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COMPARISON BETWEEN EFFECT OF TWO WEEK PLYOMETRIC V/S TRADITIONAL WEIGHT BEARING EXERCISE FOR THE LOWER LEG IN FOOTBALL PLAYER'S

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ABSTRACT: ***Purpose:*** *comparison between effect of two week plyometric v/s traditional weight bearing exercise for the lower leg in football player's.* ***Subjects and method:*** *22 subjects were included in this study. They were assigned into two groups by inclusion and exclusion criteria (n=11 per group) group A (experimental group) in this group included football player and group B (experimental group) in this group included football player. Plyometric and traditional weight bearing exercise were done in this study.* ***Result:*** *comparison between Group-A (Plyometric Exercises) &Group-B (Traditional Weight Bearing Exercises); Which shows Group-A (Plyometric Exercises) is having no better results in compare to Group-B (Traditional Weight Bearing Exercises); the p-value is <0.001.* ***Conclusion:*** *Hence we concluded that Overall, based on results of this study and previous research, it can be said that different types of plyometric exercises & Traditional Weight bearing may cause positive effects on lower extremity muscle power among young football players, and that there is no significant difference between methods applied. Hence null hypothesis accepted & alternative hypothesis rejected.*

Keywords: BMI:-body mass density.

INTRODUCTION:

The plyometric training is popular among individual involve in dynamic sports and plyometric exercise such as jumping hopping skipping and bounding are executed with a goal to increase dynamic muscular performance .[1]Success in many spots depends heavily u p on the athlete's explosive leg power and muscular strength. In jumping throwing track and field event and other activities the athlete must be able to use strength as quickly and forcefully as possible this display comes in the form of speed strength or power.[2]

An increase in power gives the athlete the possibility of improved performance in sports in which the improvement of the speed-strength relationship is sought.[3]

The plyometric are technique used by the athletes in all types of sports to increase strength and explosiveness plyometric consist of rapid stretching of the muscles followed by a concentric or shortening o action of the same muscle and connective tissue. The stored elastic energy within the muscles is used to produce more force that can be provided by a concentric action alone.

Plyometric training when used with a per iodized strength training programme can contribute to improvement in vertical jump performance, acceleration leg strength muscular power, increased joint awareness and overall propioception. Plyometric drills usually involved stopping starting changing direction in an explosive manner these movements are components that can assist in developing eligibility. By enhancing balance and control of body positions during movement agility theoretically should improve. The ability to maintain and controlled correct body position while quickly changing direction thought a series of movement is called agility. Agility is very important when it comes to an sports players they use in the opposition but it also helps in preventing injuries optimal activation and inhibition of muscle fibres can prevent muscle tears and even more prevent the joins form injuries. Agility is a complex quality and in recognizing this it has been stated that agility permits an athlete to react to a stimulus start quickly and efficiently move in the correct direction or stop quickly to make a play in a fast smooth efficient and repeatable manner. Agility to include whole body change of direction as well as rapid movement and direction change of limbs. Training exercise which include stopping, starting and direction changing and have explosive nature can help athlete to improve agility. Plyometric training exercise improve agility in football player.[4 ,5]

Explosive power is also an important factor in leg muscle of professional football player. It is very important obtain a level of explosive power in football [6,7,]

A repetition is a single complete movement of an exercise. It normally consists of two phases: the concentric muscle action' where muscle contract (usually during lifting the weight), and the eccentric muscle action, where muscles are lengthened (usually during lowering the weight). The weight that is used is called resistance (in the literature also referred to as load). The ratio of the weight to the maximum weight can be lifted for one repetition is called intensity of resistance. [8]

A set is group of repetition performed continuously without stopping or resting typically from 1 to 15 repetition [9]

A repetition maximum or Rm is the maximal number of repetition of a set that can be performed in succession with proper lifting technique using a given weight (resistance).[10]

The haveast resistance (weight) that can be used for one complete repetition of an exercise is called 1 RM. A resistance that allows complication of 10, but not 11 repetition with proper exercise technique is called 10 RM. [11]

It is now common place for many clinics using exercise for rehabilitation to use a 10-repetition maximum (RM) without overemphasis of either speed of movement count of 1 contract-1 release for three sets of 10 repetition with a gravity dependent free.[12]

However recent trends of thought suggested that eccentric contraction create the greatest degree of tension in a muscle ...with increases in technology have come subsequent advances in training equipment.[13] A popular method on the market today is nautilus exercise equipment this equipment places greater emphasis on through a full range of motion . It also focuses on one set of 12—15 repetition to muscles [14,15]

REVIEW OF LITERATURE:

Dr. Siddhi s Tendulkar, et al. (2018) in their study *"Effect of plyometric training program on agility in football players"* concluded and evaluated the plyometric training is help full in improving agility in football player. So these training methods are recommended to football player for improving speed and skilled performance.[16]

