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Editorial

Strengthen Our CORE Muscles Improving Our Ability to Carry Out Daily Exercise at The Optimal Level

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Any healthy individual may become unfit physically if he or she does not practice exercise regularly at any age. Being physically fit is an advantage to our overall health, happier and efficient than others. From the literature, exercise is reported useful in preventing or treating coronary heart disease, osteoporosis, weakness, diabetes, obesity, and depression. Additionally, strengthening exercises provide appropriate resistance to the muscles to increase endurance and strength components related to health fitness.

Exercise is a type of physical activity that is planned, structured and repetitive for the purpose of conditioning any part of the body used to improve health and maintain fitness. At such, no matter what our age or shape, we should exercise regularly to lowers blood pressure and improves blood circulation. Also, regular exercise helps in reduction of excess body weight in the burning of calories.

Generally, exercise is divided into four basic categories: endurance, strength, balance, and flexibility. Many people only focus on one type of exercise, whereby each type of exercise is different, however, doing them all will give you extra benefits. Mixing it up also helps to reduce boredom and stop the possibility of injury.

Strength exercises are able to strengthen our muscles. Even small increases in strength can make a big difference in our ability to carry out exercise. We can find this type of exercise in lifting weights, using a resistance band or performing exercise with our own body weight.

The core can be described as a muscular box with the abdominals in the front, paraspinals and gluteals in the back, the diaphragm as the roof, and the pelvic floor and hip girdle musculature as the bottom. Broad benefits of core stabilization have been touted, from improving athletic performance and preventing injuries, to alleviating low back pain.

The Core Strength Exercises can be performed with our own body weight. At such, I would like to suggest to everyone that we should strengthen our CORE muscles first enable us to enjoy injury free daily exercise, ultimately we can improve our overall health related fitness.

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The Effect of a 12-Week Resistance Training on Muscular Strength of Secondary School Male Students of Jahrom County, Iran

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Abstract:

The purpose of this research was to study the effect of a 12-week different resistance training protocols on muscular strength of secondary school male students of Jahrom county, Iran. The subjects of this study consisted of 30 male secondary school students with the average age of 13/3 years which were divided into 3 groups of 10 people (2 experimental groups and 1 control group). The first Experimental group (n=10) performed a high repetition-moderate load resistance training program; the second experimental group (n=10) performed a low repetition-heavy load resistance training program; and the control group (n=10) did not take part in any resistance training. The Experimental groups had sessions of resistance training 3 times in a week for 12 weeks. The first group, performing the high repetition-moderate load program, had 3 sets of 13-15 repetitions; and the second group, performing a low repetition-heavy load program, had 3 sets of 6-8 repetitions. After 12 weeks of training, pre and post tests were compered. To analyze the collected data, descriptive statistics, T-test, ANOVA, F-ratio and follow-up Tukey test were used with the significant level of ($P<0.05$).The results of this study showed that the low repetition-heavy load resistance training program had significant effects on muscular strength of the lower extremity but had no significant effects on muscular strength of the upper extremity. However, the high repetition-moderate load resistance training had significant effects on muscular strength of both lower and upper extremities. The overall result of this study reveals that if performed correctly, strength training is not dangerous and harmful, but on the contrary, it can improve health and muscular strength.

Keywords: resistance training, muscular strength, high repetition-moderate load resistance training, low repetition- heavy load resistance training.

1. Introduction:

The majority of parents, teachers and trainers believe that weight training is not only is not useful for kids, but harmful and dangerous. Parents' biggest concern regarding resistance training is that they believe these strength trainings hinder the kids' growth, harm their growth plates, and decrease the growth of their stature.

However, if these trainings are carried out correctly, they can increase kids' and adolescents' strength. But there is no consensus on the applicability of different schedules of resistance training on the development of kids' strength and muscular strength (Faigenbaum et. al. 2005). A good training schedule can improve strength, flexibility, motor readiness and body composure, and improve the body's resistance to injury, decrease the time needed for

recovery, increase physical and mental health, and develop positive attitude toward physical readiness (Ball, 2004). Biomechanical researches have shown that activities like throwing, running and striking can impose more forces to the body and more pressure on the growth plates of the growing bones (Hall, 2010).

In another research, the repetition of a maximum power in healthy kids was studied. The aim of this research was the evaluation of safety and efficiency of a repetition of maximum power in healthy children. 32 girls and 64 boy of 6.2 to 12.3 years of age participated voluntarily in this research. The test for the repetition of a maximum power in the upper parts was performed by using chest press exercise, and in the lower part by foot press. The results showed that in the course of the research no injury was suffered, and the schedule was performed well by the participants. No difference was observed in the upper and lower section tests between the two genders (Faigenbaum et. al. 2005). Vrijens (1998) reported the results of an 8-week resistance training research on boys, in which the children were not able to improve strength.

A decade later, Docherty (2008) showed that 12-year-old boys did not benefit from 3 sessions of training for 4 to 6 weeks. To evaluate children's exercise ability, different combinations of training variables (the type of exercise, resistance needed, the number of sets and the time of rest between sets) were used to assess the effects of resistance training on children. It seems that the resistance needed is one of the most important training variables. In fact, resistance training in relation to strength and muscular resistance is affected by the number of repetitions that can be performed (Faigenbaum et. al. 2006).

In order to find the answer to the main question of the study, four smaller questions can be considered as follows:

1. Are the high repetition – moderate load resistance trainings effective on the muscular strength of the upper section of the male students of secondary schools?
2. Are the low repetition – heavy load resistance trainings effective on the muscular strength of the upper section of the male students of secondary schools?
3. Are the high repetition – moderate load resistance trainings effective on the muscular strength of the lower section of the male students of secondary schools?
4. Are the low repetition – heavy load resistance trainings effective on the muscular strength of the lower section of the male students of secondary schools?

2. Methodology:

This is a semi-experimental study. 30 healthy male students (average age of 13.3) in secondary schools of Jahrom, Iran were selected using a cluster-random sampling method. They were then divided into 3 groups of 10 people using simple random method (by drawing). The first group were assigned a training schedule for low repetition – heavy load resistance training; the second group were assigned a high repetition – moderate load resistance training; and the third group was assigned no schedule as the control group. In this research, the muscular strength of the upper section was assessed by chest press; and the muscular strength of the lower section was assessed by foot press. Machines for chest press and foot press were both standard, from Hager Company of Germany.

Pretest included the performance of a maximum of chest press and a maximum of foot press. The two groups exercised for 12 weeks, 3 sessions in each week, with the following training protocol: a) training schedule for high repetition – moderate load with a repetition of 13 to 15, and intensity of 60 to 65 percent of a maximum repetition; b) training schedule for

low repetition – heavy load with a repetition of 6 to 8, and intensity of 75 to 80 percent of a maximum repetition. It was asked from the third group, the control group, not to take part in any kind of training; and the experiment groups were also asked not to do any other training beside the research schedule. In this study, descriptive statistics, paired t-test, one-way analysis of variance (ANOVA), F-ratio and Tukey follow-up test were used at the level of $\alpha = 0.05$.

3. Findings:

Descriptive information are presented in tables 1, 2 and 3.

Table 1. Descriptive indicators of research variables in pretest and posttest for the control group

Variables / statistical indicator	Number of samples	Minimum grade	Maximum grade	Mean	Standard deviation
pretest Chest press (kg)	10	15.50	51.50	34.50	10.71
Posttest Chest press (kg)	10	20	60	40.50	11.93
pretest foot press (kg)	10	25	110	71	26.54
posttest Chest press (kg)	10	32.50	120	81.25	25.72

Table 2. Descriptive indicators of research variables in pretest and posttest for the first group (low repetition – heavy load)

Variables / statistical indicator	Number of samples	Minimum grade	Maximum grade	Mean	Standard deviation
pretest Chest press (kg)	10	20.50	50	32.90	7.34
Posttest Chest press (kg)	10	27	65	41/35	10.46
pretest foot press (kg)	10	45	90	72.50	16/54
posttest Chest press (kg)	10	60	170	107	30.48

Table 3. Descriptive indicators of research variables in pretest and posttest for the second group (high repetition – medium load)

Variables / statistical indicator	Number of samples	Minimum grade	Maximum grade	Mean	Standard deviation
pretest Chest press (kg)	10	18	50.50	33.95	10.88
Posttest Chest press (kg)	10	30	71	49.85	14.32

pretest foot press (kg)	10	30	110	73	26.79
posttest Chest press (kg)	10	62.50	185	125.75	43.14

The information in Table 4 shows that because the value obtained is less than 0.05 ($p<0.05$), it can be said that there is a meaningful difference between pretest and posttest of the training group of high repetition – medium load in the muscular strength of upper section.

Table 4. The comparison of the results in pretest and posttest in training group of high repetition – medium load in chest press

Statistical indicator / high repetition – medium load	Number	Mean	Standard deviation	Mean difference between pre and post	Degree of freedom	T	Significance level
Pretest posttest	10 10	33.95 49.85	10.88 14.23	15.90	9	11.18	0.00

Based on the results of one-way analysis of variance, because the calculated p value is less than 0.05, it can be said that there is a meaningful difference between pretest and posttest in the muscular strength of the upper section of the three groups. Table 5 and Diagram 1 show this information.

Table 5. One-way analysis of variance of pre-test and post-test differences in chest press Results and Discussion

Sources	Total sum of squares	Degree of freedom	Mean squares	F	Significance level
Between groups	531.717	2	265.858	20.799	0.00
Inside groups	345.125	27	12.782		
Total	876.842	29			

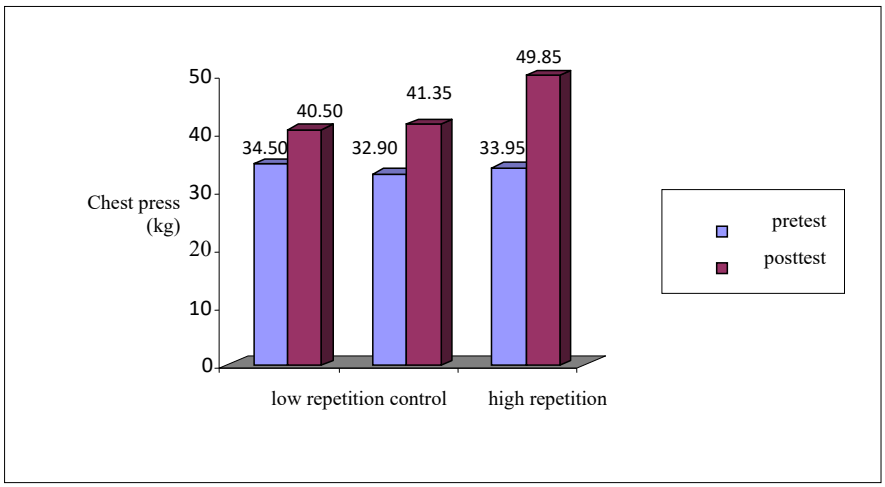

Diagram 1. The comparison of averages in pre-test and post-test in chest press in three

groups

The information in Table 6, illustrating the results of Tukey follow-up test, shows that there is a meaningful level (α = 0.000) between the control group and the training group of high repetition – medium load. Therefore, high repetition – medium load training has been effective on the muscular strength of the upper section.

