

PREDATORY POTENTIAL AND DEVELOPMENTAL RATE OF ELEVEN SPOTTED BEETLE, *COCCINELLA UNDECIMPUNCTATA* L. (COLEOPTERA: COCCINELLIDAE) REARED ON SOME INSECT PESTS OF TOMATO PLANT

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ABSTRACT

The ladybird beetle, *Coccinella undecimpunctata* is a polyphagous predator established in Egypt that used in a wide range in integrated pest management (IPM). In this research consumption rate and developmental periods besides adult longevity of *C. undecimpunctata* reared on some tomato pests were investigated. Our results showed that *C. undecimpunctata* was successfully preyed upon various immature stages of *T. absoluta*, egg stage of *S. littoralis* and nymphal stage of *A. gossypii*. There are no significant differences in the total developmental period of female immature stages of *C. undecimpunctata* when fed on the eggs or 1st larval instar of *T. absoluta* or eggs of *S. littoralis* while this period decreased by approximately two days when fed on 3rd larval instar of *T. absoluta* and increased by approximately two days when fed on aphid nymphs. Consumption rate of *C. undecimpunctata* towards tested insect pests revealed that female immature stages of the *C. undecimpunctata* have a higher consumption rate on different immature stages of *T. absoluta* than that on *S. littoralis* eggs or aphid nymphs while female adult of the beetle showed less preference towards immature stages of *T. absoluta*. Inversely, female adult of *C. undecimpunctata* consume more number of *S. littoralis* eggs and aphid nymphs than its immature stages.

Key words: Consumption rate, Developmental period, *Coccinella undecimpunctata*, Tomato pest

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INTRODUCTION

Tomato, *Lycopersicon esculentum* Miller (Solanaceae), is considered to be one of the most economically important crop, between 100 and 200 pest species are reported to attack tomatoes worldwide (Lange and Bronson, 1981). Insecticidal control of these pests is not only expensive but also the indiscriminate use of pesticides caused phytotoxicity and destruction of beneficial organisms such as predators, parasitoids, and micro-organisms in the area under control (Nikam et. al., 2010; Mahmood et. al., 2011).

Biological control of tomato pests considered a good alternative for insecticides and also an important tactic because it is safe, economic and environmental friendly (Hameed et. al., 2013). The ladybird beetle, *Coccinella undecimpunctata* come in the first order as a biological agent and predator of most tomato pests at different stages of their life cycle (Raimundo and Alves, 1986; Hodek and Honek, 1996).

So, the aim of present work is to determine the predatory potential and developmental rate of the ladybird beetle, *Coccinella undecimpunctata* to chalk out its role for area wide control of tomato pests in pest management programs when reared on three pests of tomato plant, *Spodoptera littoralis*, *Aphis gossypii* and *Tuta absoluta*.

MATERIALS AND METHODS

Rearing of *Tuta absoluta*:

For establishment a laboratory colony of *T. absoluta* infested leaves with larvae besides samples of soil under tomato plants were collected from tomato plantation located at Bernecht, Giza province, Egypt. The leaves and soil were transferred to the laboratory for inspection. Infested leaves were kept till pupation and the soil was sieved for separation of the pupae. The collected pupae from leaves and soil were housed in a wooden cage measured 60x40x40cm with all sides made of wire mesh contain a piece of cotton saturated with sugar solution for adult feeding and small pots with tomato plants for eggs laying. Infested tomato leaves from rearing cage were cut and the eggs were collected with fine brush under a stereoscopic binocular microscope and placed on tomato leaflets to use in the experiment.

Rearing of *Spodoptera littoralis*:

This pest has obtained from the permanent colony at Pests and Plant Protection laboratory, NRC. The culture was maintained at temperature of 25 ± 2 °C, 65 ± 5 % RH and photoperiod of 16:8 h (L: D). Adults were kept in 30x30x30 cm cages and fed with diluted honey solution. After emergence, female lays 1000-2000 eggs in egg masses of 100-500 /each on the lower leaf surface of the cotton plant (Hassan and Moawed, 1974). The infested plants were taken out of the cages and eggs collected with a small brush and placed on tomato leaflets to use in experiment.

Rearing of *Aphis gossypii*:

Apterous individuals of *A. gossypii* used in this study were collected from tomato plants sown at the field of Bernecht, Giza province, Egypt. Nymphs were obtained by putting apterous females on tomato leaf disks (5 cm diameter) placed upside down on wet cotton wool in Petri dishes (8.5 cm diameter). The cotton wool in the Petri dishes was soaked daily with water and the aphids were transferred on new leaf disks every week. Aphid rearing was done in the laboratory at 27 ± 1 °C, 70 ± 5 % RH and 12 : 12 h(L: D) photoperiod (Shannag et. al., 2007; Liu et al., 2008) and the newly emerged nymphs were collected to use in the experiment.

Rearing of *Coccinella undecimpunctata*:

The parental stocks of *C. undecimpunctata* were collected from clover fields at the Experimental Research Station, Faculty of Agriculture, Cairo University. The adults were maintained on aphids in an air conditioned rearing room at 28 ± 2 °C and $75.0 \pm 5\%$ RH and photo period of 14 h light: 10 h dark.

Freshly emerged adult beetles were reared on aphid in pairs in petri dishes (90mm diameter and 10mm height). A blotting paper was spread over its inner surface for egg laying. The eggs laid by females were counted and transferred in other petri dishes, with help of fine brush, for hatching. After hatching, twenty newly hatched grubs of predator were reared individually in plastic vials (4cm diameter and 6cm height) with respective prey species. Each experiment was replicated thrice. For newly born grubs, 30-40 individuals of respective tested prey species with the twig of respective plants were provided as food. This procedure was followed till pupation. The exuviae were removed and the period of each instar was recorded. Total numbers of prey species consumed by each instar of the grub, dead and unconsumed prey were counted daily and were replaced by fresh preys. After the emergence of adults (male and female), they were again provided with respected number of each tested prey daily, till their death. In this way, mean consumption by each instar of the grub, male and female adults in addition to longevity of *C. undecimpunctata* on different tested prey species was recorded.

Statistical analysis:

Development and predation at different life stage of *C. undecimpunctata* was recorded with respect to tested prey species. To determine statistical difference, ANOVA was computed and the mean values were compared using Duncan's multiple range test ($p \leq 0.05$).

RESULTS

TABLE 1
MEAN DEVELOPMENTAL PERIODS AND LONGEVITY OF *COCCINELLA UNDECIMPUNCTATA* FEMALE REARED ON VARIOUS STAGES OF *TUTA ABSOLUTA*, *SPODOPTERA LITTORALIS* AND *APHIS GOSSYPYII*

prey	Developmental stages				Total Immature	Adult Stage
	1 st Larval Instar	2 nd Larval Instar	3 rd Larval Instar	4 th Larval Instar		
<i>T. absoluta</i> Eggs	3.6 ± 0.16 a	4.2 ± 0.17 a	5.2 ± 0.18 a	6.5 ± 0.16 a	19.6 ± 0.3 a	22.8 ± 0.85 a
1 st Larval Instar	3.6 ± 0.12 a	4.2 ± 0.17a	5.2 ± 0.18 a	6.5 ± 0.16a	19.66 ± 0.3 a	23.0 ± 0.5 a b
2 nd Larval Instar	3.6 ± 0.12a	3.6 ± 0.18 b	4.4 ± 0.23 c	5.4 ± 0.16 c	17.2 ± 0.36 b	22.6 ± 0.6 a
<i>S. littoralis</i> Eggs	4.0 ± 0.19	3.3 ± 0.28	5.3 ± 0.15	6.4 ± 0.16	19 ± 0.33	30.4 ± 0.57
<i>A. gossypii</i> 1 st Nymphal Instar	4.1 ± 0.17	4.9 ± 0.17	5.7 ± 0.33	6.5 ± 0.26	21.2 ± 0.76	29.5 ± 0.3

Means followed by the same letter are not significantly different

Data in table (1) show the developmental periods of immature stages and female longevity of Coccinellid beetle fed on different preys. The period of 1st, 2nd, 3rd and 4th larval instars of the beetle were 3.6, 4.2, 5.2 and 6.5 days, respectively, when fed on *T. absoluta* eggs. These periods approximately did not when fed on the larval instars of *T. absoluta*. Also these periods did not much differ when fed on *S. littoralis* eggs; they were 4.0, 3.3, 5.3 and 6.4 days, respectively, and 4.1, 4.9, 5.7 and 5.6 days, respectively, when fed on aphid nymphs

for the same previous female larval instars of the beetle. The data also show that female longevity ranged from 22.8 to 30.4 days when fed on the eggs of both *T. absoluta* and *S. littoralis*, respectively.

