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## RESEARCH ARTICLE

### EFFECTS OF WOBBLE BOARD TRAINING VERSUS SWISS BALL TRAINING ON PROPRIOCEPTION IN POSTKNEE INJURED FOOT BALL PLAYERS

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#### ABSTRACT

**Aim of the Study:** To compare the effect of Wobble board training versus Swiss ball training on Proprioception in post knee injured football players. **Back Ground of the Study:** Football is one of the most popular sports in the world. The location and nature of injury are common in knee and ankle joint. Potential relationship of proprioception is considered with knee injury, laxity, activity level, function and age of individual. Absence of proprioception cannot maintain the body in steady posture. **Methodology:** The study was an Experimental and Comparative study. A Total of 20 male football players were taken from Dr. MGR. Educational and Research Institute. **The inclusion criteria were football players of between the age group of 18-25 years,** Players with post knee injury between 18 to 25, Players who has capacity to perform the exercise, Only male players. The outcome measure was measured by using Single limb balance test. **Procedure:** The selected 20 samples were randomly divided into two groups 10 players in group A and 10 layers in group. GROUP A - Wobble board training with proprioception exercise. GROUP B - Swiss ball training with proprioception exercise. Swiss ball protocol is one leg kneeling on the ball in 30 sec, standing with one leg other leg kneeling on the ball in 30 sec, sitting on the ball in 30 sec totally 30min of duration 3 days in a week. Wobble board Protocol is double leg balance on wobble board in 30 sec, single leg balance on wobble board in 30 sec 3 days in a week. **Result:** The comparative study of group A (wobble board training) group B (Swiss ball training). There is improvement in both wobble board training and Swiss ball training but when compare to the mean value Swiss ball training is more effective than wobbleboardtraining. **Conclusion:** Swiss ball training is much more effective than the wobble board training.

#### INTRODUCTION

Football is one of the most popular sports in the world. Football is associated with relatively high incidence of injury. The nature of injuries is common in knee and ankle. Knee joint proprioception is the kinesthetic awareness and sensitiveness of the knee joint responsible to detect and response to a with regard to location, position, reaction [Jibi Paul, 2015; Price, 2004] To ensure the health and safety of young football player, efforts must be made to prevent and control injuries [Felix Renald, ?; Wright, 1995] Knee joint proprioception is essential for adequate joint movement and stability in daily life or sports area. Proprioception deficits predicted knee injury with 90% sensitivity and 56% specificity in athletes [Felix Renald, ?; Wright, 1995]. Proprioception refers to innate kinesthetic awareness of body posture. Knee injuries among the most frequent injuries in sports and daily activities. When player move the joint act with force while walking, running, jumping proprioception can adjust the posture or enforce the accurate movement automatically.

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Damage joint position sense can be a primary risk element for repetitive injuries. Individual with the history of knee injury are more susceptible to recurrent sprain, chronic instabilities or Reinjured of the same character and localization [Jibi Paul, 2015; Price, 2004] Swiss ball are big inflatable balls with diameter of 45-75cm, smaller size generally use for medical purpose, bigger size are suggested for exercise, this also known physioball, stability ball, exercise ball. In this the Swiss ball training is used for to find the effects of knee proprioception in post knee injured in male foot ballers [Waddington, 2004] Wobble board these are rectangular or circular shape wobble board capable of moving 360 degree with 10-20 degree axial tilt. It is also used for rehabilitation of knee injuries [Mutlu cug, ?]. Wobble boards are effective for improving the sense of proprioception. It is most commonly used in rehabilitation of knee injury [Mutlu cug, ?]. The quality of proprioception was recorded in patient after the knee injury. Proprioception and standard knee score were then correlated with the patient's own assessment of knee stability and a score of functional ability [Fezakorkusuz, 2012]. The studies has compared the effect of Swiss ball training and wobble board training for knee proprioception among the post knee injured in male foot ballers.

## METHODOLOGY

In this study 20 football players were divided into 2 groups each groups contains 10 players. For Group- A proprioception exercises were trained in Wobble board training. For Group B proprioception exercises were trained in Swiss ball. Proprioception refers to innate kinesthetic awareness of body posture. Among the injuries knee injuries is the most frequent injuries in sports and daily activities. Single limb stance is the outcome measures of this study; first the players were standing in single leg with eyes open in the means of 3 trials. Similarly, the players were standing in single leg with eyes closed in means of 3 trials these is the pretest of this study.



Fig No 1. Single Leg Stance In Wobble Board



Fig No 2: Partial Squat In Wobble Board



Fig No 3. Single Leg Squat on Swiss Ball

The material used in proprioceptive training was wobble board for group A players. The subject were asked to concentrated to therapist demonstrate how to stand on the wobble board bilaterally and unilaterally on affected side. Then the patient was instructed to Wobble board on one foot and shift his weight. The subject stands in double leg balance on wobble board in 30 sec, single leg balance on wobble board in 30 sec 3 days in a week. Similarly, the proprioception exercises were started in Swiss ball for group B players Swiss ball protocol is one leg kneeling on the ball in 30 sec, sitting on the ball with one leg raised in 30 sec totally 30min of duration 3 days in a week. The players were asked concentrate to the therapist demonstrate the exercise to the subjects how to practices in Swiss ball and wobble board. After the training the pretest readings were increase after the proprioception exercises. When compare the mean value Swiss ball training is more effective than wobble board training

**Data Analysis:** Data collected from the 20 post knee injured football players are divided into 2 groups with each 10 subject various statistical measures such as mean value, and test of significance were analyzed with a help of independent “t” test and paired “t” test.