Table 6. The results of Tukey follow-up test for the mean difference in pre-test and post-test in chest press

Sources	Mean difference	Standard deviation	Significance level
High control and repetition	9.90	1.599	0.00
Low repetition and high repetition	7.45	1.599	0.00
Low control and repetition	2.245	1.599	0.292

According to the information in Table 7, because the value obtained is less than 0.05 ($p<0.05$), there is a meaningful difference between pre-test and post-test of the training group of low repetition – heavy load in the muscular strength of upper section.

Table 7. The comparison of the results in pre-test and post-test in training group of low repetition – heavy load in chest press

Statistical indicator / low repetition – heavy load	Number	Mean	Standard deviation	Mean difference between pre and post	Degree of freedom	T	Significance level
Pretest posttest	10 10	32.90 41.35	7.34 10.46	–8.45	9	6.70	0.00

The information in Table 8, illustrating the results of Tukey follow-up test, shows that there is no meaningful level (α = 0.292) between the control group and the training group of low repetition – heavy load. Therefore, low repetition – heavy load training has not been effective on the muscular strength of the upper section.

Table 8. The results of Tukey follow-up test for the mean difference in pre-test and post-test in chest press

Sources	Mean Difference	Standard Deviation	Significance level
Low control and repetition	2.245	1.599	0.292
High repetition and low repetition	–7.45	1.599	0.00
High control and repetition	9.90	1.599	0.00

The information in Table 9 shows that, because the value obtained is less than 0.05 ($p<0.05$), there is a meaningful difference between pre-test and post-test of the training group of high repetition – medium load in the muscular strength of the lower section.

Table 9. The comparison of the results in pre-test and post-test in training group of highrepetition – medium load in foot press

Statistical indicator / high repetition – medium load	Number	Mean	Standard deviation	Mean difference between pre and post	Degree of freedom	T	Significance level
Pretest	10	73	26.79	52.75	9	–9.37	0.00
posttest	10	125.75	43.14				

Based on the results of one-way analysis of variance, because the calculated p value is less than 0.05, it can be said that there is a meaningful difference between pre-test and post-test in the muscular strength of the lower section of the three groups. Table 10 and Diagram 2 show this information.

Table 10. One-way analysis of variance of pre-test and post-test differences in foot press

Sources	Total sum of squares	Degree of freedom	Mean squares	F	Significance level
Between groups	9091.250	2	4545.625	19.188	0.00
Inside groups	6396.250	27	236.898		
Total	15487.500	29			

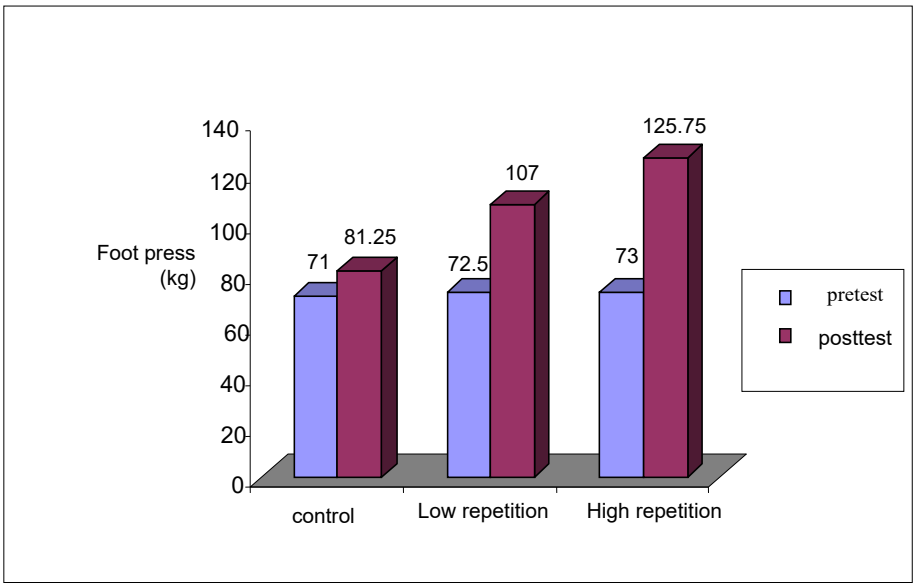

Diagram 2. The Average of pre-test and post-test in three groups in foot press

Based on the results of the Tukey follow-up test (Table 11) because the level of meaningfulness is less than 0.05 between the pre-test and post-test in foot press between control group and low repetition group, between control group and high repetition group, and also between low repetition group and high repetition group, it can be said that both types of

training have been effective on the muscular strength of the lower section.

Table 11. The results of Tukey follow-up test for the mean difference in pre-test and post-test in foot press

Sources	Mean difference	Standard deviation	Significance level
low control and repetition	24.25	6.883	0.04
High control and repetition	42.50	6.883	0.00
Low repetition and high repetition	18.250	6.883	0.034

Based on the information in Table 12, because the value obtained is less than 0.05 ($p<0.05$), there is a meaningful difference between pre-test and post-test of the training group of low repetition – heavy load in the muscular strength of the lower section.

Table 12. The comparison of the results in pre-test and post-test in training group of low repetition – heavy load in foot press

Statistical indicator / low repetition – heavy load	Number	Mean	Standard deviation	Mean difference between pre and post	Degree of freedom	T	Significance level
Pretest posttest	10 10	72.50 107.50	16.54 30.48	–34.50	9	–5.68	0.00

As the information in Table 13 shows, based on the results of the Tukey follow-up test, because the level of meaningfulness is less than 0.05 between the pre-test and post-test between control group and low repetition – heavy load group, it can be said that low repetition – heavy load training have been effective on the muscular strength of the lower section.

Table 13. The results of Tukey follow-up test for the mean difference in pre-test and post-test in foot press

Sources	Mean difference	Standard deviation	Significance level
low control and repetition	24.25	6.883	0.04
High control and repetition	42.50	6.883	0.00
Low repetition and high repetition	18.250	6.883	0.034

4. Discussion and Conclusion:

The analysis of the findings of this research shows that children and adolescents can improve their muscular strength by performing resistance training. Various studies by different researchers illustrate that strength activities increases the muscular strength in children. They state that the scale of effect of these resistance trainings on muscular strength is related to the type of schedule and the intensity of the trainings. The results of the present

research is as follows:

1. Performing resistance training schedules with high repetition – medium load has a meaningful effect on the muscular strength of the upper section of the male students of secondary schools. Doing these exercises increase the muscular strength of the upper section of the students. The results of this research is compatible with the results obtained from the studies by Silvira et. al (2004), Faigenbaum et. al (2004), Solakis et. al (2004), Faigenbaum et. al (2006), Folk et. al (2009), Faigenbaum et. al (2003), Westcut (2002) Feifer and Francis (1998). The probable mechanism can be explained in this way: young sportspersons who do strengthtraining experience an increase in strength without an increase in muscle size through the first 4 to 6 weeks. The reason for the increase in strength without muscle hypertrophy is nervous adaptation, which means an increase in neuromuscular coordination. Nervous adaptation of strength training through an increasein the ability of activation of the main drivers, i.e. the set of muscles which are involved in performing the movement, and the improvement of the coordination between the concordant and non-concordant muscles, is a proved fact. The natural result is the increased strength in performing the desired movement.

2. Performing low repetition – heavy load resistance training schedules does not have a meaningful effect on the muscular strength. This result is compatible with the results of the researches undertaken by Faigenbaum et al. (2003) and Faigenbaum et al. (2006). It is probable that low repetition cannot create enough required drivers for the development of necessary adaptations.

3. Performing high repetition – medium load resistance training schedules has a meaningful effect on the muscular strength of the lower section of the male students of secondary schools. Doing these exercises increases the muscular strength of the lower section of the students. The results of this research are compatible with the results obtained from the studies by Silvira et. al (2004), Faigenbaum et. al (2004), Solakis et. al (2004), Faigenbaum et. al (2005), Folk et. al (2009), Westcut (2001) Faigenbaum et. al (2003). The probable mechanism is in this way: the increase in the muscle strength can be attributed to the change in pattern of motor units recruitment as well as simultaneous use of motor units for coordinated activity. As a result of training, inhibitory impulses are neutralized and the muscle is able to contract more powerfully. It is logical to say that to a great degree, increase in strength is a result of the improvement in the ability for motor units recruitment in order to produce contraction force.

4. Performing low repetition – heavy load resistance training schedules has a meaningful effect on the muscular strength of the lower section of the male students of secondary schools. Doing these exercises increases the muscular strength of the lower section of the students, without inflicting any kind of injury during training. The results of this research are compatible with the results obtained from the studies by Lilgard et. al. (2008), Azman et. al. (2005), Ramzi et. al. (2005) but incompatible with the results of Vrijens (1998) and Dockerty

(2008). The probable mechanism is in this way: the initial improvement in voluntary strength is related to neural adaptations, which include: 1. enhancement of coordination; 2. improving recruitment; 3. increasing the activation of the main motor muscels.

The findings of this research proved that an 8-week strength training and muscular training for the male students of the secondary schools in Jahrom, Iran, is not dangerous and harmful, but on the contrary, causes an improvement in health and muscular strength.

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Study of Physical Tests in the Selection of 8 - 9 Year Old Female Table Tennis Players in Ho Chi Minh City, Vietnam

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Abstract:
The article uses the methods of common scientific research in physical education and sports, thereby identifying 05 physical tests in the selection of 08-09 year old female table tennis players in Ho Chi Minh City has sufficient reliability and notification.