TABLE 2
MEAN CONSUMPTION RATE OF FEMALE IMMATURES AND ADULT STAGE OF *COCCINELLA UNDECIMPUNCTATA* REARED ON VARIOUS STAGES OF *TUTA ABSOLUTA*, *SPODOPTERA LITTORALIS* AND *APHIS GOSSYPHII*

Developmental stages						
prey	1 st Larval Instar	2 nd Larval Instar	3 rd Larval Instar	4 th Larval Instar	Total Immature	Adult Stage
<i>T. absoluta</i>						
Egg	65.0 ± 1.33a	92.4 ± 1.4 b	115.6 ± 3.17 c	159.0 ± 5.0 d	432.1 ± 6.9 a	42.18 ± 1.0 a
1 st Larval Instar	54.9 ± 1.5ab	77.7 ± 3.2 ab	93.9 ± 1.61 c	115.0 ± 2.3 d	341.6 ± 4.3 b	8.37 ± 0.54 a
2 nd Larval Instar	54.4 ± 0.5 b	56.5 ± 0.5 b	72.2 ± 1.7 c	94.3 ± 1.3 d	277.4 ± 2.5 c	6.66 ± 0.47 a
<i>S. littoralis</i> Egg	41.0 ± 1.3	52.9 ± 0.86	62.3 ± 1.3	64.0 ± 0.78	220.2 ± 0.9	428.4 ± 7.2
<i>A. gossypii</i>						
1 st Nymphal Instar	31.3 ± 0.7	48.6 ± 0.7	59.5 ± 1.5	53.3 ± 1.06	192.7 ± 5.3	355.0 ± 5.7

Means followed by the same letter are not significantly different

The data about consumption rate of different stages of female *C. undecimpunctata* towards different preys are showed in table (2) where the higher consumption rate was recorded by the forth larval instar which consume 159 eggs of *T. absoluta* while the lower was recorded by the first larval instar which consume the minimum number of aphid nymphs. It is observed that consumption rate of female adult of *C. undecimpunctata* was less than that of its immature stages towards *T. absoluta* while the opposite was observed when fed on *S. littoralis* eggs (428.4 eggs) and aphid nymphs (355.0 individuals).

TABLE 3
MEAN DEVELOPMENTAL PERIODS AND LONGEVITY OF *COCCINELLA UNDECIMPUNCTATA* MALE REARED ON VARIOUS STAGES OF *TUTA ABSOLUTA*, *SPODOPTERA LITTORALIS* AND *APHIS GOSSYPHII*

Developmental stages						
prey	1 st Larval Instar	2 nd Larval Instar	3 rd Larval Instar	4 th Larval Instar	Total Immature	Adult Stage
<i>T. absoluta</i>						
Egg	3.8 ± 0.2 a	4.6 ± 0.13 a	5.5 ± 0.2 a	6.9 ± 0.2 ab	20.86 ± 0.42 a	17.0 ± 0.3 b
1 st Larval Instar	3.3 ± 0.12 a	3.8 ± 0.21 a	4.5 ± 0.27a	6.9 ± 0.2 ab	18.66 ± 0.47 b	17.0 ± 0.3b
2 nd Larval Instar	3.3 ± 0.12 a	4.6 ± 0.27 a	4.7 ± 0.3 a	6.9 ± 0.3 ab	19.60 ± 0.4 ab	18.9 ± 0.5 b
<i>S. littoralis</i> Egg	4.0 ± 0.16	5.0 ± 0.18	6.2 ± 0.17	7 ± 0.2	22.2 ± 0.9	21.0 ± 0.55
<i>A. gossypii</i>						
1 st Nymphal Instar	3.6 ± 0.16	4.4 ± 0.2	5.8 ± 0.24	7.5 ± 0.16	21.3 ± 1.2	22.2 ± 0.57

Means followed by the same letter are not significantly different

The developmental periods of male immature stages of *C. undecimpunctata* did not much differ from that of female when fed on the same preys (Table 3). It ranged from 3.8 to 6.9 days and from 3.3 to 6.9 days for 1st and 4th larval instar of the predator when fed on the eggs and 1st larval instar of *T. absoluta*, respectively. Also these periods ranged from 4 to 7 days with *S. littoralis* eggs as a food and from 3.6 to 7.5 days with aphid nymphs as a food for 1st and 4th larval instar of the predator, respectively. On the other hand, the longest male longevity was recorded with aphid nymphs as a food (22.2 days) while the shortest was recorded with eggs and 1st larval instar of *T. absoluta* as a food (17 days for both) (Table 3).

TABLE 4.
MEAN CONSUMPTION RATE OF MALE IMMATURES AND ADULT STAGE OF COCCINELLA UNDECIMPUNCTATA
REARED ON VARIOUS STAGES OF TUTA ABSOLUTA, SPODOPTERA LITTORALIS AND
APHIS GOSSYPYII

prey	Developmental stages					Adult Stage
	1 st Larval Instar	2 nd Larval Instar	3 rd Larval Instar	4 th Larval Instar	Total Immature	
<i>T. absoluta</i> Egg	59.2 ± 1.39 a	84.2 ± 1.7 a	115 ± 2.3 a b	136.8 ± 3.3 a b	395.33 ± 4.7 a	1277.8 ± 71 b
1 st Larval Instar	54.9 ± 1.5 a	77.7 ± 3.2 a	93.9 ± 1.6 a b	115 ± 2.3 a b	341.6 ± 4.3 b	909.7 ± 9.4 b
2 nd Larval Instar	454.4 ± 0.5 b	56.5 ± 0.58 a	72.2 ± 1.7 a	94.3 ± 1.3 a b	277.46 ± 2.5 c	940.7 ± 21.8 c
<i>S. littoralis</i> Egg	35.2 ± 1.11	48.8 ± 0.87	56.2 ± 1.43	57.3 ± 1.3	197.5 ± 2.3	360.2 ± 5.9
<i>A. gossypii</i> 1 st Nymphal Instar	33.6 ± 1.01	40.1 ± 1.87	51.2 ± 1.69	56.8 ± 1.81	181.7 ± 3.25	336.5 ± 9.6

Means followed by the same letter are not significantly different

Data in table (4) revealed that consumption rate of male immatures of *C. undecimpunctata* behave the same trend of female when fed on the same preys with an exception of adult stage which showed an opposite behavior of predation. The consumption rate ranged from 59.2 to 136.8 eggs of *T. absoluta* for 1st and 4th larval instar of male predator, respectively, while the same instars consumed 35.2 and 57.3 eggs of *S. littoralis*, respectively. When the 1st larval instar of *T. absoluta* was the food the consumption rates were 54.9 and 115 larvae for 1st and 4th larval instars of the predator, respectively, compared to 33.6 and 56.8 individuals of aphid nymphs for the same instars, respectively. Inversely, adult male of *C. undecimpunctata* showed higher predation rate towards all immature stages of *T. absoluta* where the consumption rate was 1277.8 eggs compared to 360.2 eggs of *S. littoralis*.

DISCUSSION

The ladybird beetle, *Coccinella undecimpunctata* is a polyphagous predator it feed on several insect species at different stages of their life cycle (Raimundo and Alves, 1986; Hodek and Honek, 2009). The species of the prey can be control the predation behavior of the beetle besides effect on some biological aspects of the predator. From this point, the predator can prefers and consume more prey species than others, so the consumption rate of the predator towards prey species may be taken as an index for prey preference of the predator (Mealzer, 1978; Hussein, 1991; Elliot et al., 2000; Khan and Khan, 2002). In this work the consumption rates of *C. undecimpunctata* towards some prey species in addition to effect of these preys on the developmental periods of the predator were studied.

Our results showed that *C. undecimpunctata* was successfully preyed upon various immature stages of *T. absoluta*, egg stage of *S. littoralis* and nymphal stage of *A. gossypii*. There are no significant differences in the total developmental period of female immature stages of *C. undecimpunctata* when fed on the eggs or 1st larval instar of *T. absoluta* or eggs of *S. littoralis* while this period decreased by approximately two days when fed on 3rd larval instar of *T. absoluta* and increased by approximately two days when fed on aphid nymphs. On the other hand, the longest female longevity was recorded when the beetle reared on the eggs of *S. littoralis* and aphid nymphs while there are no significant differences in the female longevity when the beetle reared on eggs or larval stages of *T. absoluta*.

The developmental period of male immature stages of *C. undecimpunctata* behave the same trend of the female immature stages where rearing of the beetle on eggs or larval stages

of *T. absoluta* causes slight differences in the developmental period of the beetle. An elongation in the developmental period ranged from two to three days was observed when the beetle reared on *S. littoralis* eggs or aphid nymphs and also caused increase in the male longevity by two to three day than other preys. The longest male longevity was recorded when the beetle reared on aphid nymph while the shortest was recorded when reared on larval stages of *T. absoluta*. This result agrees with that of Omkar and Sirvastava (2003) who reported that the developmental periods and adult longevity of *Coccinella septempunctata* affected directly by species of the prey.

Consumption rate (prey preferences) of *C. undecimpunctata* towards specific prey considered a very important factor for using this beetle in controlling insect pests. The data about consumption rate of *C. undecimpunctata* towards tested insect pests revealed that female immature stages of the *C. undecimpunctata* have a higher consumption rate on different immature stages of *T. absoluta* than that on *S. littoralis* eggs or aphid nymphs while female adult of the beetle showed less preference towards immature stages of *T. absoluta*. Inversely, female adult of *C. undecimpunctata* consume more number of *S. littoralis* eggs and aphid nymphs than its immature stages. This result coincided with that of Xue et. al. (2009) who reported that third instars and adult females of both species of coccinellids, *Coccinella septempunctata* and *H. axyridis* consumed significantly more aphids than did adult males. This result may be attributed to higher nutritional requirements for development of the larval stage and for reproduction by female adults (Omkar and Srivastava, 2003).

Our results indicate that voracity of female immature stages of *C. undecimpunctata* towards immature stages of *T. absoluta* make us an excellent chance for biological control of *T. absoluta* while female adult considered an effective biological agent against both *S. littoralis* and *A. gossypii*. The previous results are in agreement in case of *Tuta absoluta* and disagreement in case of *aphis gossypii*, as preys, with that about feeding capacity of *C. septempunctata* recorded by Mani and Krishnamoorthy (1999) and Pandey and Khan (2002) who has reported that grubs of *Coccinella septempunctata* consumed more aphids than adults. Also, Hamed and Hassanein (1984) reported that *Coccinella septempunctata* prefer aphids as prey over eggs of *S. littoralis*.