Alpha M.C., et al. (2017) in their study *"Effect of plyometric strength training V/s Knee-extensor training on shooting & Long passing accuracy in female football players"* concluded and evaluated the chosen protocol can still potentially yield improvement if performed during competitive season (with non-regular team squad player) and in conjunction with the athlete's regular football metabolic drill tactical and technical football coaching sessions.[17]

Javier Yanci. et al (2016) in their study *"Effects of horizontal plyometric training volume on soccer players' performance"* concluded and evaluated Training programmes using purely horizontal plyometric exercises were shown to have no effect on sprint performance or vertical jump performance or any detrimental effect on intermittent high-intensity aerobic performance. The reported changes in horizontal jumping performances showed a specific effect of only horizontal plyometric training.[18]

Chris Bishop et al. (2016) in their study *"Using the split squat to potentiate bilateral and unilateral jump performance"* concluded and evaluated The findings of this study demonstrate that no or light loads of a split squat conditioning exercise are able to potentiate bilateral jump performance in semi-professional rugby players without the need for expensive weight room equipment. As such, this may provide coaches with a viable option of enhancing bilateral jump performance as part of a warm up or on-field conditioning practice.[19]

George davies. et al. (2015) in their study *"Current concepts of plyometric exercise"* concluded and evaluated the Acknowledging the lack of evidence in this real recommendation for the volume dosage for plyometric exercises progression.[20]

Eskandar Taheri et al. (2014) in their study *"The effect of 8 weeks of plyometric and resistance training on agility, speed and explosive power in soccer players"* concluded and evaluated that both plyometric and resistance training exercises increase agility and explosive power and reduce sprint time in football players. Plyometric exercises also showed more favorable effects on study variables compared with resistance exercises. Therefore, these types of training methods are suggested to soccer players and coaches for improving speed and performance skill.[21]

Ryan Eckert. et al. (2014) in their study *"Exercise highlight Depth jump"* Journal of Australian Strength and Conditioning , Depth Jump. J. Aust. Strength Cond. 22(2)70-74. 2014 © ASCA [22]

Hilde Lohne-Seiler et al. (2013) in their study *"Traditional versus functional strength training: effects on muscle strength and power in the elderly"* concluded and evaluated the there seems to be a transfer from high-power strength training to functional power gains in the elderly. Future studies should therefore investigate the effect of different power-training protocols to improve functional ability in the elderly and, in this way, determine the most effective power-training regimen.[23]

Silvia Sedano Campo et al. (2011) in their study *"Effects of lower-limb plyometric training on body composition, explosive strength, and kicking speed in female soccer players"* concluded and evaluated the a 12-week plyometric program can improve explosive strength in female soccer players and that these improvements can be transferred to soccer kick performance in terms of ball speed. However, players need time to transfer these improvements in strength to the specific task[24]

Rahman Rahimi et al. (2005) in their study *"Effect of plyometric weight and plyometric weight training on anaerobic power and muscular strength"* concluded and evaluated the combination training group showed signs of improvement in the vertical jump performance, the 50 yad dash, leg strength that was significantly greater than

improvement in the other two training groups (Plyometric training and weight training).[25].

HYPOTHESIS:

Null Hypothesis:

It state that there will be no significance difference in effectiveness of Two Plyometric v/s Traditional weight bearing exercise for the lower leg in foot ball player's.

Alternate Hypothesis:

It state that there will be significance difference in effectiveness of Two Plyometric v/s Traditional weight bearing exercise for the lower leg in foot ball player's

METHODOLOGY:

SUBJECTS:

Total number of 22 subject will be taken according to the inclusion and exclusion criteria. Those who satisfy the criteria will be allowed to participate in the study.

STUDY SETUP:

All subject will be taken from, INDIAN INSTITUTE OF TECHNOLOGY football ground Kalyanpur Kanpur Nagar.

STUDY DESIGN:

EXPERIMENTAL DESIGINE:

SELECTION CRITERIA:

INCLUSION CRITERIA:

- Involving the only male participants
- The participants are regular play football
- The all the participants are foot ball player
- The No. of the samples are 22
- Age group = 15-20 year

EXCLUSION CRITERIA:

- Recent Injury
- Trauma of lower limb
- Non regular player
- Not willing to participate
- Ligament reconstruction

VARIABLES:

DEPENDENT:

- ROM With universal goniometry
- Depth jump
- Split squat jump
- Rim jump
- Box to box depth jump
- Squat
- Leg press
- Leg extension

INDEPENDENT:

- Pain on VAS scale
- PFPS Plantar Fasciitis Pain/Disability Scale
- Transverse friction massage
- Active release technique
- Passive stretching

EQUIPMENT:

1. Stop Watch
2. Measuring Tape
3. Mat's.
4. Pen
5. Document Sheet
6. Universal Goniyometer
7. Stool / Boxes
8. Weight Machine
9. Smith Machine

PROCEDURE:

GROUP A- EXPERIMENTAL GROUP

PLYOMETRIC EXERCISE'S

GROUP B- EXPERIMENTAL GROUP

CONVENTIONAL WEIGHT TRANING EXERCISE:

Subjects were initially examined for assessing compliance with inclusion and exclusion criteria. In addition, demographic data of each subject will be recorded. After this initial evaluation, they will be randomly allocated to one of the two study groups A, B respectively. The subject warmed up for 15 minutes consisting of jogging and stretching. Then plyometric exercises were performed for 40 minutes and they performed soft jogging and stretching to cool down and recover for 15 minutes

CONVENTIONAL WEIGHT TRANING:

On the first test day, participants completed a 20- to 30-min warm-up on a cycle ergometer (Monark, 818 E, Ergomed) before undergoing the traditional strength tests (leg-press, Smith-machine, and isometric dead-lift tests). On the second test day, approximately week after the first test day, the participants completed a 20- to 30-min warm-up including fast walking and stair climbing before the functional strength tests (sit-to-stand power tests).

This warm-up procedure was chosen because of the specificity of the functional movements. In the traditional strength tests, the muscle recruitment was as isolated as possible, in contrast to the functional strength tests where the muscle recruitment was as integrated as possible.

LEG-PRESS EXERCISE:

1RM leg-press force and 80% of 1RM leg-press power were determined using a linear encoder and load cell

connected to an integrated data analysis program (Muscle Laboratory, Ergo test Technology AS, Norway).

The subjects were encouraged to exert maximal force during the bilateral 1RM testing, after the same test procedure as described in Taaffe, Pruitt, Pyka, Guido, and Marcus (1996). To measure 80% of 1RM leg-press power, the subjects were asked to complete the concentric phase of the movement as rapidly as possible and then Return through the eccentric phase at a slow and controlled pace over 2–3 s. Then average of the two best attempts of five was recorded as the result. The same load lifted at 80% of 1RM at pre intervention testing was used on the post intervention testing to reveal possible power changes for a given load.

ISOMETRIC DEAD-LIFT TEST:

1RM isometric dead-lift force was determined using a tension load cell connected to the integrated data-analysis program. The subjects were encouraged to exert maximal force during the 1RM testing. The better of two attempts was recorded. A total of 10% for women and 15% for men of the "average" maximum loads were calculated and then used during the box-lift test.

SIT-TO-STAND POWER EXERCISE:

The sit-to stand power test, which is a test of lower extremity muscle power, was performed on a force platform connected to the integrated data-analysis program. The test is based on a validity and reliability study of the 30-s chair stand by Jones, Rikli, and Beam (1999; Lohne-Seiler, Anderssen, Blazevich, & Torstveit, 2012). After a given signal the subjects were encouraged to work as fast as possible and exert maximal power (a combination of fast speed and explosive work) while standing from a chair without handrails (height 46.0 cm, depth 44.5 cm). The average of the two best trials of five was recorded as the result. Five trials were necessary to ensure that the best sit-to-stand power result was achieved**.**

PLYOMETRIC EXERCISE:

TYPE OF EXERCISE:

DEPTH JUMP:

The depth jump is an advanced, high-intensity plyometric exercise designed to increase muscular power and efficiency of force absorption in the lower extremities. This movement may provide benefits ranging from an

MUSCLES INVOLVED:

Primary muscles involved with performing this exercise include: gluteus maximus, quadriceps group (vastus lateralis, vastus intermedius, vastus medialis, rectus femoris), hamstrings group (semimembranosus, semitendinosus, biceps femoris), gastrocnemius, soleus increase in athletic performance to injury prevention.

EXERCISE TECHNIQUE:

The individual begins atop an appropriately selected plyometric box. Assume a fully-erect standing position with the feet hip-width apart and facing forward. The head and spine should be in neutral position. Inhale while stepping forward off of the box with one foot. Land on the floor with both feet at the same time with slight dorsiflexion of the ankles and slight flexion at the hips and knees, roughly a quarter-squat position. The shoulders, knees, and toes should be aligned when in proper landing position.The head and spine should remain in neutral position upon landing. Immediately upon landing on the floor, exhale while quickly extending the hips, knees and ankles to propel the body from the floor into a vertical jump.Be sure to fully extend the joints of the lower extremities in unison. The head and spine should remain in neutral position.

The amortization phase in the depth jump is the time spent between the eccentric (muscular loading) and concentric (jumping/muscular unloading) phases after stepping from the initial starting box. While there are no set standards, aim to limit the amount of time spent in the amortization phase of the stretch-shortening cycle (SSC) in order to increase the amount of force produced during the subsequent jump as well as the effectiveness of the exercise. Completing this phase as quickly as possible with minimal ground contact time, while still maintaining proper technique, should be the primary focus of the athlete.