Keywords: test, physical strength, table tennis, Ho Chi Minh City.

1. Introduction:

Nowadays, a modern table tennis player must have not only a thorough tactical technique, a good psychological state, a combination of control between the vortex, the speed, the power and the drop point of the ball in a reasonable way but also a high level of physical strength. Therefore, physical strength is a very important factor for modern table tennis players. The precise and scientific identification of physical selection tests is one of the most important determinants of success in the selection of table tennis players.

2. Research and methods:

Purpose of the study: To identify physical tests in the selection of young table tennis players.

Objectives of the study: To achieve the above purpose, we address the following objectives:

• Synthesis of physical tests in the selection and assessment of physical strength for the table tennis players from local and foreign authors.

• Interviews with trainers, experts and professionals.

• Verification of the reliability and notification from tests.

Methodology - organization of the study: methods of reference, pedagogical examination, questionnaire and statistics mathematics.

Subject for the study: 18 female players aged 8-9 are talented in table tennis in Ho Chi Minh City.

3. Results:

3.1. The current situation of the use of physical tests in the selection of table tennis players by local and foreign authors.

Through the synthesis of documents by Nguyen The Truyen (1999), Bui Huy Quang (1997), selection documents of Ho Chi Minh City Department of Culture, Sports and Tourism (2005), National target selection program (1998), selection documents of China (2008), we have eliminated the unsuitable tests and selected the following specific tests: Run 20m XPC (s), run 30m XPC (s), run 60m XPC (s), long jump in place (cm), hit the ball away from the

table (cm), throw badminton away (cm), jump rope for 45 seconds (times), jump rope for 2 minutes (times), hit the ball against the wall for 1 minute (times), move to pick up 21 balls x 3m (s), move to pick up 42 balls x 3m (s), move to pick up 11 balls x 3m x 2 times (s).

3.2. Interview results:

From the results of the above, conduct building the test slips and the interviews. Time of two interviews is 1 month apart. In both interviews, 39 respondents answered, of which 32 respondents were experts and coaches accounting for 82.05%, 7 respondents are managers accounting for 17.95%. In order to test the coincidence of the results of the two interviews, compare them to the index χ^2 (as squared) (Table 1).

Table 1. Comparison of results of two interviews of physical tests in the selection of female table tennis players aged 8-9.

TEST		1 st time n = 20		2 nd time n = 19		χ^2	P
		$\sum diem$	Ratio %	$\sum diem$	Ratio %		
Physical Strength	Run 20m XPC (s)	58	58.00	54	56.84	0.21	> 0.05
	Run 30m XPC (s)	***84***	***84.00***	***80***	***84.21***	***0.18***	***> 0.05***
	Run 60m XPC (s)	72	72.00	69	72.63	0.02	> 0.05
	Long jump in place (cm)	70	70.00	67	70.53	0.02	> 0.05
	Hit the ball away from the table (cm)	70	70.00	69	72.63	0.09	> 0.05
	Throw badminton away (cm)	***91***	***91.00***	***86***	***90.53***	***0.07***	***> 0.05***
	Jump rope for 45 seconds (times)	***95***	***95.00***	***91***	***95.79***	***0.03***	***> 0.05***
	Jump rope for 2 minutes (times) (s)	70	70.00	66	69.47	0.07	> 0.05
	Hit the ball against the wall for 1 minute (times)	***96***	***96.00***	***93***	***97.89***	***0.06***	***> 0.05***
	Move to pick up 21 balls × 3m (s)	***100***	***100.00***	***95***	***100.00***	***0.00***	***> 0.05***
	Move to pick up 42 balls × 3m (s)	74	74.00	71	74.74	0.02	> 0.05
	Move to pick up 11 ball × 3m × 2 times (s)	70	70.00	67	70.53	0.03	> 0.05

The study result from Table 1 show that in all the results of the two interviews from the tests to be χ^2 calculated $<\chi^2$ table = 3.84 at the probability threshold P> 0.05, so the difference between the two interviews is not statistically significant at the probability threshold P> 0.0.5. Based on the results of the interviews, select the tests with a total score > 75% of total scores in both interviews (1st time > 75 points, 2nd time > 71.25 points). According to the above rules, choosing the physical tests for the selection of 8-9 year old table tennis players is as follows: run 30m XPC (s), throw badminton away (cm), jump rope for 45 seconds (times), hit the ball against the wall for 1 minute (times), move to pick up 21 balls × 3m (s).

3.3. Verification of the reliability and notification of the tests:

3.3.1. Verification of the reliability:

In order to test the reliability of the physical tests in the selection of female table tennis players aged 8-9, we inspected the performance of the tests in the two times, the time

between two intervals is five days, the test conditions between the two times are the same. We then calculated the correlation coefficient (r) of the tests between the two testing times and obtained the results in Table 2.

Table 2. Reliability coefficient of physical tests in the selection of 8-9-year-old female table tennis players

TT	Test	1 st time $\overline{X}$ ± S	2 nd time $\overline{X}$ ± S	Reliability coefficient (r)	P
1	Run 30m XPC (s)	7.11±0.40	7.12±0.34	0.96	<0.01
2	Jump rope for 45 seconds (times)	81.28±6.87	80.56±6.58	0.98	<0.01
3	Throw badminton away (cm)	489.33±44.61	491.83±45.65	0.96	<0.01
4	Hit the ball against the wall for 1 minute (times)	32.50±5.38	32.61±6.09	0.94	<0.01
5	Move to pick up 21 balls × 3m (s)	77.89±6.84	78.11±6.87	0.95	<0.01

In case of the correlation coefficient $r \geq 0.8$, $P \leq 0.05$, then the test is sufficiently reliable.

In case of the correlation coefficient r 0.8, then the test is not reliable.

From Table 2 we find that all tests have $r > 0.8$ and $P < 0.01$. Thereby, all the above tests are reliable enough to select the physical strength of 08-09 year old female table tennis players in Ho Chi Minh City.

3.3.2. Verification of notification:

In order to verify the notification of the physical tests in the selection of table tennis players, we calculated the correlation coefficient between the results of the tests and the results of the tournament to rank according to Spirmen hierarchical correlation formula that obtained the results in Table 3. From the results in Table 3, we compare the hierarchical correlation coefficient rtable with the degree of freedom n – 2 and we have the following results:

Table 3. Hierarchical correlation coefficient between the tests in the selection of female table tennis players aged 08-09 with competition ranking

TT	Test	Correlation coefficient (r)	
		r	P
1	Run 30m XPC (s)	0.53	<0.05
2	Jump rope for 45 seconds (times)	0.83	<0.05
3	Throw badminton away (cm)	0.86	<0.05
4	Hit the ball against the wall for 1 minute (times)	0.86	<0.05
5	Move to pick up 21 balls × 3m (s)	0.75	<0.05

The results in Table 3 show that all tests express a strong correlation with competition performance ($r > 0.4$, $P < 0.05$). These tests are sufficiently noticeable and feasible in physical selection for female table tennis players aged 08-09 in Ho Chi Minh City.

In summary, through synthesis of documents, from the results of the interviews, verification of the reliability and the notification we have identified the physical tests in the selection of female table tennis players aged 08-09 in Ho Chi Minh City including run 30m XPC (s), throw badminton away (cm), jump rope for 45 seconds (times), hit the ball against the wall for 1 minute (times), move to pick up 21 balls × 3m (s).

In ping-pong competition, it is necessary to make quick judgments, quick reactions, quick hand swings, fast-moving directions so the professional physical strength of the table tennis players needs to have the speed of the individual movement, not cyclical, i.e. when smashing the ball needs to have the speed to swing the hand and have the appropriate angle to catch for the ball smash or when the ball comes, it is needed to have a fast body movement speed.

Ball smash act in the table tennis is due to the impact of the weight of the arm (arms and racket) and its speed of movement, of course, it must be manifested by certain strength. The strength that table tennis players need is the power of fast speed (spontaneous strength). Fast-attack fighting style attaches great importance to the force of the forearm. From the dynamitic perspective to consider the organization and placement of the muscles of the forearm, elbow bending is actually a speeding lever. Of which, the main muscle to bend elbows is the arm muscles, the musculus biceps brachii. These muscles are the retractors starting in the arm and cling to the forearm or rounding the side of the arm. If these muscles contract in outburst, it will cause the racket holding hand to move at a relatively large speed, thus make the ball smash speed increase. From that shows the choice of throwing badminton far to assess the outburst strength of table tennis players is reasonable. 12 Flexibility is a very important factor for table tennis players, the flexibility that table tennis players need is their ability to adapt in the match. It is also the ability to react quickly. The flying time of the ball comes in mid-air only 0.3 - 0.5 seconds. For a short period of time, it is necessary to judge the speed of the ball, the drop point and the swirling properties of the ball, and to rely on the position of the opponent that quickly decide the strategy. This requires players to have the capacity to adapt well. High or low flexibility is indicated by the speed at changing from one movement to another movement quickly or slowly, judging the coming ball's feature accurately or inaccurately. In the actual table tennis tournament, players need to move quickly to the right, to the left, then to the right, sometimes backward and forward to hit the ball in different positions, thus requiring players to have feet moving fast, turn quickly, reasonably and the dexterity of hands rhythmically coordinated. Another indispensable physical force in a modern table tennis player is professional endurance. Indeed, table tennis is a game of personal antagonism with a great central nervous system energy drain for consecutive days of competition. In the late stages of increasing stress, the player must have the high professional endurance to compete to the highest efficiency.

The professional endurance that the ping-pong player needs is the professional endurance with fluctuating intensity and professional tight combination between speed and flexibility. According to Khau Trung Hue and colleagues (1997), depending on the different grip of the opponent, the working density of the hand in 1 minute (hit the ball) ranged from 19 to 46 times. It shows that the intensity of movement in table tennis is often unstable. This fluctuation depends on the level of the opponent. In ping-pong competition, one day has many matches to play, the time between the matches is short, the recovery ability of table tennis players is very important, the table tennis players must have good professional endurance. On the other hand, the professional endurance of the table tennis players must be tightly

integrated from the start to the end, adapted to speed and flexibility, otherwise speed and flexibility cannot be maintained until the final match, game and score. Based on these analyzes and based on age-specific psycho physiological characteristics, the study results to choose physical tests in the selection of female table tennis players aged 8-9 are appropriate.