Important results were obtained with *C. undecimpunctata* male where immature or adult stages showed vigorous predatory behavior towards all immature stages of *T. absoluta* than *S. littoralis* eggs or aphid nymphs. This result assured the previous result obtained with female beetle and also assured the possibility of using *C. undecimpunctata* for controlling *T. absoluta*. The higher voracity female immature and male adult stages of *C. undecimpunctata* towards eggs of *T. absoluta* than eggs of *S. littoralis* may be attributed to the quality of the egg where the egg shell of *T. absoluta* may be softer than that of *S. littoralis* egg made the predator (*C. undecimpunctata*) some facilities for feeding on *T. absoluta* eggs or the color of *T. absoluta* eggs which more greener than that of *S. littoralis* may be attract the beetle.

CONCLUSION

The results of the current work agreed and disagreed with that of several researches about using *C. undecimpunctata* for controlling both *A. gossypii* and *S. littoralis*, but considered the first attempt and make up the first step in controlling *T. absoluta* by using *C. undecimpunctata*. Our results showed that *C. undecimpunctata* was successfully preyed upon various immature stages of *T. absoluta*. The higher voracity of female immature stages, male

and female adults of *C. undecimpunctata* towards all immature stages of *T. absoluta*, makes us an excellent chance for biological control of this new invasive serious pest.

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DOPING AND ERGOGENIC AIDS IN SPORTS

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ABSTRACT

Ergogenic aids are substances that some athletes use to improve strength and endurance. for winning of trophies, medals and cash awards in competitions. which gives a pride for the Nation as well as for an athlete. The use of these performance enhancing drugs is a form of cheating. Doping in sport is not a new phenomenon. Athletes have taken performance enhancing agents since the beginning of time. Performance enhancing drugs can be stimulants, anabolic steroids, diuretics, beta blockers etc. are harmful to the health, as they increase Heart Rate, Blood Pressure, Cardiac irregularities, Loss of Balance and co-ordination, increase the risk of heart attacks etc. Performance enhancement may be attained fairly through good dietary nutrition and effective training and recovery programs. Athletes require good dietary advice from early on their career to achieve high level sports performance. Sports must be doping free and performance must be achieved through scientific sports coaching.

Key words: Doping, Ergogenic aids, , Blood doping, performance, Banned drugs

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1. INTRODUCTION

Any sport may be defined as a game of intelligence and a challenge of ideas combined with the expression of perfection of the human body and its movement. Sport is thought of as an activity that is governed by a set of rules and is engaged in competitively. Sports popularity is a worldwide phenomenon, and athletic success may lead to substantial fame and fortune. In order to be successful at the national or international level of competition, athletes must possess the genetic anthropometrical, biomechanical, physiological, and psychological characteristics appropriate for mastery of their particular sport.

Moreover, they need specific coaching and training to maximize this genetic potential. Numerous specific genetic factors influence performance potential, but a major key to optimal sport performance is the proper production and control of energy. Since the advent of athletic competition, athletes have utilized a variety of methods in attempts to enhance performance as Doping and ergogenic aids.

1.1 Definition and Explanation of Doping

Doping is the idea of using banned natural or synthetic substance for the purpose of enhancing performance in sports

. Doping in sports refers to the use of prohibited substances that may give an athlete an artificially improvement in their natural ability over other competitors. The fundamental principles of fair play and sporting ethics are violated. High skilled athletes are not rewarded for hard work but instead those associated with banned substances are recognized for their achievements.

. Doping in sport will always raise concern, as it is the integrity of the competition being questioned. As long as the importance and rewards of athletic excellence become greater there is an irresistible urge for athletes to resort to drugs to gain an edge. Amateur Athletes have the opportunity to receive college scholarships and elite athletes can earn tens of millions of dollars and many more through prize money and commercial endorsements. The lure to success is great and the temptation to gain any advantage will increasingly linger.

1.2 Definition and Explanation of Ergogenic aids

Ergogenic aids are substances that some athletes use to improve strength and endurance. The use of performance enhancing drugs is a form of cheating that is quite wide spread and common in today's modern sports.

Ergogenic aids are substances that some athletes use to improve strength and endurance. Anabolic steroids are one type of ergogenic aid that many adults and even adolescents often employ in their efforts to improve their athletic performance and appearance. According to the American College of Sports Medicine, individuals who are experienced in weight lifting and employ the use of anabolic steroids will experience increases in strength and muscle significantly beyond those from training alone. It is this need to win and gain a competitive edge that drives athletes to seek a variety of ergogenic aids.

1.3 Brief Historical Background of Doping and Ergogenic Aids

Doping in ancient Rome gladiators drank herbal infusions to strengthen them before chariot races and going into battle. Almost two millennia later the first documented report in the medical literature was published in 1865 in the British Medical Journal citing expulsion of a swimmer from an Amsterdam canal race, for taking an unnamed performance enhancing drugs. The first doping death occurred in 1886 in cycling. In the early 1900 the popular doping agent was a cock tail of alcohol and strychnine.

In ancient times, Berserkers could drink a mixture called butotens, which was prepared from the Amanita muscaria mushroom to increase their physical power a dozen times at the risk of insanity. Abraham wood, a participant of an endurance walking race in Britain said in 1807 that he had used laudanum, or opium, to keep him awake for 24 hours while competing against Robert barclay allardyce. Norse warriors would ingest hallucinogenic mushrooms to prepare for battle. Greek wrestlers would eat massive quantities of meat to build muscle. In the 1860s, swimmers in Amsterdam were considered the first to be charged with using ergogenic aids, such as drugs and nonfood substances, to gain a competitive advantage. According to Health line, throughout the 1950s and 1960s, amphetamines and anabolic steroids were used extensively. The International Olympic Committee concerned about the trend, banned the use of these substances by Olympic athletes in the early 1960s. Two of the earliest drugs used were alcohol and caffeine, and their effectiveness as ergogenic has been investigated since the latter part of the 19th century because they were commonly used by athletes in competition to help mask or prevent fatigue. The major categories of banned drugs, types of ergogenic aids as well as banned drugs and its effect on human systems and organs are presented in Table 1 to 4.

TABLE 1
INDICATION OF MAJOR CATEGORIES OF BANNED DRUGS BY THE
INTERNATIONAL OLYMPIC COMMITTEE

S. No.	Categories of Banned Drugs
1.	Stimulants and its related compounds
2.	Narcotic Analgesics and its related compounds
3.	Anabolic steroids and its related compounds
4.	Beta blockers and its related compounds
5.	Diuretics and its related compounds
6.	Human growth hormone and analogues
7.	Blood doping
8.	Alcohol, Tobacco etc

TABLE 2
INDICATION OF TYPES OF ERGOGENIC AID AND ITS SUBSTANCES

S.NO.	Type of Aids	Substances
1.	Mechanical	Running shoes, nasal breathing strips, equipment innovations, artificial turf, etc. (Aerodynamic Device on Bicycle)
2.	Psychological	Hypnosis, Psychotherapy, Imagery, etc.
3.	Physiological	Blood doping, Saline infusion, Warm-up, Clothing, etc.
4.	Pharmacological	Anabolic steroids, Erythropoietin, B-blockers, Antihistamines, Growth hormone, Anabolic-Androgenic steroids, Caffeine, Amphetamines, Ephedrine etc.
5.	Nutritional	Carbohydrate, Protein, Fat, caffeine, Amino acids, Vitamins, Phosphate, Fluid, Electrolytes, Glycerol, Sports Drinks, etc.

Many number of investigation have been conducted by Indian and foreign sports scientist on the effect of doping the banned drugs on human health. The sport scientists have provided the strong evidence of these drug's effect on different system and organ of human body of an athlete. These effect of drugs are given in below Table 3

TABLE 3
INDICATION OF BANNED DRUGS AND THEIR EFFECTS ON HUMAN SYSTEMS

S.NO.	Name of System and organ	Effect of Drugs
1.	Cardiovascular System	Myocardial hypertrophy, Arrhythmia, Thrombosis, hypertension, heart attack, Decrease HDL, increase Diastolic B.P., Erythrocytosis, Decrease lipoprotein, Increase Blood Pressure, Myocardial hypertrophy etc. Long term effect: Left ventricular hypertrophy, Myocardial infarction and sudden death, cancers etc.
2.	Musculoskeletal system	Muscle tightness, Muscle cramp, Muscle tenderness, muscle strains or rupture
3.	Reproductive System	<i>In Males-</i> Libido changes, Sub-fertility, Increased aggressiveness and sexual appetite, aberrant sexual and criminal behavior, testicular atrophy, Breast enlargement, Reduction of sperm production, premature baldness etc. <i>In Females-</i> Masculinization, Hair growth on face and body, Deepening of the voice, Enlargement of clitoris, Abnormal menstrual cycles, Reduced breast size.
4.	Liver	Hepatotoxicity, Jaundice, Neoplasm etc.
5.	Skin	Dermatologic Effects-Acne, Alopecia, Gynecomastia, Hirsutism (pilis in male), reducing skin elasticity