Upon landing, assume slight flexion of the hips, knees and ankles with the shoulders, knees and toes aligned. After landing, extend the hips, knees and ankles to an upright standing position. To complete the next repetition, step back onto the plyometric box and assume the initial starting position.

SPLIT SQUAT JUMP

Split Squat. Two different conditions of the split squat were utilised in the testing days. Testing day one consisted of players performing one set of 10 repetitions (on each leg) of the bodyweight split squat, with a rest period of 1-minute between set. One complete set included both legs performing the split squat exercise. Subjects were instructed to control the descent on each leg so as to prevent the rear knee from "banging" on the floor, whilst the ascent was encouraged to be performed as explosively as possible. Depth was determined as sufficient when the femur achieved parallel with the ground. Testing day two followed the same procedures however.

RIM JUMP (Vertical Jump Exercise):

Safety, time efficiency, and intensity are the backbone of this training program. The main focus is to facilitate improvement in muscular strength. The stronger a player is the more force they can produce. The more force they

can produce, the higher, they can jump. Our goal is to minimize risk at playing football. We have chosen the safest exercises available but still recommend that all workouts are properly supervised under football coach. Players should always use perfect technique to get the most out of each exercise. Additionally, players should perform every movement in a controlled manner. Time is a precious commodity. Therefore, the goal of this strength program is to get the best results possible in the shortest amount of time. Why should you spend ten hours per week strength training if you can attain equal results in just three hours per week? Those additional seven hours would be better invested on fundamentals! We have chosen to use a limited number of sets and exercises during each workout, while minimizing rest intervals to induce an overall conditioning effect. Exercises started after the 15 mint warm up period. After the one exercise maximum 45 sec -2 mint resting period apply. At time of the starting exercise. The two volunteer are stand in front of player with stopwatch. When the volunteer say start then player start exercise. The exercise are started with the half squat and then the player push his body to against gravity action and the and are go in the full flexion. After done one stet the player repeated same procedure again an

DATAANALYSIS:

Data analysis was done using IBMSPSS Statistics (software package used for statistical analysis 2015 version-Rev.) Descriptive statistics was done to determine the demographic characteristics of the subjects recruited in this study, t-test used.p-value used in hypothesis tests to help you decide whether to reject or fail to reject a null hypothesis. The p-value is the probability of obtaining a test statistic that is at least as extreme as the actual calculated value, if the null hypothesis is true. A commonly used cut-off value for the p-value is 0.05.

RESULT:

Table-1.1: Represents Traditional weight bearing exercises data collection chart

TRDITIONAL WEIGHT BEARING EXERCISE CHART												
S.N	GENDER	AGE	HEIGHT	WEIGHT	B.M.I.	WEEK	Leg Press Test		Sit to stand Power test		Iso Matric Dead Lift test	
							Monday	Thursday	Monday	Thursday	Monday	Thursday
1	M	18	185.9	88	25.5	1	37	45	37	41	46	45
						2	58	68	62	74	51	60
2	M	19	164.5	56	20.7	1	43	52	66	82	46	59
						2	57	64	94	108	61	68
3	M	20	157	63	25.6	1	37	59	40	74	35	65
						2	60	71	87	104	57	68
4	M	18	170.6	75	25	1	35	45	47	62	37	45
						2	56	68	78	95	54	64
5	M	20	180	63	19.4	1	40	50	35	51	38	46
						2	61	73	67	84	55	65
6	M	19	170.6	64	22	1	38	45	60	76	30	38
						2	55	67	91	108	47	56
7	M	19	161.5	55	21.1	1	31	41	42	57	33	41
						2	52	64	73	90	49	58
8	M	19	164.5	54	20	1	42	52	58	73	32	40
						2	63	73	89	106	49	59
9	M	19	164.5	60	22	1	42	52	51	66	30	38
						2	63	75	82	99	47	57
10	M	17	165	50	18.4	1	62	70	96	112	59	67
						2	81	90	128	145	76	86
11	M	17	176.7	53	17	1	55	68	79	94	78	86
						2	76	88	110	127	95	105
		18.64	169.16	61.9	21.52							

Table-1.2: Represents Traditional weight bearing exercises data analysis chart (where PRE value means First reading collected on one week while POST means last reading collected on second week).

S. NO.	Leg Press Test		Sit to stand Power test		Iso Matric Dead Lift test	
	PRE	POST	PRE	POST	PRE	POST
1	37	68	37	74	46	60
2	43	64	66	108	46	68
3	37	71	40	104	35	68
4	35	68	47	95	37	64
5	40	73	35	84	38	65
6	38	67	60	108	30	56
7	31	64	42	90	33	58
8	42	73	58	106	32	59
9	42	75	51	99	30	57
10	62	90	96	145	59	86
11	55	88	79	127	78	105
	42	**72.82**	**55.55**	**103.64**	**42.18**	**67.81**

Table-1.3: Represents Plyometric Exercises data analysis chart (where PRE value means First reading collected on one week while POST means last reading collected on second week).