4. Discussion and conclusions:

The results of the study have identified five physical tests in the selection of female table tennis players aged 8-9 in Ho Chi Minh City that have enough reliability and notification including: run 30m XPC (s), throw badminton away (cm), jump rope for 45 seconds (times), hit the ball against the wall for 1 minute (times), move to pick up 21 balls × 3m (s).

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Development of Knowledge Test for Elite Female Kabaddi Players of Pune District in Maharashtra

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Abstract:

The purpose of the study was "Development of knowledge test for elite female Kabaddi players of Pune district in Maharashtra". The study is confined to the Kabaddi players of 18 to 25 years age group. The study is restricted to Pune district in Maharashtra state only. The study has been delimited to the elite female Kabaddi players. The Kabaddi players may be able to assess and understand their own knowledge-status on the game. This study may help to enhance their knowledge-status on Kabaddi in such a way so that the coaches of this game may get a readymade standard test for testing the knowledge-status of the players to whom they are going to coach. Accordingly the coaching strategy may be modified to exhibit top performance.

Keywords: Kabaddi, Knowledge test, Elite players

Introduction:

Kabaddi is an Indian originated game. This game was invented by the Indians and now it is popularly played by the people of worldwide nations. Nowadays, many competitions, in this game, are organized and the best awards are given to excellent players. In the beginning of its invention, only the male players were participated in this game "Kabaddi". However, in recent days this game is popular for the women players. Many literatures indicate that along with excellent fitness and skills, a Kabaddi player must possess the in-depth knowledge about this game. Amazingly, no such "Knowledge test" exclusively for elite female Kabaddi players are so far available.

Objectives of the Study:

1. To develop and standardize a "Knowledge test on Kabaddi" especially for the elite Kabaddi players.
2. To establish the norms, reliability and validity of the "Knowledge test on Kabaddi".
3. To assess the status of knowledge on "Kabaddi game" of the elite Kabaddi players by administering the newly developed test.

Research Hypothesis:

On the basis of the current literature the research Scholar hypothesized that:

- H1: The newly developed "Knowledge test on Kabaddi" can measure the knowledge-status on the game of the elite of Kabaddi players with acceptable reliability and validity.
- H2: The norms of the newly developed "Knowledge test on Kabaddi" are gradable.

Methodology:

In methodology, this study was conducted single handedly within a limited time and resource and therefore, the researcher has confined his research to the elite female Kabaddi players only (n=160), age ranged from 18 to 25 yrs., belonging to Pune district (Maharashtra) especially those who are experienced as well as efficiently playing at different levels of competitions.

A questionnaire i.e., "Knowledge test for elite Kabaddi players" was developed and standardized considering three phases as follows:

- Preliminary phase
- Middle phase; and
- Final phase

Major Dimensions of Knowledge Test:

Based on the review of literature on development of Knowledge for other sports, his personal experience in Kabaddi and suggestion from the research guide, the main dimensions representing the "knowledge of the Kabaddi players were conceived as follows:

Code	Dimension
A	Prerequisite knowledge
B	Domain knowledge
C	Integrative knowledge
D	Metacognitive knowledge
E	Knowledge of skills

The researcher, after first and second try-outs, could finalize **72 items or questions representing the above mentioned 5 dimensions** (i.e., 12 questions or items in each dimension) in the Knowledge Test.

Statistical Design:

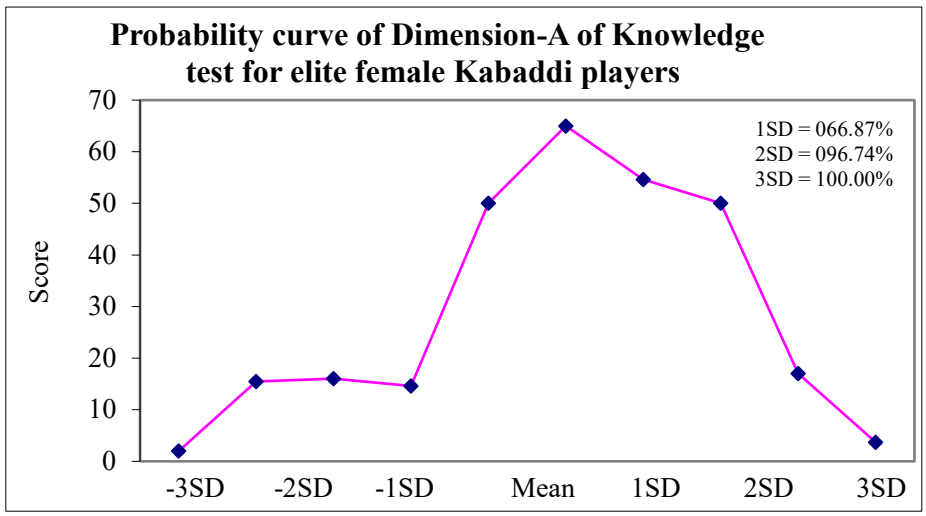
For development and standardization of the "Knowledge test" on Kabaddi, following statistical methods were employed:

- Descriptive statistical analysis was used to process the data.
- Item analysis (item difficulty and item discrimination) was done to identify, discriminate and remove the difficult items (questions) from the Knowledge test.
- Further, factor analysis employed to remove the repeated questions or items. This could improve the test accuracy.
- Test-retest and split half reliability coefficients were determined by using Pearson's Product moment correlation Along with this, Construct validity of the newly developed "Knowledge test" has been determined using item-total correlation.
- Percentile norms were employed to determine the norms of the test and the norms was graded by using Likert's five points scale.

Results on Establishing Norms of Knowledge Test for Elite Kabaddi Players:

A) Result on the norms of Dimension-A (Knowledge test)

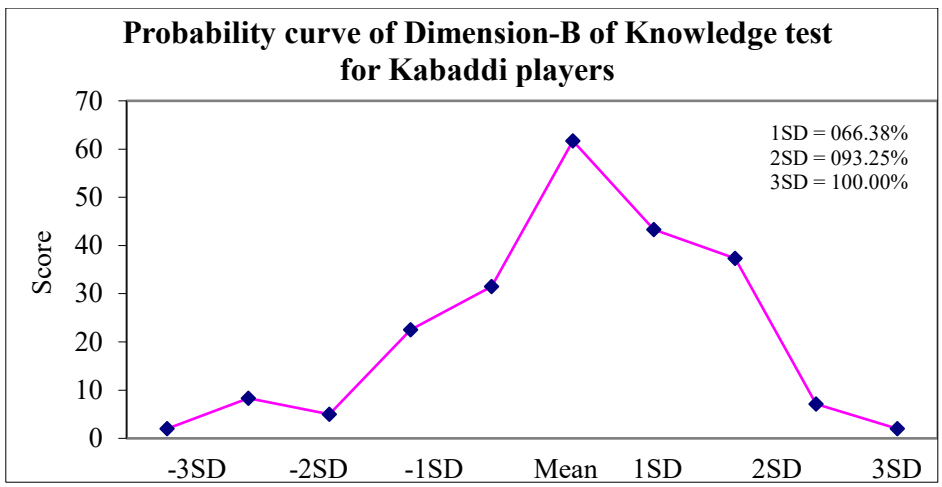
Graph 1



The above result was, further, substantiated with percentage-wise distribution of scores, which revealed that 68.47% of scores in this test-item were distributed within 1σ distance area; 96.38% of scores were within 2σ distance area; and 100% scores were within 3σ distance area respectively. Thus the percentages of distribution also showed that the curve representing the scores on this dimension is normal.

B) Result on the norms of Dimension-B (Knowledge test)

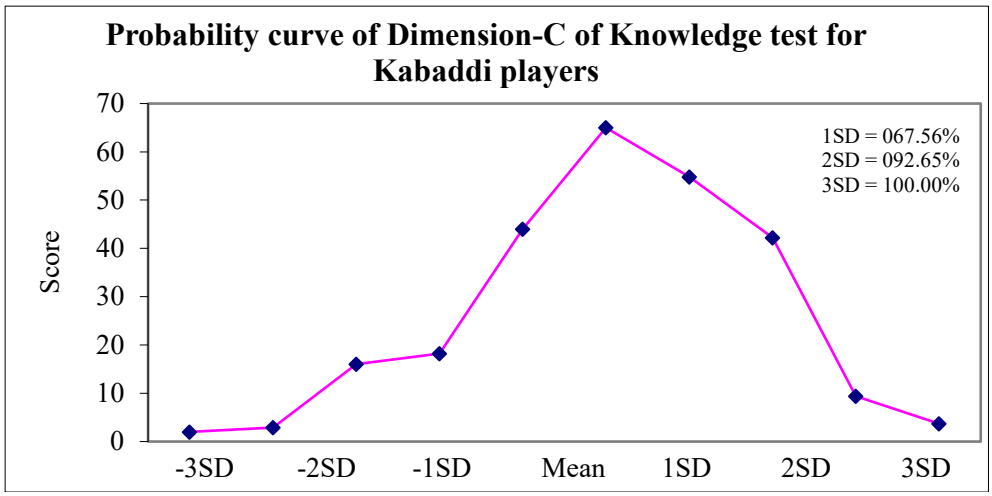
Graph 2



The above result was, further, substantiated with percentage-wise distribution of scores, which revealed that 67.35% of scores in this test-item were distributed within 1σ distance area; 96.79% of scores were within 2σ distance area; and 100% scores were within 3σ distance area respectively. Thus the percentages of distribution also showed that the curve representing the scores on this dimension is normal.