TABLE 4
INDICATION OF ERGOGENIC AIDS AND THEIR EFFECTS ON HUMAN ORGANS

S.NO.	Ergogenic Aids	Long term Side Effects
1.	Blood Doping	Hypertension, Fever, Jaundice, Blood Clotting, Metabolic Shock, Allergic reaction, Kidney damage, thrombosis and death, Sudden attack, infectious diseases, overload on blood circulation etc.
2.	Food Supplements	<i>High dose of copper[Cu]:</i> Nausea, Vomiting, Diarrhea, Intravascular hemolysis, Gastrointestinal Distress etc. <i>High dose of Zinc [Zn]:</i> Vomiting and Nausea, 25-50gm/day interfere in absorption of Fe and Cu. <i>High dose of vitamin B-complex, Vitamin A, D, B3, and B6:</i> Toxic effect; Vitamin C: Urine acidification (Renal Calculi) etc. <i>Excessive dose of Calcium [Ca]:</i> Develop the Renal Calculi, interference in the absorption of Zn and Fe etc. <i>Excessive dose of Iron [Fe]:</i> Hepatic damage, cirrhosis, Hemochromatosis, Gastrointestinal upset, constipation, gastrointestinal bleeding etc. <i>High and low dose Chromium [Cr] :</i> hypertension, stroke, death, interferes with iron metabolism and zinc absorption etc. <i>Selenium[Se]:</i>More than 100 ug/day- nausea, vomiting, abdominal pain, and fatigue etc.
3.	Beta-blockers	Insomnia, depression, Asthenia, Cramps, Nightmares, syndrome, Hypoglycemia, Cardiac insufficiency, Cardiac rhythm problem, weakened Erection, Digestion trouble, Depressive tendencies and changes in the libido etc.
4.	Artificial Oxygen Carriers and Plasma Expanders	Fever, Hypertension, Kidney damage, Vasoconstriction, Reduced platelet count and iron overload etc.
5.	Gene Doping	Dangerous for health

Except the above effects, these drugs also effects the behaviour of an athlete i.e. mood swings, aggression, mania, depression, withdrawal, and dependence. All the ergogenic aids are not beneficial for an athlete. They also have side effects negatively on human body. They can very dangerous for human body. So it will be better for an athlete to know the merits and demerits of ergogenic aids, when they are in use of them.

CONCLUSION

Pharmacological agents can not be taken without prior advice from a qualified physician. Today, the available medical drugs are very effective to treat the disease. They have also strong affect on health of individuals. we must not forget that these drugs are having side effects on human systems and organs. The magnitude of the side effects depends on the amount of the consumed drug. To obtain the higher performance than their counter parts, athlete starts increasing the doses of banned medicine with out knowing the purity of substances of uncertain origin. Some products are grossly mislabeled. Preparations for

injection are often contaminated with bacteria or even viruses. In such cases, there is a significant risk to develop a serious condition and put a end to one's athletic career. So, it is clearly evident that the game of doping is not worth playing.

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COMPARISON OF SELF-ESTEEM BETWEEN MALE AND FEMALE SPORTSMEN AND NON-SPORTSMEN OF MADHYAPRADESH

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ABSTRACT

The purpose of this study was to investigate and compare the self-esteem between male and female sportsmen and non-sportsmen. Five hundred male and female sportsmen as well as non-sportsmen (Three hundred males and Two hundred females) belong to various universities of Madhya Pradesh. The sample consisted of two hundred and fifty (Males= 150 and Females=100) sportsmen and two hundred and fifty (Males=150 and Females=100) non-sportsmen and who volunteered to participate in this study, were selected to serve as subjects for this study. The subjects were in age group of 19 to 27 years. Self-Esteem Rating Scale is 7 point Likert Scale developed by W. R. Nugent, and J. W. Thomas (1993) was selected as a criterion tool to measure how you feel about yourself. To find out the significant difference between male and female male sportsmen and non-sportsmen in their self-esteem, mean, SD, and t-ratio were computed. The results of study revealed that the insignificant difference was found between male sportsmen and non-sportsmen in their self-esteem. where as female sportsmen and non-sportsmen were found just opposite of them. Both sexes sportsmen and non-sportsmen had similarity in their self-Esteem.

Keywords: Sportsmen, Non-sportsmen, self-esteem, males, females

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INTRODUCTION

Psychologists from all over the world are critically and enthusiastically examining psychological aspects of sports, applying research from related areas to athletic situations, and attempting to make sense out of sparse factual material, considering the popularity of sports, its length of existence and its impact in society, relatively little research has been done with athletes. Consequently how much is really known about aspects of psychology as they related to sports.

Scientific research in the field of physical education and sport is a boon to the athletes, trainers and Physical Education Scientists have been trying to Attain higher levels of performance in sports and games.

Self-esteem is composed of person's self assessment and a combination of his/her self-concept of characteristics and abilities. (Pope and Mc Hales, 1988., Flouri 2006 & Osborn, 1997).

The concept of self-esteem has been researched by several social scientists. Branden (1969) defined self-esteem as a standard by which a person judges her/himself, an estimate, a feeling, and an emotion. This self-evaluation is the single most significant key to behavior, which affects the thinking processes, emotions, desires, values, and goals.

Gender difference was observed in self esteem (Naderi et al. 2009; Rahmani, 2011;Kolayis and Sari, 2011). Khan and Ali (2011) indicated the insignificant difference between male and female elite wrestlers regarding their self esteem. Ajeesh (2013) was also observed the insignificant difference between men and women national level volleyball players in regard to Self esteem. Kosarkarjev, Vpliv and Starosti (2009) expressed the more positive Self-esteem in younger adolescent basketball players than in older players regardless of gender .

The athletes have a higher self esteem than non athletes (Patterson, 1993; Ucan & Caglayan, 2012; Heinmiller, 2001). Athletes are also more likely to have higher levels of social self-esteem (Pascarella and Smart, 1991). Individual sports participants have significantly higher self-esteem than participants in team-sports (Omarsson, 2013). Athletes who have high self-esteem and therefore have a better ability to set goals that better mental preparation are able to choose specific performance goal and objectives (Gyorgy, and Moldovan, 2013).

Self esteem affects the thinking process, emotions, desires, values and goals in a person (Sandra 2009). Positive/high self-esteem) leads to greater happiness or negative /low self-esteem to depression (Baumeister et. al., 2003).

People with defensive high self-esteem seem to be capable of putting a positive spin on even the worst failures. They cannot acknowledge any negative information about themselves, People with moderately high self-esteem are the best adjusted. They generally feel good about themselves, but they are capable of acknowledging their flaws and doing something about them. People with modest self-esteem often make caring, loyal friends. Because they are convinced of their own inadequacies, Unless your poor self-esteem has caused you to cut yourself off from others completely, So before designing institution programs that focused on increasing student's self-esteem.

The purpose of this study was to investigate and compare the self-esteem of male and female sportsmen and non-sportsmen.

METHODOLOGY

Selection of Subjects:

The subjects of the study were Five hundred male and female sportsmen as well as non-sportsmen (Three hundred males and Two hundred females) belong to various universities of Madhya Pradesh. The sample consisted of two hundred and fifty (Males=150 and Females=100) sportsmen and two hundred and fifty (Males=150 and Females=100) non-sportsmen and who volunteered to participate in this study, were selected to serve as subjects for this study. The subjects were in age group of 19 to 27 years. The mean age and SD of male sportsmen and non-sportsmen were 22.37 ± 2.39 and 22.67 ± 2.98 respectively. The mean age and SD of female sportsmen and non-sportsmen were 19.37 ± 1.31 and 21.12 ± 1.98 respectively.

Instrumentation:

Self-Esteem Rating Scale is 7 point Likert Scale developed by W. R. Nugent, and J. W. Thomas (1993) was selected as a criterion tool to measure how you feel about yourself. Self-Esteem Rating Scale is a valid and reliable instrument. The scale consists of 40 items for measuring the self-Esteem among people. It is not a test, so there are no right or wrong answers.

The scoring of the scale items were as follows :-1 = Never, 2 = Rarely, 3 = A little of the time, 4 = Some of the time, 5 = A good part of the time, 6 = Most of the time, and 7 = Always. The total score may be taken to indicate the general self-esteem. The following items must be reversed (1 = 7, 2 = 6, 3 = 5, 4 = 4, 5 = 3, 6 = 2, and 7 = 1): 1, 2, 5, 11, 13, 16, 17, 20, 22, 23, 25, 27, 30, 31, 33, 34, 38, 39, and 40. After reversing these items, add your responses together to obtain your final score.

RESULTS

To assess the self-esteem, of male and female sportsmen and non-sportsmen, means and standard deviations were computed and data pertaining to this have been presented in Table 1.

TABLE 1
DESCRIPTIVE STATISTICS OF SELF-ESTEEM OF MALE AND FEMALE SPORTSMEN AND NON-SPORTSMEN OF MADHYAPRADESH

Variables	Males (N=300)		Females (N=200)	
	Sportsmen M $\pm$ SD	Non-sportsmen M $\pm$ SD	Sportsmen M $\pm$ SD	Non-sportsmen M $\pm$ SD
Self -Esteem	208.10 $\pm$ 23.91	210.10 $\pm$ 24.93	214.14 $\pm$ 22.46	211.64 $\pm$ 19.49

The mean scores of different psychological variables as scored by male and female sportsmen & non-sportsmen belong to different colleges affiliated to universities of Madhya Pradesh have been depicted in figure 1 to 4.