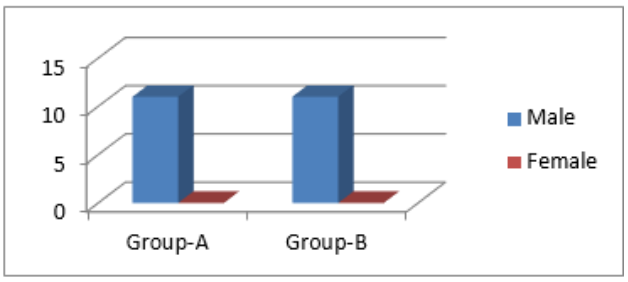
S. NO.	DEPTH JUMP		SPLIT SQUATE JUMP		RIM JUMP	
	PRE	POST	PRE	POST	PRE	POST
1	18	37	98	130	56	91
2	14	41	88	116	69	102
3	17	47	87	135	101	110
4	13	25	62	126	64	77
5	14	48	68	164	65	77
6	21	43	80	125	73	87
7	15	42	72	115	74	89
8	14	41	118	164	45	85
9	25	58	107	152	22	63
10	15	35	48	100	47	85
11	21	45	68	114	47	89
	17	**42**	**81.45**	**131**	**60.27**	**86.81**

Table-1.4: Represents Plyometric Exercises data collection chart

PLYOMETRIC EXERCISE CHART												
S.N	GENDER	AGE	HEIGHT	WEIGHT	B.M.I.	WEEK	DEPTH JUMP		SPLIT SQUATE JUMP		RIM JUMP	
							Monday	Thursday	Monday	Thursday	Monday	Thursday
1	M	17	166	53	19.2	1	18	24	98	105	56	72
						2	30	37	112	130	88	91
2	M	17	164	47	17.5	1	14	23	88	94	69	80
						2	32	41	105	116	91	102
3	M	20	161.5	56	21.5	1	17	26	87	102	101	93
						2	38	47	118	135	39	110
4	M	18	176	54	17.3	1	13	17	62	88	64	58
						2	19	25	105	126	41	77
5	M	19	161	52	20	1	14	21	68	107	65	58
						2	38	48	132	164	45	77
6	M	19	164.5	54	20	1	21	25	80	95	73	60
						2	34	43	110	125	47	87
7	M	19	182.8	80	24	1	15	23	72	82	74	60
						2	32	42	98	115	45	89
8	M	19	178	59	18.6	1	14	22	118	133	45	58
						2	31	41	148	164	71	85
9	M	19	161.5	53	20.4	1	25	33	107	122	22	35
						2	42	58	137	152	50	63
10	M	19	167.6	68	24.2	1	15	18	48	69	47	59
						2	26	35	84	100	72	85
11	M	20	164.5	60	22.2	1	21	28	68	83	47	60
						2	36	45	98	114	74	89
		18.73	167.95	57.82	20.45							

Table-1.5

GENDER	Group-A	Group-B
Male	11	11
Female	0	0

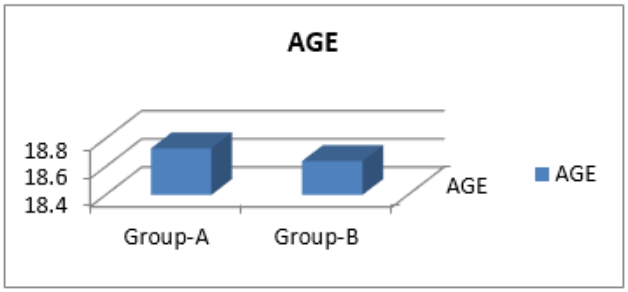


Graph-3.1

Table-1.5 & Graph-3.1: Represents the gender wise distribution of all study subjects, A finding shows total 11 subjects in each group (11+11=22 subjects),both Group-A (Plyometric Exercises) & Group-B (Traditional Weight Bearing Exercises) were having 11 male & zero female subjects.

Table-1.6

	Group-A	Group-B
AGE	18.73(±4.64)	18.64(±4.78)

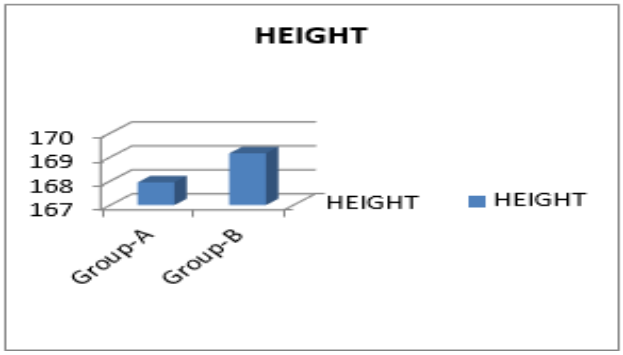


Graph-3.2

Table-1.6 & Graph-3.2 :Represents the Age wise distribution of all study subjects,A finding shows mean age (±SD) is 18.73 (±4.64) years for group-A (Plyometric Exercises) & mean age (±SD) is 18.64 (±4.78) years for group-B (Traditional Weight Bearing Exercises), which reflect same age group with p-value <0.33.