C) Result on the norms of Dimension-C (Knowledge test)

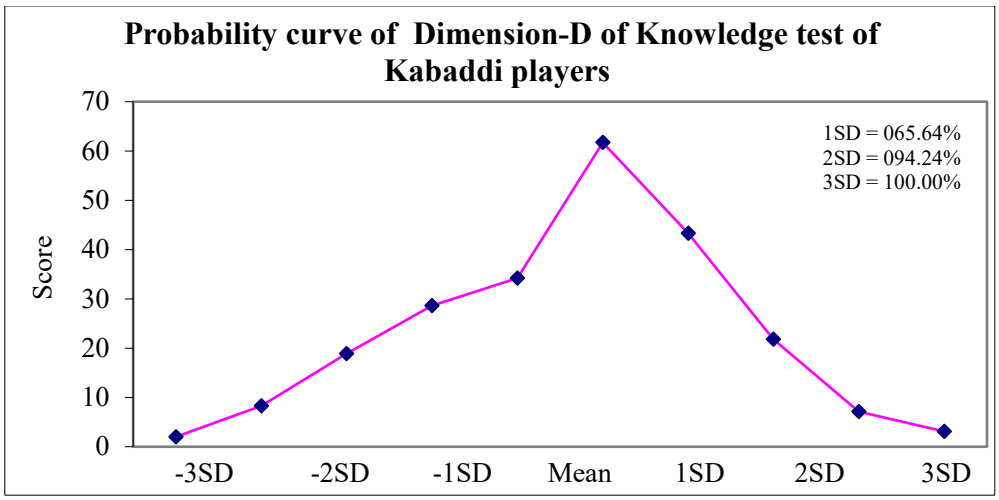
Graph 3



The above result was, further, substantiated with percentage-wise distribution of scores, which revealed that 66.75% of scores in this test-item were distributed within 1σ distance area; 96.98% of scores were within 2σ distance area; and 100% scores were within 3σ distance area respectively. Thus the percentages of distribution also showed that the curve representing the scores on this dimension is normal.

D) Result on the norms of Dimension-D (Knowledge test)

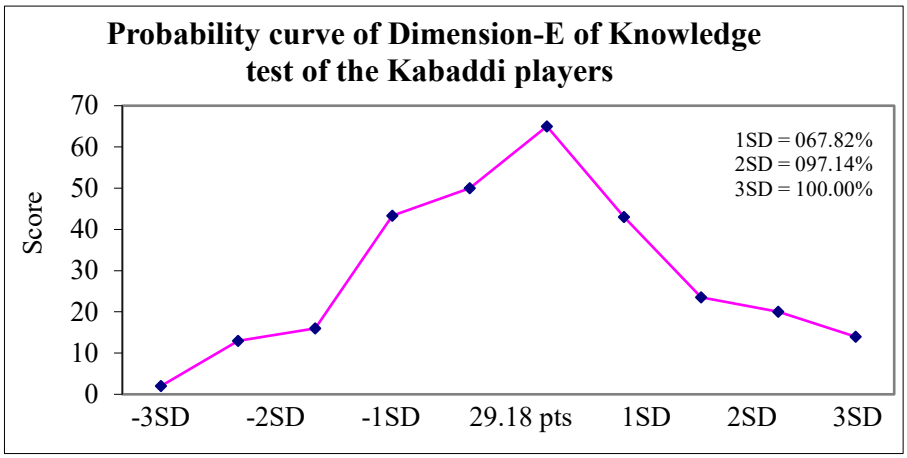
Graph 4



The above result was, further, substantiated with percentage-wise distribution of scores, which revealed that 68.43% of scores in this test-item were distributed within 1σ distance area; 97.54% of scores were within 2σ distance area; and 100% scores were within 3σ distance area respectively. Thus the percentages of distribution also showed that the curve representing the scores on this dimension is normal.

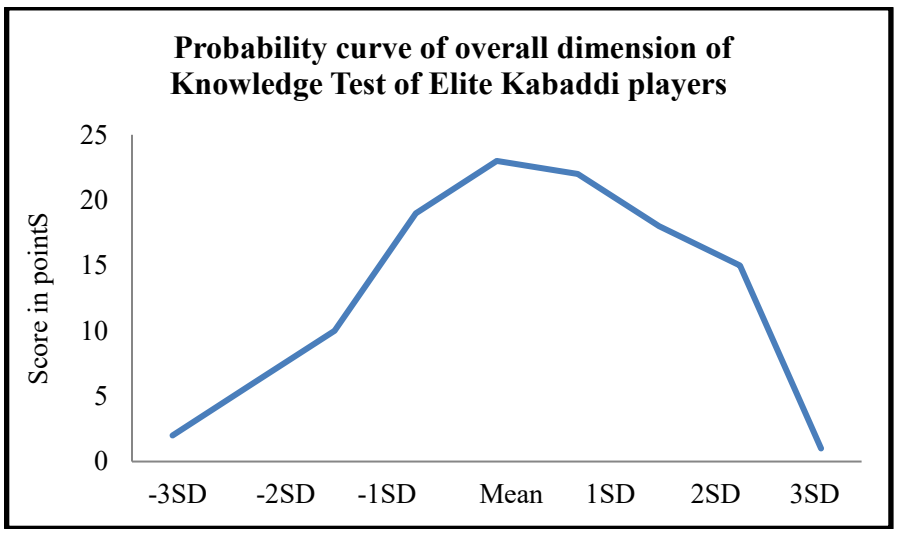
E) Result on the norms of Dimension-E (Knowledge test)

Graph 5



The above result was, further, substantiated with percentage-wise distribution of scores, which revealed that 67.56% of scores in this test-item were distributed within 1σ distance area; 96.89% of scores were within 2σ distance area; and 100% scores were within 3σ distance area respectively. Thus the percentages of distribution also showed that the curve representing the scores on this dimension is normal.

Result on the norms of over Knowledge Test of Elite female Kabaddi Players:



The result was, further, confirmed by calculation of percentage-wise distribution of scores, which revealed that 68.35% of scores in the overall achieve score in the Knowledge test were distributed within 1σ distance area; 98.79% of scores were within 2σ distance area; and 100% scores were within 3σ distance area respectively. Thus, overall result showed that the curve representing the scores is normal.

Norms-wise Grades of the Knowledge Test for elite female Kabaddi players:

Based on the result of item-analysis and factor analysis, the normalized achievement scores of the Knowledge test are gradable. However, Likert's five point scale was considered to grade the individual score. This could classify the knowledge of a elite female Kabaddi player whether her knowledge level in the game is poor, fair, average, good or excellent respectively (Table 1).

Table 1. Achievement Grades of the raw scores obtained in the Knowledge test by the elite female Kabaddi players

Grades	Raw Scores in Knowledge test (points)
Excellent	55 & above
Good	44.50-54.99
Average	25.75-44.49
Fair	21.00-25.74
Poor	20.00 & below

Discussion of Results:

In this study, a specific Knowledge test for elite female Kabaddi players was standardized. The researcher could follow standard steps and procedure for test standardization process.

The statistical design followed in this investigation is in agreement with the earlier studies Thus; the Knowledge test for female Kabaddi players is reliable and valid. Therefore, the hypothesis – "H1: The newly developed "Knowledge test on Kabaddi" can measure the knowledge-status on the game of the elite of Kabaddi players with acceptable reliability and validity" as formulated in this study has been sustained. Thus, the players' achievement score in the Knowledge test can authentically be graded and can assess the level of players' knowledge in Kabaddi with accepted level of reliability and validity.

Finding out the norms cannot be useful until the norms are graded scientifically. Likert's five point scale was employed to divide the norms into 5 grades. This grade can identify the elite female Kabaddi players, who possess knowledge Excellent, Good, Average, Fair and Poor level of knowledge of the game. Similar process of grading the norms was followed by earlier investigators this, in turn, enhances the authenticity of the grading system followed by the present investigator. Thus, the hypothesis – "H2: The norms of the newly developed "Knowledge test on Kabaddi" are gradable" has been retained statistically.

To summarize, the "Knowledge test" as standardized in this investigation revealed that the test consisted of 50 items with five alternative multiple choice answers, especially appropriate for the elite female Kabaddi players. The test norms are found gradable and the zest is sufficiently reliable and valid for the elite female Kabaddi players.

Conclusions:

On the basis of the above findings, within limitations, the present investigation warrants the following conclusions:

- The newly standardized "Knowledge test on Kabaddi" can accurately and authentically measure the knowledge-status of the elite female Kabaddi players with acceptable reliability and validity.
- The established norms of this "Knowledge test", in this investigation, can grade authentically the knowledge-status (e.g., excellent, good, average, fair and poor) of the elite female Kabaddi players.

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Website Security: HTTPS

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Abstract:

HTTP is hypertext transfer protocol. It is protocol which is used to communicate to client and server over website. HTTP is connectionless protocol which means it's not secured and to make secure communication on website between client and server. To make secure communication over internet HTTPS (Hypertext Transfer Protocol Secure) came into existence. Since 2014 Google recommended website should be converted into https from http for security purpose.Security is main concern when we talk about web. There should be some Authenticity, Integration for website which should stop unauthorized people to access content on websites and on other side if anybody getting download anything from internet should be virus free. It's like keeping lock on important content to keep them safe same way we have to make website secure to stop unauthorized access. This emphasis on to making website secure by converting HTTP into HTTPS.

Introduction:

HTTP is a protocol which allows communicating with other websites mostly over port 80, which uses TCP (Transmission Control Protocol). Simply it is used by client and or server as a protocol to communicate with each other websites. Generally request is sent by client as a message to a HTTP server for TCP handshaking it hosts a website and after this the server replies to the client as a response message.

HTTP:

It stands for Hypertext Transfer Protocol. It allows us to communicate between different systems. It is normally used for transferring data between web server and browser. It mostly transfers data from a web server to browser to allow to user to access web page. It is the protocol which was initially used for all websites.
e.g.: http://www.seopressor.com/blog/

HTTPS:

It stands for Hypertext Transfer Protocol Secure. It refers to how information is communicated between servers and browsers when the information is searched by the user. HTTPS uses encrypted data. This main problem of HTTP is it does not uses encrypted data which flows from server to browser this means information can be easily stolen. To get rid of this problem HTTPS uses SSL(Secure Sockets Layer) certificate. This creates the secure connection between the server and the browser, which protects the sensitive information from being stolen which is transferred between the server and the browser.
e.g.: https://www.seopressor.com/blog/

SSL:

It stands for Secure Sockets Layer, It is the standard technology to keep the internet connection secure and safeguard any sensitive information which is being sent or transferred between two systems, and also preventing from hackers from reading and modifying the

information which is transferred. It ensures that the data which transferred between two systems is impossible to read or access as it uses encryption algorithm to transmit the data and also preventing from hackers to access it over the connection.

Secure Sockets Layer (SSL)

Digital Signature Certificates:

This authenticates the identity electronically as it provides high level of security for online transactions by ensuring the complete privacy for the information exchanged on internet using Digital Signature Certificates. This certificate is used to encrypt the information so that only specific person can read the data.

Keywords: HTTP, HTTPS, SSL, Digital Signature Certificates.