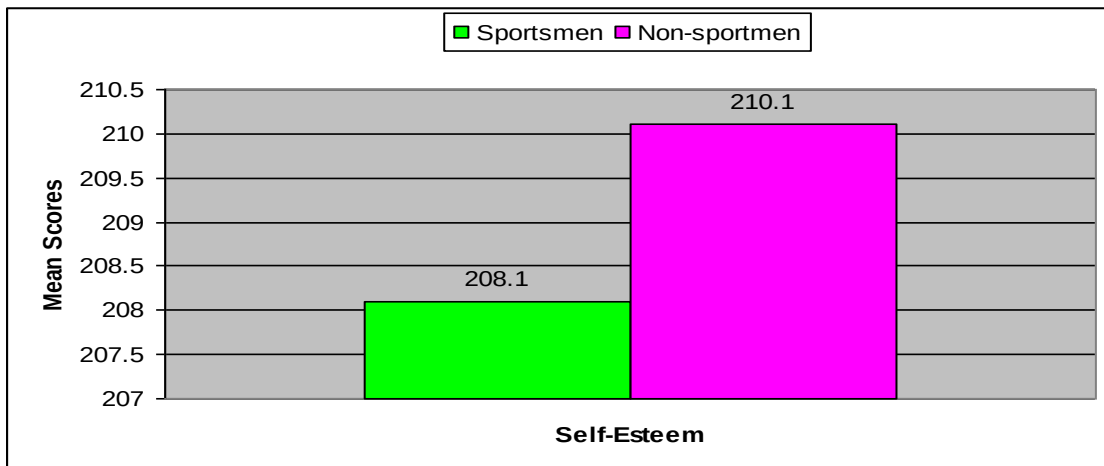


Figure 1: Mean Scores of Male Sportsmen and Non-sportsmen on Self-Esteem

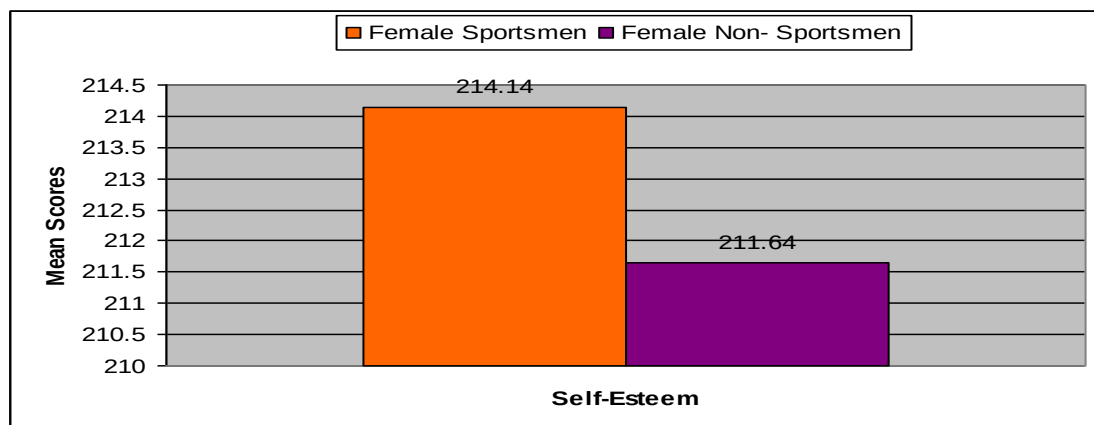


Figure 2: Mean Scores of Female Sportsmen and Non-sportsmen on Self-Esteem

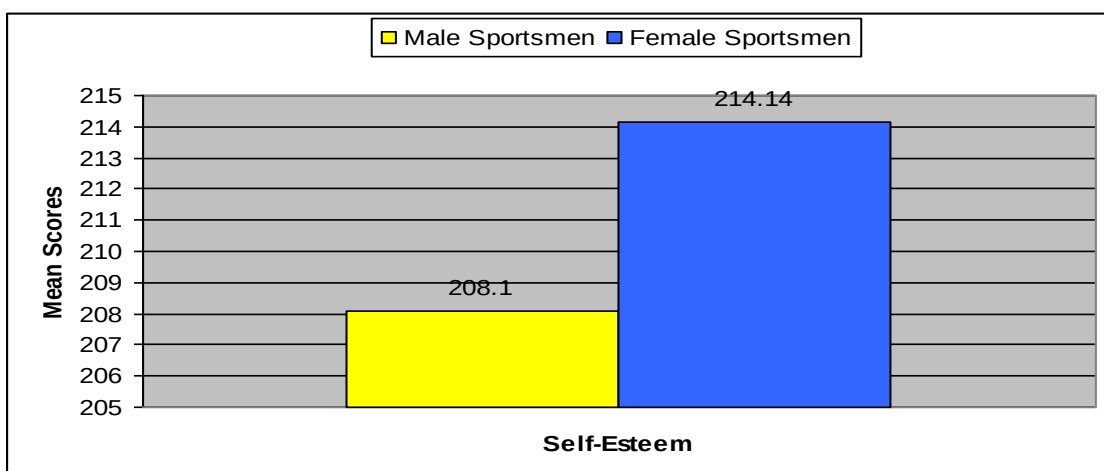


Figure 3: Mean Scores of Male Sportsmen and female Sportsmen on Self Esteem

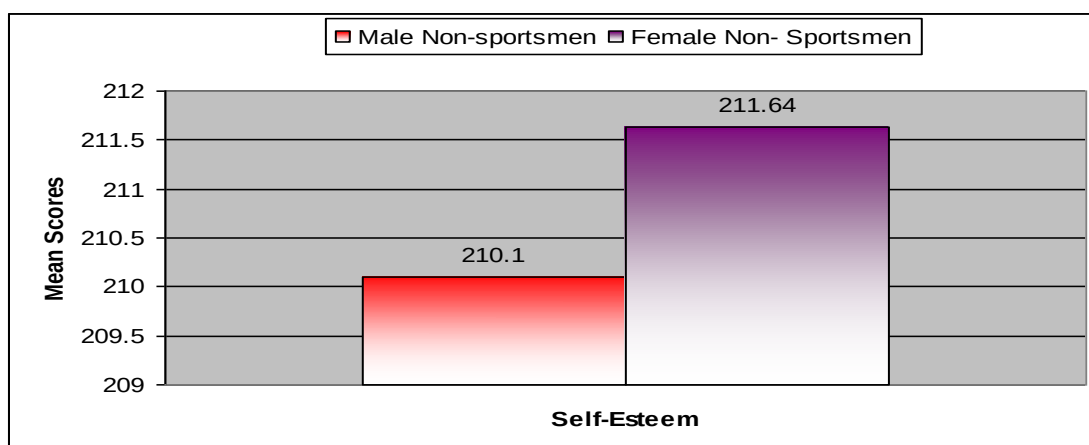


Figure 4: Mean Scores of Male Non-sportsmen and female Non-sportsmen on Self Esteem.

To find out the significant difference between male and female male sportsmen and non-sportsmen on five dimensions of adjustment, sport achievement motivation, self-esteem, state and trait sport-confidence, mood regulation and level of aspiration, t-ratio was computed. The level of significant was set at .05 level

TABLE 2
SIGNIFICANCE OF DIFFERENCES BETWEEN MEAN SCORES OF MALE SPORTSMEN AND NON-SPORTSMEN IN THEIR SELF_ESTEEM

Sex	Groups	Mean	MD	σ_{DM}	t-ratio
Male	Sportsmen (N=150)	208.10	2.00	2.820	0.709
	Non-sportsmen (N=150)	210.10			

Insignificant at .05 level, $t_{.05} (298) = 1.97$

It is evident from Table 2, that there was no statistically significant difference between the means of male sportsmen and non-sportsmen in their self-esteem,, as the obtained t-value of 0.709 was less than the required value of $t_{.05}(298)=1.97$. This implies that both the groups are homogeneous with respect to self-esteem.

TABLE 3
SIGNIFICANCE OF DIFFERENCES BETWEEN MEAN SCORES OF FEMALE SPORTSMEN AND NON-SPORTSMEN IN THEIR SELF_ESTEEM

Sex	Groups	Mean	MD	σ_{DM}	t-ratio
Female	Sportsmen (N=100)	214.14	2.50	2.974	0.840
	Non-sportsmen (n=100)	211.64			

Insignificant at .05 level, $t_{.05} (198) = 1.98$

It is evident from Table 3, that there was no statistically significant difference between the means of female sportsmen and non-sportsmen in their self-esteem, as the

obtained t-value of 0.840 was less than the required value of $t_{0.05(198)}=1.98$. This implies that both the groups are homogeneous with respect to self-esteem.

TABLE 4
SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF MALE AND FEMALE SPORTSMEN IN THEIR SELF-ESTEEM

Sex	N	Mean	M.D.	σ_{DM}	t-value
Male	150	208.10	6.040	3.014	2.004*
Female	100	214.14			

*Significant level at 0.05, $t_{0.05(248)} = 1.97$

It is evident from Table 4, that the statistically significant difference was existed between the means of male and female sportsmen in self -esteems , as the obtained t-value of 2.004 was high than the required value of $t_{0.05(248)}=1.97$. This implies that both the sex groups are heterogeneous with respect to self -esteems.

TABLE 5
SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN SCORES OF MALE AND FEMALE NON-SPORTSMEN IN THEIR SELF-ESTEEM

Sex	N	Mean	M.D.	σ_{DM}	t-value
Male	150	210.10	1.540	2.958	0.521
Female	100	211.64			

Insignificant level at 0.05, $t_{0.05(248)} = 1.97$

It is evident from Table 5 that there was no statistically significant difference between the means of male and female non- sportsmen in their self –Esteem, as the obtained t-values of 0.521 was less than the required value of $t_{0.05(248)}=1.97$. This implies that both the groups are homogeneous with respect to self-esteems.