Table-1.7

	Group-A	Group-B
HEIGHT	167.95(±4.66)	169.16(±4.69)

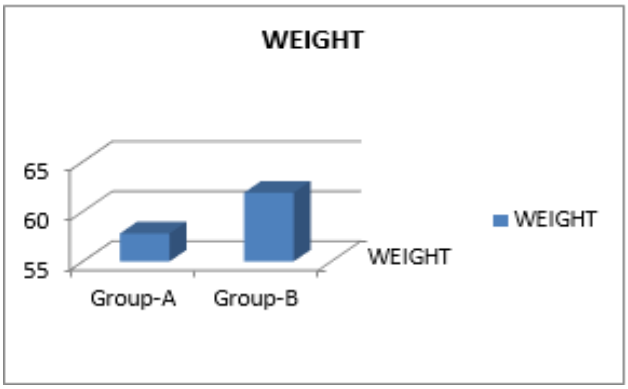


Graph-3.3

Table-1.7 & Graph-3.3 :Represents the height wise distribution of all study subjects, A finding shows mean height (±SD) is 167.95 (±4.66) centimeter for group-A (Plyometric Exercises) & mean height (±SD) is 169.16 (±4.69) centimeter for group-B (Traditional Weight Bearing Exercises), which reflect same height group with p-value <0.05.

Table-1.8

	Group-A	Group-B
WEIGHT	57.82(±4.78)	61.9(±4.71)

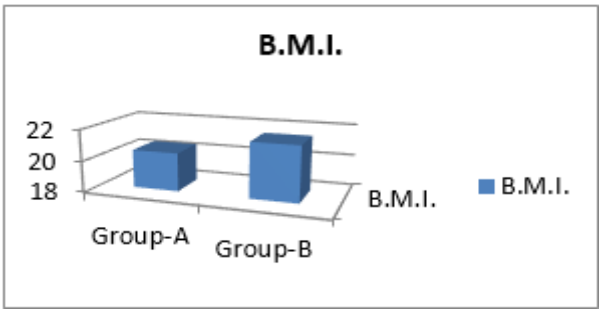


Graph-3.4

Table-1.8 & Graph-3.4: Represents the weight wise distribution of all study subjects, A finding shows mean weight (±SD) is 57.82 (±4.78) kilogram for group-A (Plyometric Exercises) & mean height (±SD) is 61.9 (±4.71) kilogram for group-B (Traditional Weight Bearing Exercises), which reflect same weight group with p-value <0.05.

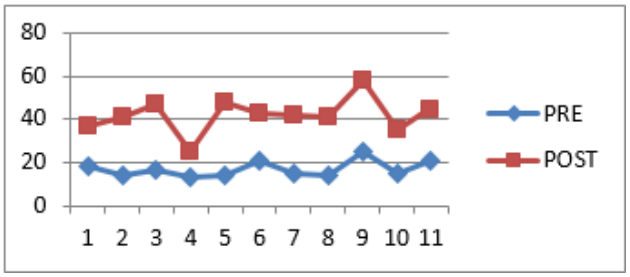
Table-1.9

	Group-A	Group-B
B.M.I.	20.45(±4.88)	21.52(±4.81)

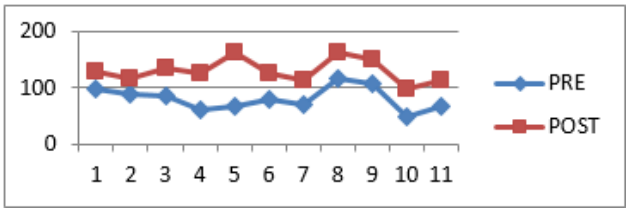


Graph-3.5

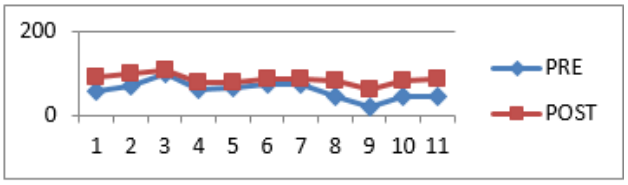
Table-1.9 & Graph-3.5: Represents the B.M.I. (Body Mass Index)wise distribution of all study subjects, A finding shows mean B.M.I. (±SD) is 20.45(±4.88)for group-A (Plyometric Exercises) & mean B.M.I. (±SD) is 21.52(±4.81) for group-B (Traditional Weight Bearing Exercises), which reflect same B.M.I. group with p-value <0.05.