Research Methodology:

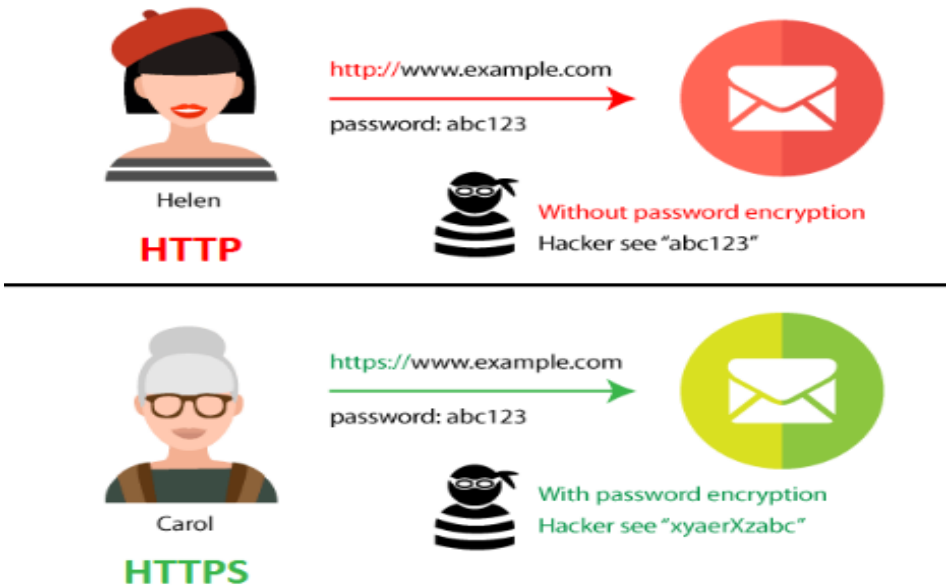
Secondary Data has been collected from different websites, Research papers and journals to make difference of http and https.

Objectives:

- To understand the difference between http and https.
- To awareness on how https is more secured than http.
- To understand the benefits of SSL Certificates.

Difference Between HTTP and HTTPS:

The main and most important difference between these two is SSL Certificate. HTTPS is the protocol with security, which is very much important for websites those take sensitive data from their users like credit card details and password etc.



HTTP VS HTTPS

In the above image-2 it is seen clearly that HTTPS is secure which encrypts the information over internet. The SSL Certificate make it secure by encrypting the information that is supplied by user over the websites, this actually translates the data into the code (Encrypted code). This prevents the data even if someone tries to steal the data which is being communicated over the internet, due to encryption it would not be able to understand.

HTTPS is also secured with TLS (Transport Layer Security) with extra layer of Security, Which helps in preventing the data from being modified and corrupted, this proves that users is communicating with intended websites.

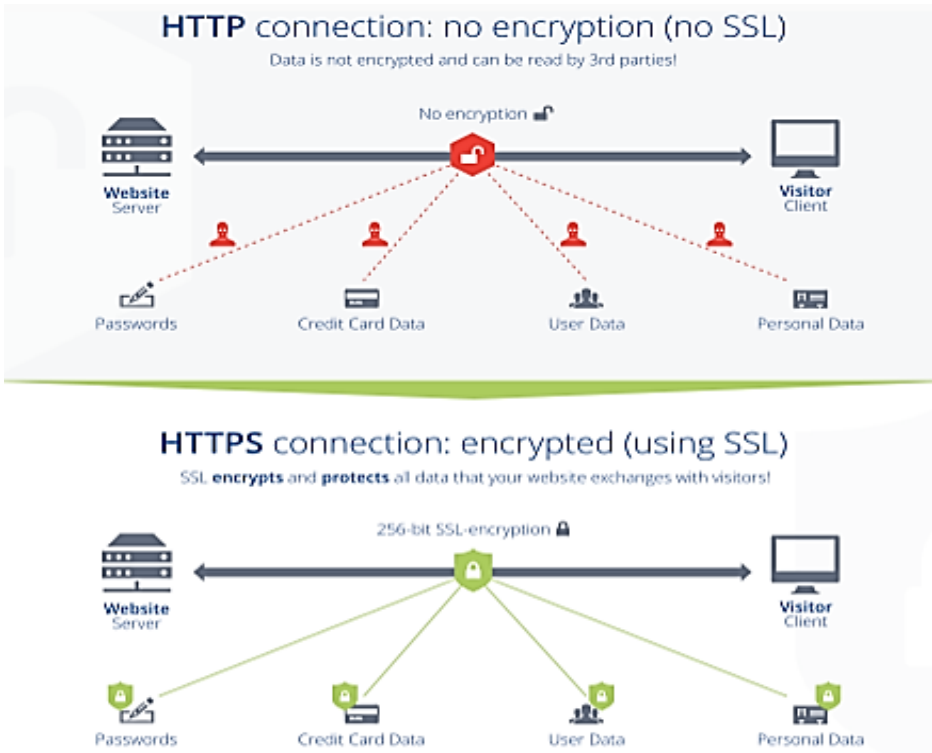
The difference between HTTP and HTTPS is found the SSL certificate in HTTPS which makes it secure. HTTP doesn't have SSL and HTTPS has SSL. HTTPS is more secure with TLS than HTTP.

Only security is not the benefit for the HTTPS but transforming from HTTP to HTTPS can increase your SEO (Search Engine Optimization), as Google has announced that websites switched to HTTPS would receive the ranking which can lead your website ranking increase over the time.

SEO Ranking

Security data of the websites that is referred to you is saved by HTTPS but with HTTP the referral source will be shown as "direct traffic", which gives the main benefits on SEO ranking.

This is way for building trust with visitors as HTTPS encrypts the communication which provides protection to the visitors on their sensitive information and credentials. HTTPS protects the website from security ruptures.



Building Trust of Visitors

In the above figure img-4 it is understood that using HTTP the data is not encrypted which means there is security for the visitors the data can be easily accessed by any visitor there no security over communication but about HTTPS the connection is encrypted using SSL certificate which ensures that data is read or modified by verified person, there is security using credit card and other personal details.

The main purpose to install SSL certificate on your server and if browser is connected to it, the presence of the SSL certificate activates the SSL or TLS protocol to encrypt the information sent between the server and the browser.

Findings:

1. HTTP is not secured as it uses browser's address http:// whereas HTTPS is secure as it uses https:// in URL. S in http indicates secure.
2. HTTPS requires SSL certificates whereas HTTP doesn't require SSL certifications.
3. HTTP is using applications layer whereas HTTPS works on Transport layer.
4. HTTP is connectionless protocol and HTTPS is connection oriented protocol.
5. HTTP doesn't require domain validation but HTTPS requires domain validation and also some certificates for valid documentations.

6. HTTP doesn't provide encrypted data whereas HTTPS encrypts the data before sending on web.
7. HTTPS is building trust on visitors whereas HTTP doesn't.
8. HTTPS not only provide security but also have many benefits like providing SEO ranking, increasing trust of visitors and also providing eligibility to create AMP (Accelerated Mobile Pages).
9. To Covert HTTP to HTTPS need to purchase SSL certificate.
10. Digital Signature Certificates provides the security by authenticating the identity electronically.

Conclusion:

There are number of reasons to make our website secure. Not only to protect the sensitive information but also making visitors comfortable to browse the data over internet. It is highly recommended to switch from HTTP to HTTPS for website security and it is recommended that not access the websites using HTTP that may be having harmful content which can steal our personal information. HTTPS has become a standard protocol to encrypt the information between client and server the sensitive information is encrypted when it is transferred from server to browser. Google is also offering SEO ranking list for the users who are using HTTPS sites. SSL certificate is playing a vital role for providing security for business and making online transaction successful.There is a need to purchase Digital Signature Certificates for authenticity and data integrity.

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A Study of Pre & Post Competition Anxiety Level of Intercollegiate Kabaddi Players

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Abstract:

In India Kabaddi is a popular team sport, perfection in kabaddi game required skill, power and conflates the characteristics of wrestling and rugby. Competitive state anxiety occurs when the demands of the sport are greater than athletes perceived abilities. While a bit of anxiety before a game gives us the push we need to tackle challenges, uncontrolled anxiety can wreak havoc on your performance on the field, So the objective of the researcher was to study pre & post-competition anxiety level of intercollegiate kabaddi players.

Pretest and post-competition test are conducted for 30 intercollegiate level kabaddi players were tested through Sports Competition Anxiety Test (SCAT). For testing the null Hypothesis (significance of the difference between means) the t-test have been used by the investigator. The t value was not significant at 0.01 level of confidence which indicates that there was no significant difference between the two groups, so that hypothesis, *"There is no significant difference in mean scores of pre-competition anxiety and post-competition anxiety of Mumbai University Kabaddi players" is accepted*.

Introduction:

Kabaddi is a contact team sport played between two teams of seven players each side in the court. Points are scored by the raider in his entry in opponents court, while the opposing team gets a point for stopping the raider in own court.

Anxiety before or during kabaddi match can hinder kabaddi players performance as an athlete. The coordinated movement required by kabaddi match becomes increasingly difficult when their body is in a tense state. Physical arousal at a certain level is helpful and prepares us for competition. But when the physical symptoms of anxiety are too great, they may seriously interfere with the player's ability to compete. Similarly, a certain amount of worry about how they are performing can be helpful in a match, but severe cognitive signs of anxiety such as negative thought patterns and expectations of failure can bring about a self-fulfilling prophecy. If there is a substantial difference between how they perform during practice and how they do during kabaddi match, anxiety may be affecting their performance.

Methodology:

The descriptive survey research done on a group of 30 intercollegiate level kabaddi players between 18 to 28 years (15 men and 15women) were selected from various colleges affiliated to University of Mumbai, Maharashtra State through purposive sampling technique.Sports competition anxiety test questionnaire developed by Rainer Martens in 1977was used in this study to measure sports competition anxiety.

The SCAT questionnaire contains fifteen items. The subject was asked to indicate how they generally felt in competitive sports situation and responded to each item using a three-

point ordinal scale (Rarely, sometimes, or often) Out of fifteen items, only ten of the items assess sports competitive trait anxiety proneness and used for scoring purpose.The minimum score of SCAT is 10 (low competitive anxiety) and the maximum score is 30 (high competitive anxiety). The subjects were assigned to the following category according to the scores obtained by them:

Raw/Mean score	Classification
Less than 17	Low Anxiety
17-24	Moderate Anxiety
More than 24	High Anxiety

The response obtained from the subjects on each statement of sports competition anxiety questionnaires were subjected to statistical keeping in view the purpose of the study.

