



A comparative study to find out the Efficacy of osteopathy manipulative techniques (Balance Ligament Technique) versus isometric exercises with common use of UST in jumper's knee among male volleyball players.

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Background:

Volleyball is a high-impact sport that involves repetitive jumping, landing, and quick changes of direction, which can lead to various injuries. One common injury affecting volleyball players is **Jumper's Knee**, also known as **Patellar Tendinopathy**. Jumper's Knee is characterized by pain and inflammation in the patellar tendon, which connects the kneecap to the shinbone.

Prevalence and Impact: Jumper's Knee is a prevalent injury among volleyball players, with studies suggesting that up to 40% of players may experience this condition. The injury can significantly impact a player's performance, leading to reduced jumping ability, decreased speed, and increased risk of further injury.

Objectives: The aim of this study is to find out the effectiveness of osteopathy manipulative techniques (Balance Ligament Technique) in jumper's knee among volleyball players. Also find out the efficacy of isometric exercises among volleyball players with jumper's knee.

Methods:

Participants: This comparative study there were 15 participants recruited each for intervention/ Focus group & control group. All subjects were total numbers 15 only male.

Thirty jumper's knee male subjects among volleyball players were randomly allotted. The subjects were divided into two groups (Group – A consider as intervention/ Focus group and Group – B consider as control group). The subjects of both the groups were assessed by VAS for pain, Goniometric measurement of knee ROM and WOMAC score for functional ability. Both the groups were received UST (Frequency: 1 MHz, Mode: continuous, Intensity: with 1 watt/cm², Time: 10 minutes, once daily for 10 sessions) under supervision of therapist at clinic and also shear general information about Jumper's knee and advices for self care. Group – A subjects were received osteopathy manipulative techniques (Balance Ligament Technique) (Frequency: 3 sessions per week, Duration: 20 minutes per session, Number of sessions: 12 sessions) over 4 weeks of period under supervision of therapist at clinic. Group – B subjects were received Isometric knee exercise (contraction time: 10 seconds, Rest time: 10 seconds, Number of contractions: 15 contractions, Sets: 5, Frequency: 3 times per day, at least 6 hours gap between sessions) at home.

Pre & post study Outcomes measures were done with VAS for pain, Goniometric measurement of knee ROM and WOMAC score for functional ability.

Result:

Pre & post study Outcomes measures were taken at 1st day (pre-treatment), at the end of 4th weeks. Paired 't' test was done to compare within the group and independent 't' test was done to compare between the groups. Both the groups show clinically and statistically significant improvement. However, at the end of the 4th weeks improvements were more significant in Group – A than Group – B in **WOMAC scores** {Group – A mean value (11.2) & Group – B (22.93)} & **ROM scores** {Group – A mean value (127.26) & Group – B (114.66)} & in **VAS scores** {Group – A mean value (1.38) & Group – B (2.22)}.

There was significant difference on stress score (reduction in score) among participant who received cranial osteopathy & Rajyoga meditation for stress management in sports.

Conclusion:

Although both the groups showed significant improvement but Group – A showed more improvement than Group – B. It is noted from the study that osteopathy manipulative techniques (Balance Ligament Technique) along with UST & clinically guided isometric exercises is very much beneficial to alleviate the pain & improve the ROM & functional ability. Though a prospective randomized controlled study is required to confirm the finding & establish generalizability of the result.

Implications: The research can contribute in reduction of pain, improve ROM and functional abilities & enhancing quality of life among volleyball players with Jumper's knee.

Keywords: Jumper's knee among volleyball players; osteopathy manipulative techniques (Balance Ligament Technique); ultrasound therapy (UST); Isometric knee exercises; functional ability.