DISCUSSION

Findings of the descriptive analysis of data on self –esteem obtained from male and female sportsmen indicated that female sportsmen were found to have greater amount on high self-esteem, than their counter parts. where as male non-sportsmen were found to have greater amount on self-esteem, than their counter parts.

When the male sportsmen & non-sportsmen were compared together on self-esteem, the results of t-ratio indicated the insignificant difference between male sportsmen and non-sportsmen. In case of female sportsmen and non-sportsmen, they also hadno significant difference on self-esteem, which may be due to similarity in their thinking process, cultural ideologies, emotions, self-evaluation, desires, values and goals of a person.

When the male and female sportsmen were compared together on self-esteem, they had different self–esteems. This was supported by (Naderi et al. 2009; Rahmani, 2011;Kolayis and Sari, 2011; Khan and Ali. 2011). When the male and female non-sportsmen were compared together on self-esteems, they did not differ significantly self-

esteems, which may be due to similarity in their thinking process, cultural ideologies, emotions, self-evaluation, desires, values and goals of a person,

CONCLUSIONS

1. Male sportsmen and non-sportsmen did not differ significantly in their sport self-esteem.
2. Statistically significant difference was not observed between female sportsmen and non-sportsmen in their self-esteem,
3. Statistically significant difference was existed between the means of male and female sportsmen in their self –esteems.
4. Similarity was observed between the means of male and female non-sportsmen in their self-Esteem

FUTURE DIRECTION

It is recommended that physical education teachers, university coaches and sport officer may modify their training schedule according to their self-esteem as expressed by both sexes sportsmen. A similar study may also be undertaken involving psychological, sociological, anthropometrics and other motor variables for both the sexes

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PERFORMANCE ENHANCING BANNED DRUGS AND THEIR EFFECTS ON HUMAN BODY OF THE PLAYERS

Dr. Rajkumar Sharma* & Dr. Ashish Kumar Nigam**

ABSTRACT

The purpose of this study was to explore the effect of the main performance enhancing banned drugs on human body of the players of different games and sports. From the review based literatures, author of this article concluded that an athlete should not use the medication of performance enhancing drugs without prior permission from a authentic physician. an athletes should nor forget that the medication of these banned substances by IOC is illegal. These medical drug are effective in treating disease, and have beneficial effects. The magnitude of the side effects is dependent on the amount of the drug that is consumed. But, they have side effect on health of an individual, when they are taken in excessive amount. An athlete is using the doping to obtain quick results in sport competitions. They should also examine the purity of these substances, because of many drug's pharmacy in black market are producing the injection/tablets contained bacteria/ viruses. They produce significant risk for the health and career of an athlete. So, It is Clear that, the game of doping is totally against the worth playing and misconduct in competition.

Keywords: Performance, Banned drugs, side effects, Medication, Players

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INTRODUCTION

In modern times, the use and abuse of pharmacologically active substances have become so widespread in all over world. The young athletes, professional and amateur athletes could not spared themselves. The coaches, trainers and physicians have already provided them, tablets, injections, vitamins and other stimulating drugs to enhance performance, to reduce inflammation, to reduce pain and to remove anxiety etc. Indeed, athletes often have no knowledge about the immediate and later on toxic effects of many medical drugs. So, It is essential for all the athletes, beginners and professionals to understand the use of these prohibited substance and their severe consequences. It is also essential to know that the substances presented here are normally used for specific diseases. They are not to be consumed without prior permission of physician. As a rule, these substance must be validated by a physician. Because he has right to confirm the correct approach, dosage and health condition of an athlete. Authors of this papers presented the theoretical concept of banned drugs and their effects on human body of an athlete after reviewing the literature of many scientists, researchers and sport physicians in India and abroad.

1. ANABOLIC ANDROGENIC STEROIDS

Anabolic androgenic steroids are most commonly used by the players of weight-lifting, track and field, swimming, ice-hockey events etc. Many researchers indicated that Anabolic androgenic steroids can accelerate muscle size and strength, as well as increase aggressiveness (Haupt, 1984; Wilson & Griffin, 1980). Anabolic androgenic steroids (AAS) are used by some athletes to enhance their performance (Wright, 1978, 1982) These substances are generally taken before several weeks of a competition in the form of tablets or injections. These anabolic steroids have not been adequately sterilized and are knowingly mislabeled. The possible health hazards may arise from the use of these substances.

1.1.1 Causes

Anabolic androgenic steroids may cause depression, paranoid, ideation, overt self-talk, euphoria, irritability, racing thoughts, hyperactivity, psychotic affective syndromes, sleep disorders, anorexia, psychomotor retardation, feelings of guilt, delusion of reference, visual and auditory hallucinations, confusion, nightmares, chronic anxiety, and moderate agoraphobia in athletes (Annitto & Layman, 1980; Freinhar & Alvarez, 1985; Pope & Katz, 1987; Wilson, Prango, & Lara, 1974)

1.1.2 Symptoms

Acne, Muscular rupture, Hair loss (face, regions between and around nipples, back, shoulders, and back of thighs regions), which creates problems of growth in the young athletes, increases and decreases in sex drive, fainting and vertigo, Headaches, excessive aggressiveness, Psychiatric effects: to take place of extreme violence and Dependence.

1.1.3 Side Effects

Liver cancer, Excessive blood cholesterol levels, Prostate cancer, Hypertension, Infarction of the myocardium, Diabetes, Sleep apnea syndrome, Decrease in the size of testicles, Disappearance of sperm in the semen, Reversible sterility, Breast development in men, Castrato-like voice, Aggressiveness and groundless violence.

The common side effects includes the irritations and bleeding of the gastric mucous membranes. Skin eruptions, Ear ringing, Edemas, Bronchial spasms.

Several researchers have conducted study on doping and described the positive effects of Anabolic androgenic steroids i.e. increases the self-confidence and pain threshold (Holzbauer, 1976); arousal elevation, may be needed for enhancing performance (Rejeski, Brubaker, Herb, Kaplan, and Koritnik, 1988); reduce levels of fatigue, enabling longer, more frequent and/or more intense training sessions (Frood, Banks, Longson, & Burley, 1975); positively correlated with heightened mental alertness, mood elevation, improvement of memory and concentration, and the reduction of sensation of fatigue and stimulated central nervous system (Itil, Cora, Akpinar, Hermann, and Patterson, 1974); stimulate neurons of the somatomotor system and circuits associated with aggression (Stumpf & Sar, 1976) and increase the aggressiveness and irritability (Goldman, Bush, and Klatz, 1984., Taylor, 1987 and Wright, 1982). Medical literature suggests that prolonged Anabolic androgenic steroids intake may reduce the quality and longevity of life. Anabolic androgenic steroids have the potential effects on health and well being including depression, chronic anxiety, poor concentration, hypertension, and severe mood disturbances (Pope and Katz (1987, 1988). Anabolic androgenic steroids also elevated the anxiety, inability to cope with stress, suicidal tendency, short attention span, and depression (Corrigan, 1988; Donald, 1993; and Lamb, 1984). Other physical effects includes the backache, testicular shrinkage, hair loss, poor vision, and heart murmur. Increases the risk of violent antisocial behavior was reported by Lubell (1989). Perry, Andersen, and Yates (1990) indicate that the weightlifters were found to have increased hostility, aggression, depression, paranoid thoughts, psychotic features, and personality disturbances. Strauss, (1987) indicated that the use of Anabolic androgenic steroids by an athlete is a cheating by gaining an unfair competitive advantage.

2. CORTICOTROPHIN

Corticotrophin is used to increase the corticosteroid levels in the blood and to produce the associated euphoric effects on the organism.

2.1 Cause:

Corticotrophin may cause an allergic reaction in individuals that have a predisposition towards asthma, urticaria, eczema, etc. Drug injections can cause severe reactions, such as anaphylactic shock.

2.2 Side Effects:

Water retention, edema, hyperglycemia, blood hypertension, modification in the psyche, osteoporosis and decrease in resistance to infections

3. AMPHETAMINES

Amphetamines were first synthesized in 1887. They are generally consumed just prior to competition. The main effects of amphetamines depends on the different activities and their levels. It is a true that they have no positive long term effects on performance of an athlete. An athlete may want to increase his concentration and awareness. Amphetamines are taken to reduce fatigue, increase aggression and self esteem and the users feel in general more strong and ready for a competition.

3.1 Signs and Symptoms

Changes in judgment capacity, repeated occurrence of wounds, increase in recuperation time, stimulation of anxiety.

Facial expression of anxiety, pinched nose, dilated pupils, teeth grinding, dry mouth, a nauseous state, paleness of mucous membranes and on the finger tips -nails, cold extremities,

goose bumps, sudation, palpitations, lowered heart beat, hypertension, erection, loss of vision, nervousness, disorientation relative to people and places, mistrust of one's entourage, incoherent speech, violent acts, personality problem which alters the perception and understanding of reality.

3.2 Acute side effects

Impatience, vertigo, tremors, irritability, insomnia, euphoria, uncontrolled movements, cephalgia, palpitations, nausea, vomiting, confusion, fights, delirium, paranoia, hallucinations, convulsion, cerebral hemorrhage, infarction of the myocardium blood hypertension and circulatory collapse.

3.3 Chronic side effects

Addiction, weight loss, psychosis, paranoid delirium, dyskinesia, behavioral disorders compulsive/ stereotypical / repetitive, vascularity, neuropathies. repeated use of amphetamines may result in chronic fatigue, lethargy, somnolence, depression and penalize a sports activity.