Analysis of the Data:

The data of the present study were collected on 30 intercollegiate level kabaddi players and out of which 15 Male and 15 Females, their ages will be ranging 18 to 28 years. For testing the null Hypothesis (significance of the difference between means) the t-test have been used by the investigator.

Table 1. Descriptive Statistics of the pre and post-competition Anxiety test of Male Kabaddi Players

Groups	Mean	SD	df	"t" value	Significance
Pre competition anxiety	19.86	1.68	14	1.43	P>0.01
Post competition anxiety	18.73	2.08			

Significance at 0.01 level, where df = 14, 't' = 2.62

Table 1 reveals that the mean scores of pre-competition and post-competition anxiety of university Kabaddi male players are 19.86 and 18.73. The t value is 1.43 which is not significant at 0.01 level of confidence which indicates that there is no significant difference between the two groups. The same is also presented graphically.

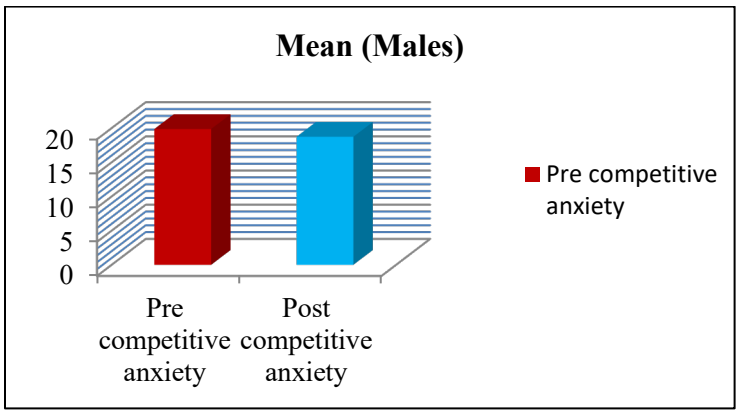

Figure 1. Comparison of Mean score between pre and post-competition anxiety test of male kabaddi players

The t value was not found significant at 0.01 level of confidence which indicates that there was no significant difference between the two groups, so that hypothesis, *"There is no significant difference in mean scores of pre-competition anxiety and post-competition anxiety of Mumbai University Male Kabaddi players" is accepted.*

Table 2. Descriptive Statistic of the pre and post-competition Anxiety test of Female Kabaddi Players

Groups	Mean	SD	df	"t" value	Significance
Pre competition anxiety	19.26	3.63	14	1.38	P>0.01
Post competition anxiety	17.4	3.15			

Significance at 0.01 level, where df = 14, 't' = 2.62

Table 2 reveals that the mean scores of pre-competition and post-competition anxiety of university Kabaddi female players are 19.26 and 17.4 and the't' value is 1.38 which is not significant at 0.01 level of confidence which indicates that there is no significant difference between the two groups. The same is also presented graphically.

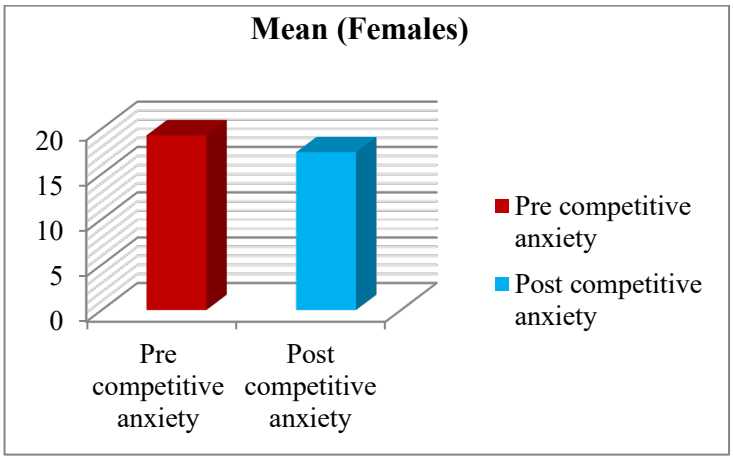

Figure 2. Comparison of Mean score between pre and post-competition anxiety test of female kabaddi players

The t value was not found significant at 0.01 level of confidence which indicates that there was no significant difference between the two groups, so that hypothesis, *"There is no significant difference in mean scores of pre-competition anxiety and post-competition anxiety of Mumbai University Female Kabaddi players" is accepted.*

Table 3. Descriptive Statistics of the pre and post-competition Anxiety of Kabaddi Players

Groups	Mean	SD	df	"t" value	Significance
Pre competition anxiety	19.26	2.80	29	1.94	P>0.01
Post competition anxiety	17.4	2.71			

Significance at 0.01 level, where df = 14, 't' = 2.46

Table 3 reveals that the mean scores of pre-competition and post-competition anxiety of university Kabaddi players are 19.26 and 17.4 and 't' value is 1.94 which is not significant at 0.01 level of confidence which indicates that there is no significant difference between the two groups. The same is also presented graphically.

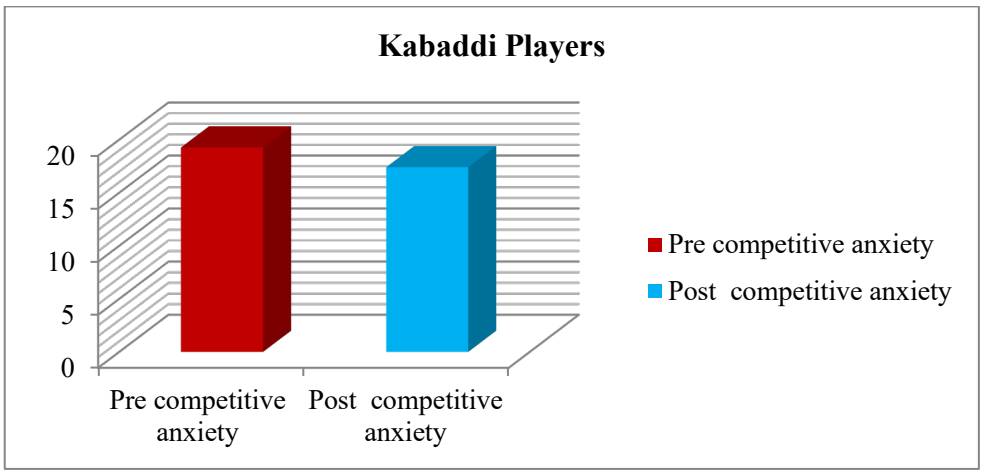

Figure 3. Comparison of Mean score between pre and post-competition anxiety test of kabaddi players

The t value was not found significant at 0.01 level of confidence which indicates that there was no significant difference between the two groups, so that hypothesis, *"There is no significant difference in mean scores of pre-competition anxiety and post-competition anxiety of Mumbai University Kabaddi players" is accepted.*

Conclusion:

The result concludes that

- There was a no significant difference in mean scores of pre-competition anxiety and post-competition anxiety of Mumbai University Male Kabaddi players.
- There was a no significant difference in mean scores of pre-competition anxiety and post-competition anxiety of Mumbai University Female Kabaddi players.
- There was a no significant difference between Pre-competition anxiety and Post Competition anxiety of Mumbai University Kabaddi players.

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Yoga for Sports Performance Enhancement: Trends and Practices

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Abstract:

The ancient art of yoga has become very popular ever since UN general assembly declared June 21st to be celebrated as International Day of Yoga across the world. Indian Government has started several schemes and programs to popularize yoga through AYUSH department, CCRYS, CCRYN and various other schemes. NCERT, NIOS and CBSE has also contributed in one academic form or the other to supplement to the cause of yoga. Sports today have become highly specialized field with a lot of scientific inputs and technological advances but human performance is still the prime concern. Lifestyle disorders due to stress, anxiety, tension have increased manifold and sports arena is also not devoid of stresses and strains today with cut throat competition at the elite level like Olympics, Asian games, Commonwealth Games etc. Indian athletes are required not only to perform to the best of their abilities but also we need to constantly upgrade ourselves and identify new and budding talent. Yoga offers a promising means to incorporate in sports training for increasing, mental abilities like focus, concentration, coping with anxiety. Yoga is safe for people of all ages and for males and females and is very cost-effective method of developing flexibility, functional strength and developing better reaction to frustration, self esteem. Sports persons from the sports like Archery, Shooting, Golf etc. which are considered as 90% mental sports can gain a lot of insights from yoga training.

Keywords: Yoga, Cross Training, fitness, Psycho-physiology

Introduction:

Yoga asana has become the latest cross-training tool to enhance athletic performance and reduce the risk of injury among a particular population besides other allied sports sciences like Anthropometry, Sports Physiotherapy, Massage therapy, etc. Due to lack of awareness and lesser availability of qualified and competent yoga trainers, just a few years ago, fitness enthusiasts had few options if they wanted to incorporate yoga into their training schedule. Yoga is now a mainstay as a preventive and health promotion tool on the program schedules of most health clubs, personal training studios, and corporate fitness centers. Even as army trainers have recognized yoga as a component of "Boot Camps." A boot camp is a rigorous training program specially designed for the young recruits that involve very high-intensity exercises under inhuman conditions of forests and deserts to improve soldiers' physical and mental tolerance level to survive during the war. Unlike many other forms of training, the practice of yoga may not give instant results. Still, in most cases, it does unfold over time to reveal many layers of physical and emotional benefits. More and more people are discovering how yoga can be used to improve sports performance—from increasing focus, flexibility, and balance to preventing common injuries and improving functional strength. The training program for young athletes can be planned by integrating a few static yoga poses into an existing fitness schedule.

The Eight Limbs of Yoga:

Yoga is composed of many layers, all of which can be used as a powerful technique to enhance athletic performance. These layers are known as the eightfold disciplines or the eight "limbs" of yoga. These eight limbs form the main principles of yoga, as follows:

- Yama means universal ethics.
- Niyama means personal ethics.
- Asana refers to posture.
- Pranayama means breath regulation.
- Pratyahara refers to the withdrawal of the senses.
- Dharana refers to inner focus or concentration.
- Dhyana means meditation or observation, mindful awareness.
- Samadhi refers to absolute enlightenment or "Nirvana."