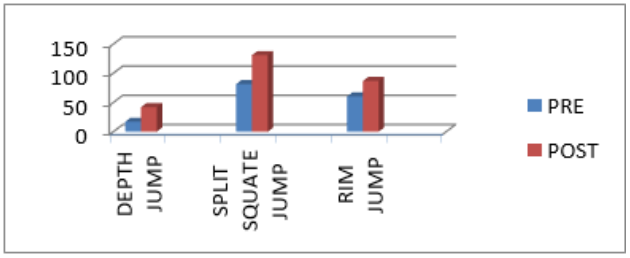
Graph-3.6: Represents Deep Jump (Plyometric Exercises) data for Group-A (Plyometric Exercises); A finding shows mean (±SD) Pre value 17(±4.81)& mean (±SD) Post value42(±4.77), which reflect significant improvement (where asPRE value means First reading collected on one week while POST means last reading collected on second week).



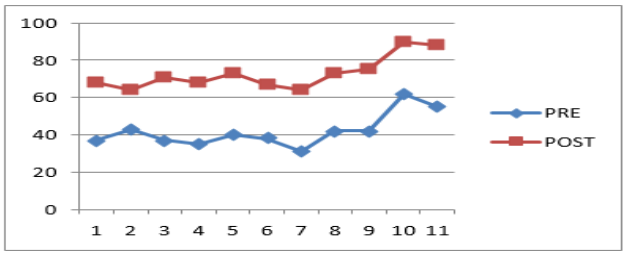
Graph-3.7: RepresentsSplit Squate Jump (Plyometric Exercises) data for Group-A (Plyometric Exercises); A finding shows mean (±SD)Pre value 81.45(±4.66)& mean (±SD) Post value131.0(±4.59), which reflect significant improvement (where as PRE value means First reading collected on one week while POST means last reading collected on second week).



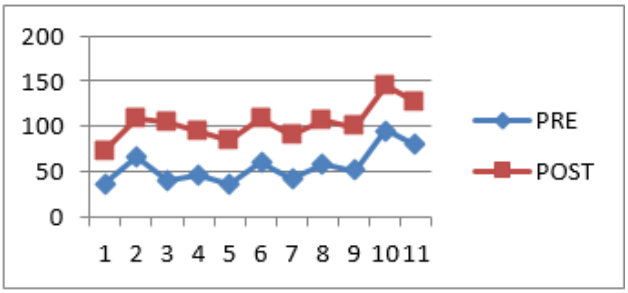
Graph-3.8: Represents RIM Jump (Plyometric Exercises) data for Group-A (Plyometric Exercises); A finding shows mean (±SD) Pre value 60.27 (±4.75) & mean (±SD) Post value 86.81 (±4.59), which reflect significant improvement (where as PRE value means First reading collected on one week while POST means last reading collected on second week).



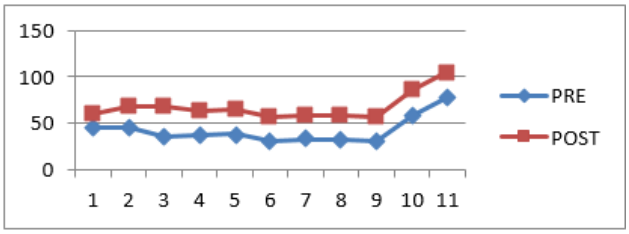
Graph-3.9: Represents all Plyometric Exercisesdata for Group-A (Plyometric Exercises); A finding showssignificant improvement (where as PRE value means First reading collected on one week while POST means last reading collected on second week).



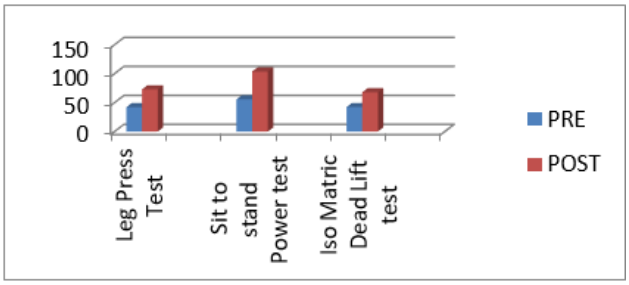
Graph-3.10: Represents Leg Press test (Traditional Weight Bearing Exercises) data for Group-B (Traditional Weight Bearing Exercises); A finding shows mean (±SD) Pre value 42 (±4.49) & mean (±SD) Post value 72.82 (±4.44), which reflect significant improvement (where as PRE value means First reading collected on one week while POST means last reading collected on second week).