3.4 Positive effects

A decrease in the perception of fatigue, an increase in self-confidence and motor function, decrease in appetite etc..

4. BARBITURATES

Barbiturates such as benzodiazepines and alcohol are usually not considered as ergogen drugs. They may have beneficial effects in some specific situations. Indeed, both substances are effective in reducing tremors.

4.1 Side effects

Sedation, reduced acuteness of vision, lowered vigilance (during vehicle driving), balance problems in walking, decrease memorization capacity, euphoria, withdrawal insomnia, dependence, tolerance, clinical withdrawal syndrome, respiratory distress, and coma etc.

5. DIURETICS

Diuretics stimulate the excretion of water and salts from the body. They also may be consumed to decrease body weight and therefore permit the athletes to enter lower weight categories in weight categories sports. Side effects of diuretics include dehydration, hypovolemia, muscular cramps, and orthostatic hypotension. change in potassium levels.

6. BETA-BLOCKERS

Beta blockers are taken mainly in those sportive practices where the athletes seek calm and precision, like archery, target practice and clay pigeon shooting etc The use of beta-blockers should be strictly prohibited in case of asthma, cardiac insufficiency, digestive tract hemorrhages, occult bleeding, and diabetes. Asthma sufferers can cause bronchial spasms. Beta-blocker may cause insomnia, nightmares and even a depression syndrome and sexual difficulties, such as weakened erection.

6.1 Side effects

Side effects may include hypoglycemia, troubles with digestion, asthenia, muscle cramps, vertigo, circulation problems in the extremities upon exposure to cold, fingers turn pale, insomnia, nightmares, depressive tendencies and changes in the libido, cardiac insufficiency and cardiac rhythm problems

7. CAFFEINE

Caffeine (high doses) stimulates the muscles and the central nervous system. The effects caffeine on the health resembles with cocaine and amphetamines. Caffeine stimulates the central nervous system. Main side effects may include hypercholesterolemia, tachycardia, anxiety, insomnia, headaches etc. This stimulant include acute and chronic type effects on human body of athletes.

7.1 Acute effects

Peptic ulcer, delirium, convulsions, coma, arrhythmia, lesions, and death (about 6 liters dose), nervousness, excitation, irritability, insomnia, tachycardia, blood hypertension, palpitations, headaches, tremors, exaggerated fear or anxiety, increased levels of cholesterol and higher risk of heart attack.

7.2 Chronic effects

Increase in cholesterolemia, increased risk of ischemic cardio-pathy, teratogenic activity carcinogenic activity, risk of breast fibrocystic, problems with digestion, in particular when coffee is mixed with milk.

8. COCAINE

Cocaine is a stimulant of the central nervous system. whose effects are similar to amphetamines and caffeine. Cocaine abuse in the adult represents a significant risk. Competition merely increases the cardiovascular side effects through cardiac hyper-stimulation accompanied by arrhythmia and heart attacks. Main side effects include strong addiction and cardiovascular, cerebrovascular and neurological complications etc.

8.1 Side effects

The side effect may include the ventricular arrhythmia, sudden death, angina pectoris, aortic dissection, myocarditis, brain and meningeal hemorrhage, convulsions, blindness, optical neuritis, habit formation, insomnia, mental confusion, aggressiveness, paranoid delirium, repetitive behaviors, stereotyped movements of the mouth and tongue, anorexia, sex problems, loss of sense of smell, bacterial infections, and spontaneous abortion in females, liver toxicity, gastrointestinal ischemia, hyperthermia etc.

9. NARCOTICS

Narcotics are very strong pain killers. They are often given whenever the sportsman or sportswoman is faced with very great pain while doing sports e.g. boxing. The use of pain killers is frequent in sports, especially among athletes engaged in violent activities. Morphine derivatives are usually used to alleviate pain consequent to trauma, cramps and violent sports. Negative effects include addiction, convulsions, mood alteration, nausea etc.

9.1 Side effects

The most common effect of this class of substances is sedation, providing habitual doses are used. One must be aware of physical and psychological addiction induced by many opiates which are justly classified as narcotics. Possible side effects are .nausea, vomiting, vertigo, memory loss, mood problems, delirium, convulsion crises, addiction, withdrawal syndrome

10. CORTICOSTEROIDS

Corticosteroids have a pain-relieving effect and are anti-inflammatory; the body shows a higher stress tolerance and greater willpower. They are used in sports with long duration.

The possible side effects are to increase in blood sugar levels, presence of glucose in the urine, increase in blood pressure, increase in body weight, osteoporosis, eye disorders, risk of fractures and delayed bone repair, formation of blood clots, decrease in muscle nutrition, muscular atrophy, eye disorders, disorders of the nervous system, muscular cramps, insomnia etc. Corticosteroids can even lead to decrease or an arrest in the growth of young athletes.

11. EPHEDRINE ANALOGS

They are used to treat benign conditions such as a cold. One must be very cautious in examining this class of substances since there are over 50 derivatives which have similar effects. They have acute side effects caused by ephedrine analogs.

11.1 Side effects

The acute side effects include nervousness, irritability, insomnia, anorexia, vertigo, slight increase in blood tension, agitation, confusion, paranoia, mania, hallucinations, ictus, cerebral vascularisation, cerebral hemorrhage, severe hypertension, myocardial ischemia, and ventricular arrhythmia etc.

12. CANNABIS

Most countries consider cannabis as an illegal drug. Over the recent past, the quality of the drug has improved dramatically: the levels of active substances in plants bred nowadays are 10- to 30-fold higher than 15 years ago. Hence, it is difficult to still consider cannabis as a harmless product. Indeed, certain preparations found on the present day market are extremely potent. Consequently, the principal undesirable side effects which are listed below:

12.1 Side effects

Panic attacks, delirium, psychosis and loss of motivation syndrome, increase in carboxy-hemoglobin, pharyngitis, bronchitis, rhinitis, pharyngitis, bronchial spasms, blood shot and light-sensitive eyes, euphoria, depression, hallucinations, deterioration in vigilance and coordination, decrease in sperm production, inhibition of ovulation in women and gynecomastia in men, a faster onset of fatigue during exercise, acceleration of cardiac rhythm, enhanced feeling of thirst and loss of motivation etc.

13. OTHER SUBSTANCES

ACTH stimulates the production of corticosteroid and related anabolic effects. Side effect may include hypertension, hyperglycemia, osteoporosis, weakness of the immune system etc. Insulin is taken because is believed to increase the level of growth hormone, have anabolic effect. Side effects include anxiety, cardiovascular complications, hypoglycemia, damage to the brain etc. Chorionic gonadotropin increase testosterone production and counteract. The consumption of chorionic gonadotropin may lead to thrombosis, psychic disorders etc. Erythropoietin is a hormone which stimulates red blood cells production and thus increases the oxygenation of muscle tissue and physical recovery after physical activity. The increase of blood viscosity due to the gain of red blood cells may cause severe problems such as vascular thrombosis possibly leading to heart attack or stroke. Growth hormone stimulates the growth of men and women and also regulates the metabolism of sugars proteins and fats. It is taken by athletes and in particular bodybuilders for the possible anabolic effects. Side effects include hypertrophy of the viscera, diabetes mellitus, cardiovascular diseases etc (Gottardi and Fimognari, 2009).

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EFFECTS OF DIFFERENT TRAINING MODALITIES ON ACCELERATION SPEED ABILITY OF MALE FOOTBALL PLAYERS

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ABSTRACT

The purpose of the study was to assess the Comparative effect of different training modalities on acceleration speed of male football players. The subjects for present study were 60 male football players between the age of 16 – 20 years from different districts of Madhya Pradesh, who regularly participate in training and represented their districts in inter district competitions. Random group design was used to evaluate the effect of different training modalities. All the subjects were randomly assigned to three groups (N=20), out of which two group were experimental and one group served as a control group. To determine acceleration speed of football players, 30 Meter Sprint Test with Flying Start was administered upon all the respondents of experimental and control groups. The training programme for the experimental groups were administered on thrice a week on alternate days for 12 weeks . . The control group was not given any treatment other than playing regularly. In order to compare the effectiveness of plyometric training, competition exercise training, the Mean, SD and ANCOVA were computed. To find out the specific group differences among football players, L.S.D Test of Post hoc Comparison was applied. The results of study revealed that acceleration speed indicated significant differences among three group's acceleration speed of football players. Plyometric exercise did improve the acceleration speed of football players followed by specific competitive exercise group, but the effect was statistically insignificant.

Keywords: Speed, Acceleration, Plyometric exercise, Specific training , football players

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INTRODUCTION

The word football applies to whichever form of football is the most popular in the regional context in which the word appears, including association football, as well as American football, Australian rules football, Canadian football, Gaelic football, rugby league, rugby union, and other related games. These variations of football are known as football codes.

It is a game in which two opposing teams attempt to score goal by moving an inflated oval or round ball past a goal line or into a goal. Differing greatly in their rules, these include soccer (association football) and rugby. In addition to these the other part of the world different games are being played such as: American football, Canadian football, Gaelic football, and Australian football. In the United States, the word football generally refers only to the American game; in other parts of the world it usually means soccer (Csanadi, 1978.)

As far as speed is concern one requires acceleration speed, the ability to accelerate is fundamental to on-field success in football. Football incorporates sprinting, walking, jogging and frequent changes of direction that require optimum power and strength. Typically called "first-step quickness," acceleration allows a player to reach top speed faster and beat out other players to reach the ball.