Athletes can benefit from all these principles with lesser or greater importance to one limb over the other that can be specific to the athlete's objective in enhancing athletic performance. Fitness professionals teaching yoga generally focus on asana (postures for stretching), pranayama (breathing control), Dharana (inner focus), and dhyana (relaxation and meditation).

a. Yoga for mental focus:

Focus and concentration are different properties of attention, and attention is a subset of awareness. Awareness is the state of absolute relaxation or restfulness. That means it involves zero energy. Here the observer is just aware that the subject exists. Focus is the observer's incident touching the issue subtly, but it's not dense, so you can't see it in visuals or words. If you be in this state for a minute and later, you may get some feeling if asked, but you cannot explain that experience since it has not taken any form.

Concentration, on the other hand, involves energy, just like physical exercise. When you concentrate, your energy flows toward the subject of your focus because of it; the focus is now getting forms. Forms of words, images, dreams, visualization, reaction. The more you concentrate, the more dense, but remember that it also exhausts us since concentration involved energy.

For example, when an archer or a shooter is shooting, his/her eyes still see & record the whole arena, the surroundings, the crowd, the sounds, the wind, and the temperature. Always, the shooter cannot remember all because his/her focus was only on the target. The more he/she concentrates his/her energy on preparing for the game like situation in performing the task at hand, the longer he/she will remember it. He/she can translate the same practice into actual shooting performance. The shooter is exhibiting inner focus or Dharana. Now imagine that at the crucial moment of taking a shot, a gale-force gust of wind picks up, a fan screams from the stands, or a car crashes in the parking lot. If the shooter can completely withdraw his attention from these potential distractions and remain steadfast in his approach, he will be revealing pratyahara.

The practice of yoga has evolved over thousands of years. Yogi's used postures to prepare their bodies for meditation practice—much as an athlete would qualify for a sports competition. The poses serve as an initial preparation, as a means to discipline the body, to pave the way for mental focus in the spiritual quest for "enlightenment" as the ultimate aim. This process of attaining spiritual enlightenment is, in fact, the paramount objective of the

practice of "Hatha yoga," which is one of the various means and methods of achieving mastery over mind, body, and soul, primarily practiced and preferred method of practice done by sports persons generally.

Exercise adherence is crucial to stay focused, and that can benefit from the type of balance that can be developed through yoga asanas, followed by meditation sessions involving resolve. This is especially true when athletes have pushed their bodies to the maximum, resulting in weakness or injury, and feel like quitting due to pain. Progressive muscle relaxation techniques integrated into yoga sessions during such crucial phases can help maintain consistency and improve internal commitment.

b. Yoga for flexibility:

Yoga stretching postures (both static and dynamic) performed with or without props, breathing techniques that involve slow, rhythmic, and deep breathing exercises, and "yoga Nidra" can help rebalance, strengthen and restore tired muscles, joints, and ligaments. Through this restoration process, athletes can maintain peak performance for a longer time and their career longevity besides developing an emotional balance when they lose during a competition. Balancing the mind, body, and spirit is the primary philosophical principle of yoga that can be tailor-made to develop strong cues that can work even during competition.

Yoga helps athletes in sports yogic conditioning by elongating the tight, shortened, tired muscles and bringing calm and clarity to the mind. Some athletes practice yoga to rehabilitate from an injury and to regain flexibility, stability, and strength.

Yoga practice teaches an athlete to respect their body's strengths and limitations by making them more sensitive to exerting before it causes injury. This knowledge is essential to preventing acute and chronic sports injuries. Asana is a powerful biofeedback tool that can help athletes develop better body awareness like heart rate, respiration rate, sweating, etc. Listening to the body and responding to its messages is a way to honor the body and to push it over the edge in a progressive manner without getting overtrained or injured.

Many amateur triathletes in the USA, who often suffer from various sports-related injuries, use yoga-based rehabilitation programs successfully. Many of the triathletes have confessed that after yoga class, they feel much more focused and grounded, which helps me in their training.

c. Yoga for energy continuum:

Breathing is the essence of energy supply that plays an essential role in carbohydrate, protein, and fat metabolism. Many endurance and power athletes concentrate on improving their breathing. Pranayama proponents say slow, steady, conscious breath increases blood oxygen flow, elongates the inter-costal muscles, and allows the body to engage in more stressful work without a degenerative emergency response—all effects that can help reduce fatigue while performing at peak intensity. Anulom-vilom, bhastrika, seetali, seetakari pranayam are very useful for improving lung capacity that has been shown to improve in various random trial studies among even the fittest of athletes that shows that yoga can help the athlete and scientists explore what remains unexplored.

Hatha yoga includes different yoga styles, such as Anusara, Ashtanga vinyasa (sometimes called "power yoga"), and Iyengar. These styles are powerful, dynamic, alignment-oriented types of yoga that can work well for general fitness and sport adaptation.

d. Yoga as a conditioning method:

Generally, athletes are accustomed to running, swimming, calisthenics, plyometrics, and various other training and conditioning forms. Most athletes are now doing game and event-specific conditioning in a particular way, usually by isolating specific muscle groups to increase the game-related intensity and frequency of the training regimen. On the other hand, yoga is based on integrating the body and mind as a whole and emphasizes the quality of balance and movement but not the technique directly and thus supplements learning of the method efficiently. The holistic approach of yoga thus can reveal weaknesses and imbalances that may never have been exposed before. This can surprise some athletes who think they are in tune with their bodies because they get to know the neuromuscular pathways that open up with frequent systematic and scientific training with integrated yoga.

While preparing young and adolescent athletes, yoga postures can be an altogether potent component in an athlete's growth spurt when body image, self-esteem, and other psychological issues occur simultaneously. Becoming more aware of the body's restraints is what niyama of Ashtanga yoga focuses on that teaches patience, tolerance and the process teaches respect for one's limitations. An athlete progresses from concentrating on how many reps or laps they can do in a single training session to taking the time to learn each pose, along with its respective function, will likely present new challenges for the young athletes to understand and realize the muscle contraction while doing various mindful bends and twists. They will begin to appreciate their hormonal changes and body image as a whole and that the movement's quality determines the poses' effectiveness. Though an inactive person might find the workout intensity of yoga as low to moderate, an active sportsperson needs to gradually increase the amount of time that he/she wishes to devote to yoga during training, transition, and competition phases. About 10 minutes of basic yoga postures as a warm-up session followed by breathing exercise would create enough energy to go for 45 minutes of specific workout in a gym, a run, or some other high-intensity workout progress until these poses. Breathing exercises constitute roughly half of the training sessions but as per the adaptability of suitability. It is important to reduce the yoga workload when nearing competition as specific training would be more beneficial for optimum performance. It has been seen better to perform the poses either during the warm-up or after the more strenuous portion of the workout when the muscles and other body tissues are more receptive to stretching. The static stretch and strengthening pose for all muscles, including the deep stabilizers, heighten body awareness, or proprioception that, in turn, reduces stress and counterbalances the repetitive actions that are performed in their sport.

Running sometimes can lead to minor injury or overuse injury to the muscles and tendons of the legs, feet, hips, and low back. One of the essential yoga poses for runners is virabhadrasana. Its variations stretch many muscles, including the hip flexors, the gluteals, and the psoas, low-back, and groin muscles. This lunging pose lengthens the Achilles tendons and soleus muscles and deeply stretches the hamstrings when combined with parvatsana (hip raise with hands and feet on the ground. Various twisting asanas like markat asana, Ardha matsendra asana, vakrasana, hip openers like badh padmasana, and kapotasana are useful for tennis players and golfers, and archers.

It is worth noting that traditional yoga has undergone many changes and a number of variations of what is considered yoga to adapt to Western tastes and preferences. This is why there are combinations of yoga combined with weight training or yoga, combined with cardio to benefit yoga and exercise.

Here are some examples of yoga types that are similar to exercise on certain levels:

- Bikram Yoga (hot yoga)– Bikram Chaudhary (born in 1944) from Kolkata is the exponent of this type of yoga, which became very popular in the 1970s. Bikram yoga is performed in a heated room to up to 40 degrees Celsius with 40 percent humidity. Twenty-six sets of yoga postures are performed in this room that can feel very strenuous.
- Vinyasa – It is good for those interested in doing High-Intensity Interval Training (HIIT). The postures in this are performed in a dance-like fashion, one after the other without any break while moving smoothly from one to the next pose. This continuous movement makes it attractive to runners, swimmers, and other endurance athletes.
- Ashtanga Vinyasa Yoga is made up of six series (Primary, Intermediate, and four Advanced Series), each of which has a set order of asanas. Each of the six series begins with one set of Surya Namaskara (Sun Salutations) that makes it one set.
- Kundalini – Kundalini is a physically and mentally very challenging type of yoga that requires repetitive physical exercises to be performed along with intense breathing. It also involves meditating, singing, and chanting mantras.
- Iyengar – While not as physically demanding as the other types of yoga in this list, Iyengar yoga uses props like harnesses, straps, incline boards, wall bars, and soft blocks. Due to this nature, it is sometimes referred to as "furniture yoga." Iyengar yoga is similar to exercise in that it requires some form of supporting equipment and helps to perform the advance poses with ease and better control.
- Ramdev – Baba Ramdev has opened a training and research-oriented University at Haridwar, Uttarakhand and caters to the yoga teacher training, Naturopathy, Ayurveda integrated science and art of living life. The practical classes are primarily based on little warm-up exercises (Sukshma Vyayama) followed by general well-being yoga postures. Then specific yoga postures with lifestyle management tips and light bhajans make the classes more lively and interactive.

Conclusion:

Depending on their goals and personality types and according to the training phase (meso, micro, or macro), athletes may prefer one form of yoga. For example, some athletes may prefer a style of yoga that emphasizes holding postures for longer durations, thereby improving upon isometric muscle contraction, while others may prefer a schedule for beginners focusing on optimal body alignment. Masters level athletes may be focusing more on spiritual aspects of yoga and to remain free from back bone-related disorders, blood pressure management, etc. In contrast, others may relate more to a style that emphasizes the physical component that helps them gain more core strength and hip flexibility. Women and injured might be seeking a gentler SAHAJ yoga style that focuses on aesthetics while doing stretching poses for functional strength. Even if someone is clueless about what to achieve, they might get some insight into setting some SMART goals for themselves.

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