## RESULTS

The comparative study of group A (wobble board training) group B (Swiss ball training) show there is a significant difference in the post test value in scores between group A and group B at  $P \geq 0.0001$ . Where the calculated value is greater than the table value of group B hence null hypothesis is rejected. There is improvement in both wobble board training and Swiss ball training but when compare to the mean value Swiss ball training is more effective than wobble board training. So the Swiss ball training is effective than wobble board training.

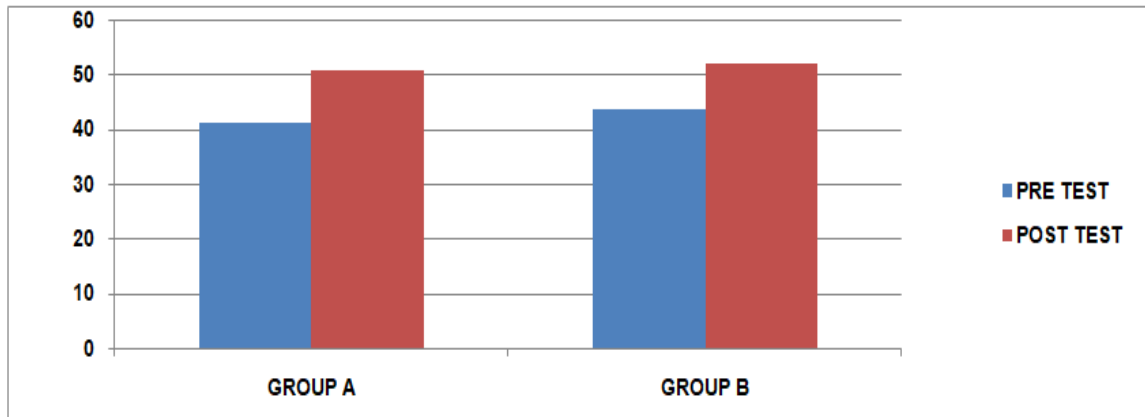
## DISCUSSION

The present study was conducted to compare the effect of proprioception training between Group A (WOBBLE BOARD), Group B (Swiss ball). The above study which been done on proprioceptive training have included subject with two groups. In present study age group of 18-25 which Group A has 10(wobble board), and Group B has 10 (Swiss ball). The study is also supported by jibi Paul, Dr. M S Nagarajan. (2015) “comparison of proprioception in injured and uninjured knee joint among football players”, the results show the mean value difference of proprioception error between injured and uninjured knee joint among football players. J. Phys. Ther. (2015), this study demonstrates that Swiss ball exercise and resistance exercise improving the balance ability. Gauffin, Tropp and odenrick (1988) examined the effect of postural training program using a wobble board and found improvements in contralateral and unilateral leg. Present study was conduct to compare the effect of wobble board training and Swiss ball training in subject with post knee injured football players. It consist of 20 subjects 10 in Group A received wobble board training and 10 in Group B received the Swiss ball training. Proprioception training done by using the wobble board and Swiss ball to compare the effects of both groups. When compare the both groups the Swiss ball is more effective than the wobble bard. According to the result of this study Group A is effective than the Group B.

**Table1. Comparison of single limb stance test eyes open between group-a and group-b**

EYES OPEN	GROUP A		GROUP B		t - TEST		
	MEAN	S.D	MEAN	S.D		df	SIGNIFICANCE
PRE TEST	41.17	1.59	50.70	1.14	-28.5	9	0.000
POST TEST	43.71	1.90	51.94	1.83	-22.16	9	0.000

(\*\*\*-P ≥0.0001) The above table reveals the mean, standard deviation (S.D),t-value and p-value of single limb stance test score between pre-test and post test within Group-A (\*\*-P≥0.0001) There is statistically high significant difference between the pretest and posttest values within GROUP (\*\*-P ≥0.0001). This table shows that significant highly significant difference in post test value of the single limb stance test between Group A& Group B (\*\*-P≥0.0001).