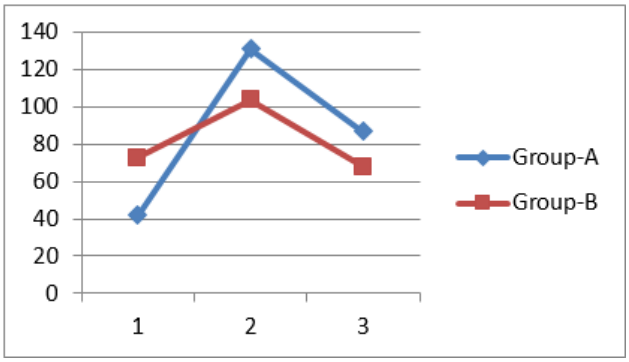
Graph-3.11: Represents Sit to Stand Power test (Traditional Weight Bearing Exercises) data for Group-B (Traditional Weight Bearing Exercises); A finding shows mean (±SD) Pre value 55.55(±4.57)& mean (±SD) Post value103.64(±4.49), which reflect significant improvement (where as PRE value means First reading collected on one week while POST means last reading collected on second week).



Graph-3.12: Represents Iso Matric Dead Lift test (Traditional Weight Bearing Exercises) data for Group-B (Traditional Weight Bearing Exercises); A finding shows mean (±SD) Pre value 42.18(±4.66)& mean (±SD) Post value67.81(±4.61), which reflect significant improvement (where as PRE value means First reading collected on one week while POST means last reading collected on second week).



Graph-3.13: Represents all Traditional Weight Bearing Exercisesdata for Group-A (Plyometric Exercises); A finding shows significant improvement (where as PRE value means First reading collected on one week while POST means last reading collected on second week).



Graph-3.14: Represents the comparison between Group-A (Plyometric Exercises) &Group-B (Traditional Weight Bearing Exercises); Which shows Group-A (Plyometric Exercises) is having no better results in compare to Group-B (Traditional Weight Bearing Exercises); the p-value is <0.001.

DISCUSSION:

Given the nature of sport, athletes and sport champions have various needs, priorities, and preferences in terms ofphysical fitness and mobility status. In other words, all sport courses hold individual requirements in strength, endurance, power, flexibility, and speed, or a combination of them; Muscle power is an effective parameter to success (Kawamori N, Haff GG,JStrengthCondRes,2004).

As already stated, since plyometric exercise involves specific muscles in stretch- shortening movement cycles, it provides more power benefits than of simple shortening action (Finni T, Ikegawa S, & Komi PV, J ActaPhysiolScand, 2001) Original findings of the current research revealed a significant difference between the pre-test and post-test sessions.

For our study we selected 11young football male players in both group A & B each; on the basis of inclusion & exclusion criteria.

The findings of Sylvia et al. (2009) also suggest the same as we found that Deep Jump (Plyometric Exercises) data for Group-A (Plyometric Exercises) shows (±SD) Pre value 17 (±4.81) & mean (±SD) Post value 42 (±4.77), which reflect significant improvement, Split Squate Jump (Plyometric Exercises) data for Group-A (Plyometric Exercises) shows (±SD) Pre value 81.45 (±4.66) & mean (±SD) Post value 131.0(±4.59), which reflect significant improvement; RIM Jump (Plyometric Exercises) data for Group-A (Plyometric Exercises) shows (±SD) Pre value 60.27 (±4.75) & mean (±SD) Post value 86.81 (±4.59), which reflect significant improvement, they found a significant improvement in counter movement and drop jump as well.

John and Burt (2007) evaluated jump performance of football players. Their findings indicated that both exercises caused a significant improvement in jump performance, and that no significant difference was observed between two groups. For our study we found that Leg Press test (Traditional Weight Bearing Exercises) data for Group-B (Traditional Weight Bearing Exercises); A finding shows mean (±SD) Pre value 42(±4.49) & mean (±SD) Post value 72.82 (±4.44), which reflect significant improvement; Sit to Stand Power test (Traditional Weight Bearing Exercises) data for Group-B (Traditional Weight Bearing Exercises); A finding shows mean (±SD) Pre value 55.55 (±4.57) & mean (±SD) Post value 103.64 (±4.49), which reflect significant improvement; Iso Matric Dead Lift test (Traditional Weight Bearing Exercises) data for Group-B (Traditional Weight Bearing Exercises); A finding shows mean (±SD) Pre value 42.18 (±4.66) & mean (±SD) Post value 67.81 (±4.61), which reflect significant improvement.

the comparison between Group-A (Plyometric Exercises) & Group-B (Traditional Weight Bearing Exercises); Which shows Group-A (Plyometric Exercises) is having no better results in compare to Group-B (Traditional Weight Bearing Exercises); the p-value is <0.001, although both group shows significant improvement on young football players. Duke and Ben Eliyahu (1992) and Fowler etal. (1995) also showed in a study in which thecombined exercises (weight training and plyometricexercises) were compared to single weight training, thatthe combined training method resulted in moreimprovement in vertical jumps compared to weighttraining method.

CONCLUSION:

Hence we concluded thatOverall, based on results of this study and previous research, it can be said that different types of plyometric exercises & Traditional Weight bearing may cause positive effects on lower extremity muscle power among young football players, and that there is no significant difference between methods applied. Hence null hypothesis accepted & alternative hypothesis rejected.

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