special tests for specific shoulder pathologies. But we found only 17 cases with shoulder, and the rest had no shoulder pain but accidental cases of 1 back pain and 1 cervical pain were reported. Out of 17 cases, shoulder tests were negative for 11 and positive for 6. The result can be attributed to combination of movement through postures while partially bearing weight on the hands through different shoulder positions can result in impingement on the rotator cuff, particularly the supraspinatus. The rotator cuff is particularly vulnerable in forms of yoga that involve flowing sequences that put weight on the hands like surya namaskar, ado mukh svanasana (downward dog) , chaturanga dandasana (four-limbed staff pose), vasisthasana (side plank pose), urdhva dhanurasana (upward-facing bow), all binds. Similar study by Loren M. Fishman showed average frequency of shoulder injury was 3, frequently mentioned injury site was shoulder including rotator cuff mentioned 661 times with 18.43% injury rate.¹⁰

Orthopedic special tests make the diagnostic process more precise by implicating specific tissue structures that are dysfunctional, pathological, or lack structural integrity and is considered as an affirmation of expected diagnosis in a differential manner after conclusion of all other portions of the examination has been completed.⁶ Physical examination also plays an important part apart from special test. In our study, out of 17 cases 11 had shoulder pain but were negative in clinical tests. There are many published studies done to find the reliability, validity, sensitivity and specificity of special test for shoulder but there are variety of differences in acceptance of certain studies and associated special tests therein, differences in suggested use have resulted in great lack of consistency with regard to how, when, and what special tests were used in clinical examination for shoulder¹¹. The special test which we had used in our study might not have been sensitive enough to diagnose the shoulder pathology. Thus, giving us false negative results in clinical testing inspite of having shoulder pain.

In our study, apart from practicing yoga the other risk factors that can affect the study were not taken into consideration like the condition of the subject on that day i.e physical and mental well being which could have affected the result. Again, in our

study the mean age of subjects was 35 years which can make subjects prone to early degenerative changes. The dominance of the subject was not taken into consideration, as we know that the dominant hand has more strength than the non-dominant one and non-dominant hand is more likely to get affected. Other factors were the level of overexertion, regularity of practice. Similarly majority of our subjects comprised of housewives and students. Housewives are prone to repetitive trauma due to domestic chores and again the type and duration of household chores was not assessed. The contextual factors for students like physical activities in school, college; the weight of their bag packs, mode of travelling, fitness level were not taken into consideration. Another factor could be lack of gender wise distribution. A previous study done by Thomas Le Corroller has shown that injury was more frequent in women. Women tend to come to yoga with greater overall flexibility than men but less upper body strength, women present a higher incidence of shoulder pain.¹⁴ In our study, out of 17 subjects with shoulder pain, 3 were males and rest all were females, thus making them prone to shoulder injury. In spite of being a superficial study targeting lesser number of sample population, the strength of our study remains that we could still identify practitioners with shoulder pain within this sample amount which can prove to be a benchmark suggesting the improper practice of yoga in urban population. It also indicates the need for early detection of this shoulder pathologies, timely intervention and devise meaningful outcome measures.

CONCLUSION

In our study, we found that the most common shoulder pathology identified was supraspinatus impingement and tear of rotator cuff complex. Confirmatory diagnosis using radiological testing needs to be done. To reduce the risks of injuries due to yoga following things should be kept in mind which are proper warm up and cool down exercises are a must before attaining yogasanas, Yoga should be performed under expert supervision leaving the competitive attitude behind and do not jump over to asanas your body is not ready for. When there is a range of abilities in a class, the teacher must accommodate and not ignore those who cannot yet safely practice these poses, and provide alternatives in flowing sequences such as surya namaskar (sun salutation). Yoga teachers must be trained how to plan a safe Yoga practice for the population of students at hand, using alternate forms of poses as needed. Yoga teachers can require a self-assessment of each new student's level of experience, strength, and flexibility in order to guide them toward an appropriate level of class.

References

1. Bianchi, G *et al* (2004), Can the practice of yoga be dangerous? Considerations over a case of epiphyseal separation of the distal tibia in a teenager M. *J Orthopaed Traumatol* 5: 188.
2. Birdee GS, *et al*. 2008 Characteristics of yoga users: results of a national survey. *J Gen Intern Med*; 23:1653–1658
3. Catherine Woodyard, 2011, Exploring the therapeutic effects of yoga and its ability to increase quality of life, *Int J YOGA*; 4(2): 49–54.
4. Cramer H, Krucoff C, Dobos G (2013) Adverse Events Associated with Yoga: A Systematic Review of Published Case Reports and Case Series.
5. Dacci, P. *et al* (2013), practice of yoga can cause damage to both sciatic nerves: a case report, *Neurol Sci* 34: 393.
6. David J. Magee: Orthopaedic physical assessment – sixth edition, chapter 5.
7. Holger Cramer *et al*, 2015, The Safety of Yoga: A Systematic Review and Meta-Analysis of Randomized Controlled Trials, *Am J Epidemiol* 182 (4): 281-293.
8. Jani Mikkonen *et al* 2008: A Survey of Musculoskeletal injury among ashtangavinayasa Yoga Practitioners. *International Journal of Yoga Therapy*: Vol. 18, No. 1, pp. 59-64.
9. Kohanzadeh *et al*, *The American Surgeon*; Atlanta 78.8: E361-3.
10. Loren Fishman *et al*, (2009) Understanding and Preventing Yoga Injuries. *International Journal of Yoga Therapy*, Vol. 19, No. 1, pp. 47-53.
11. Nicklaus E. Biederwolf, *The International Journal of Sports Physical Therapy*, volume 8, Number 4, Page 427.
12. Pamela k. Levangie, Cynthia C. Norkin: Joint structure and function-fifth edition page no.232.
13. Robinson G *et al*, 2006 Normal anatomy and common labral lesions at MR arthrography of the shoulder. *Clin Radiol*; 61:805–821
14. Thomas Le Corroller *Et al* 2012, Musculoskeletal Injuries Related to Yoga: Imaging Observations *AJR*; 199:413-418

How to cite this article:

Sidhpura Disha S *et al* (2018) 'Screening for Identification of Shoulder Pathology in Yoga Practitioners - An Observational Study', *International Journal of Current Advanced Research*, 07(7), pp. 14239-14241.
DOI: <http://dx.doi.org/10.24327/ijcar.2018.14241.2573>