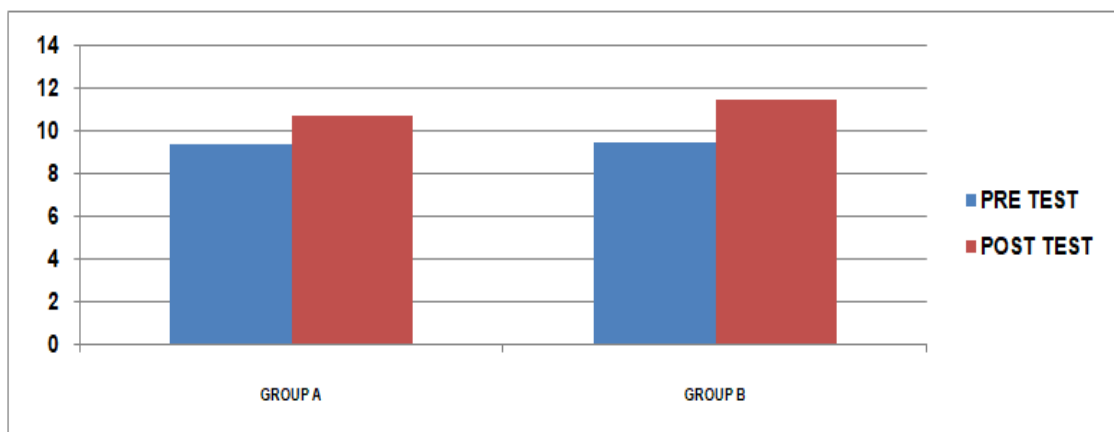


**Graph1. Comparison of single limb stance test eyes open between group-a and group-b**

**Table 2. Comparison Of Single Limb Stance Test Eyes Closed Between Group-A And Group-B**

EYES CLOSED	GROUP A		GROUP B		t - TEST		
	MEAN	S.D	MEAN	S.D		df	SIGNIFICANCE
PRE TEST	9.43	0.57	10.75	0.576	-6.03	9	0.000
POST TEST	9.52	0.611	11.48	0.794	-28.5	9	0.000

(\*\*\*-P ≥0.0001) The above table reveals the mean, standard deviation (S.D),t-value and p-value of single limb stance test score between pre-test and post test within Group-A (\*\*-P≥0.0001) This table show that there is no significant different in post test values of single limb stance test between Group A &Group B (\*\*-P≥ 0.0001) Both the Group shows significant decrease in post test means but (Group –B) which has the lower value is more effective than (Group –A)

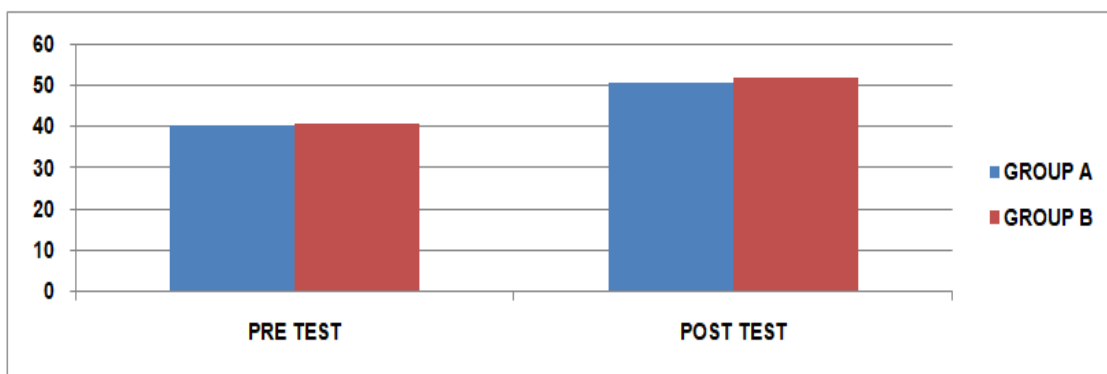


**Graph 2. Comparison Of Single Limb Stance Test Eyes Closed Within Group-A And Group-B**

**Table 3. Comparison of single limb stance test eyes open within group a and group-b**

EYES OPEN	PRE TEST		POST TEST		t - TEST		
	MEAN	S.D	MEAN	S.D		df	SIGNIFICANCE
GROUP A	41.17	1.59	43.71	1.90	-0.585	18	0.566
GROUP B	50.7	1.14	51.94	1.83	-1.812	18	0.087

(\*\*\*P≥0.0001) The above table reveals the mean, standard Deviation (S.D), t-value and p-value the single limb stance test between pre test and post test within Group-A & Group-B In single limb stance test, there is statistically highly significant difference between the pre test and post test values within GROUP A and GROUP B (\*\*-P≥0.0001)



Graph 3. Comparison of single limb stance test eyes open within group a and group-b

Table 4. Comparison of single limb stance test eyes closed within group-a and group-b

EYES CLOSED	PRE TEST		POST TEST		t - TEST		
	MEAN	S.D	MEAN	S.D		df	SIGNIFICANCE
GROUP A	9.43	0.576	9.52	0.611	-0.339	18	0.739
GROUP B	10.75	1.02	11.48	0.794	-1.786	18	0.091

(\*\*\*P≥0.0001) The above table reveals the mean, standard Deviation (S.D), t-value and p-value of the single limb stance test between pre-test and post test within Group-A & Group-B. In single limb stance test, there is statistically highly significant difference between the pre test and post test values within GROUP A and GROUP B (\*\*P≥0.0001)



Graph 4. Comparison of single limb stance test eyes closed within group-a and group-b

**Conclusion**

This study was concluded that, there is improvement in both wobble board training and Swiss ball training. But when compared to the mean value of both groups the Swiss ball training is much more effective than the wobble board training.

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