Several types of speed are demonstrated in the game of Football but as far as speed is concern, performance largely depend three different types of Soccer speed: sprint speed, technical speed and quickness. Sprint speed (pure speed) is the ability to run fast over relatively short distances. To a large extent sprint speed is genetically determined, but sprint training often results in great improvements in speed ability. Technical speed is the combination of physical speed with soccer skills, with this ability a player is able to control the ball, make decisions and create offensive opportunities. Players with good technical speed can receive ball and also able to deliver at varying heights, angles and velocity.

Acceleration involves a change in velocity over a certain period of time or to quickly attain maximum speed from stationary or slow moving pace. Increasing acceleration means either increasing velocity or decreasing the time it takes to change speed. A player who would like to develop acceleration ability must possess the strength necessary to move his body against the forces of gravity. In fact, it is not how fast the athlete moves his/her feet while running (stride frequency) but rather the amount of force a player can exert onto the ground with each step that gives him the ability to accelerate quickly. Further this ability is largely depends on explosive strength of athlete.

The modern concept of speed embraces those abilities which make it possible for football player to execute the most suitable action for a given situation as rapidly as possible. The ability to run fast is, of course, an indispensable weapon in a player's armory. (Singh, 1995.)

Little et.al., (2005) concluded that acceleration, maximum speed, and agility are specific qualities and relatively unrelated to one another. The findings suggest that specific testing and training procedures for each speed component should be utilized when working with elite players. Surhat (2013) showed that while speed function does affect the agility competency, it had no effect on slalom and dribbling competency. The other findings showed that slalom and dribbling competencies affect each other positively. Rosch et.al., (2000), Stated to develop a standardized test battery to evaluate physical performance in football

players. The F-MARC test battery was designed to closely relate to the football player's normal activity and comprised a functional, structured training session of approximately 2.5 hours. It included a "quality rating" of the warm-up procedure, tests of flexibility, football skills, power, speed, and endurance. The players finished with a cool-down. A total of 588 football players underwent the F-MARC test battery. Mean values for performance on each test are presented for groups of differing age and skill levels. The test battery proved to be a feasible instrument to assess both physical performance and football skills.

The purpose of the study was to assess the Comparative effect of different training modalities on acceleration speed of football players. It was also hypothesized that there will be no significance difference in effect of Plyometric training and specific competition exercise training on acceleration speed component of physical fitness among football players.

METHODOLOGY

Selection of Subjects

The subjects for present study were 60 male football players between the age of 16 – 20 years from Jabalpur, Chhindwara and Tikamgarh (M.P.), who regularly participate in training and represented their districts in inter district competitions. All the subjects were randomly assigned to three groups (N=20), out of which two group were experimental and one group served as a control group. All the subjects voluntarily agreed to co-operate in training and testing procedure explained to them on the interest of promotion of performance and knowledge in the game of football. The requirement of testing procedure was explained to them in detail so that there will be no ambiguity or vagueness in their mind regarding efforts required on their part.

Criterion Measure

Acceleration speed: Time taken to run a distance of 30 meters as fast as possible, with flying start, recorded to the 1/10 of a second.

Research Design

Random group design was used to evaluate the effect of different training modalities. The selected subjects (N=60) were randomly divided into three groups with subjects in each group out of which experimental group-I underwent the plyometric training. Experimental group II underwent specific training thrice in a week along with two days match practice. Group-III (control group) participated in their regular game for 12 weeks the 80 minutes to 90 minutes training was devoted towards warming up and stretching.

Training Programme

The training programme for the experimental groups were administered on thrice a week on alternate days for 12 weeks . The control group played their regular football on non training days. The control group was not given any treatment other than playing regularly. The plyometric exercise programme consisted of Specific competitive exercise. Training programme was conducted on interval training principle. The intensity of training was constant for four weeks period. The training intensity was subsequently increased . the first for 5 to 8 weeks and there for into 12 in weeks of training. The training load with respect to number of repetitions and sets was progressively increased during phases the sets were performed With complete recovery between sets.

Administration Of Test

The pre and post tests were administered to the subjects at the play grounds and tracks of DSO Chhindwara, Deptt. Physical Education, R.D.V.V., Jabalpur of before the starting of and DSO Tikamgarh at the end of experiment. Before administering the tests the subjects were given proper warming up under the supervision of the research scholar. 30 Meter sprint test with flying start was administered on all the subjects.

30 Meter Sprint Test with Flying Start

Purpose: The aim of this test is to determine acceleration speed of the subject.

Equipment Required: measuring tape or marked track, stopwatch, cone markers, flat and clear surface of at least 50 meters.

Procedure: The test involves running a single maximum sprint over 30 meters, with the time recorded. A thorough warm up should be given, including some practice starts and accelerations. Start from a stationary position, with one foot in front of the other. The front foot must be on or behind the starting line. This starting position should be held for 2 seconds prior to starting, and no rocking movements are allowed. The tester should provide hints for maximizing speed (such as keeping low, driving hard with the arms and legs) and encouraged to continue running hard through the finish line. The timing starts from the first movement (if using a stopwatch) or when the timing system is triggered, and finishes when the chest crosses the finish line and/or the finishing timing gate is triggered.

Scoring: Two trials were allowed, and the best time is recorded to the nearest two decimal places.

RESULTS

In order to compare the effectiveness of plyometric training, competition exercise training. The data were subjected to one way Analysis of Co-Variance (ANCOVA). In case of significant F-ratios, the Least Significant Difference (L.S.D) Test of Post hoc Comparison was used to find out the specific group differences. The level of significance was set at 0.05 level of confidence and data pertaining to this have been presented in Table 1 and 2.

TABLE 1
DESCRIPTIVE STATISTICS OF PRE AND POST TEST SCORES OF
ACCELERATION SPEED ABILITY OF FOOTBALL PLAYERS.

Variable	Test	Mean	Standard Deviation
Speed	Pre-test	5.74	0.81
	Post-test	4.88	0.48

The pre-test and post-test data of the experimental group and the control were analyzed using analysis of co-variance-as the subject of the experimental and control groups were selected at random and were not equated with reference to the parameters examined, therefore the difference between the initial means of the groups at the pre-test level had to be taken on to account during analysis of post-test difference between the means. The final means were adjusted for the difference in initial means and adjusted means were tested for significance of difference.

TABLE 2
ANALYSIS OF CO-VARIANCE FOR EXPERIMENTAL GROUP
AND CONTROL GROUP ON ACCELERATION
SPEEDABILITY (SECONDS)

Means	Plyometric Group	Specific Training Group	Control Group	Source of Variance	Sum of Squares	d.f.	Means Sum of Squares	F
Pre Means	4.97	5.95	6.30	Between Groups	19.04	2	9.52	27.20*
				Within Group	19.94	57	0.35	
Post Means	4.59	4.89	5.15	Between Groups	3.13	2.00	1.56	8.33*
				Within Group	10.70	57	0.19	
Adjusted Means	4.74	4.85	5.04	Between Groups	0.57	2	0.28	1.59
				Within Group	9.97	56	0.18	

* Significant at .05 level $F_{.05}(2,56)=3.15$

The finding concerning pre test and post test mean scores on acceleration speed presented in table 2 indicated significant difference among different groups, as the obtained F-value of 27.20 and 8.33 on pre-test and post-test mean scores respectively were higher than the required F-value of 3.15 to be significant at .05 level of significance.

The analysis of adjusted post mean scores of different groups on acceleration speed indicated insignificant difference among the experimental –I , Experimental-II and control groups, as the obtained F-value of 1.59 was much lower than the required F value (3.15) to be significant on .05 level with (2,56) df. The data has been depicted in figure 1 and 2.

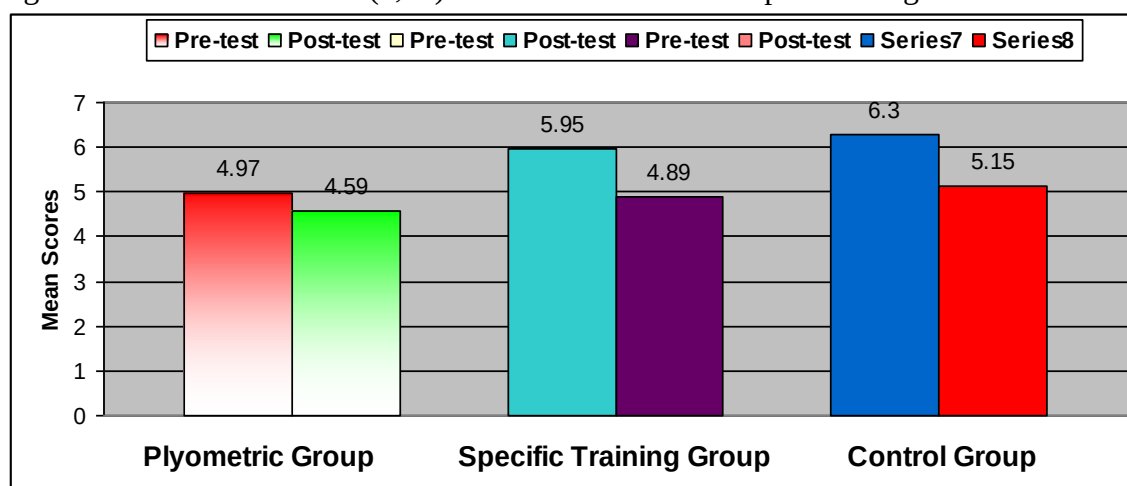


Figure 1: Pre and Post Test Mean for Experimental Group and Control Group on Acceleration Speed

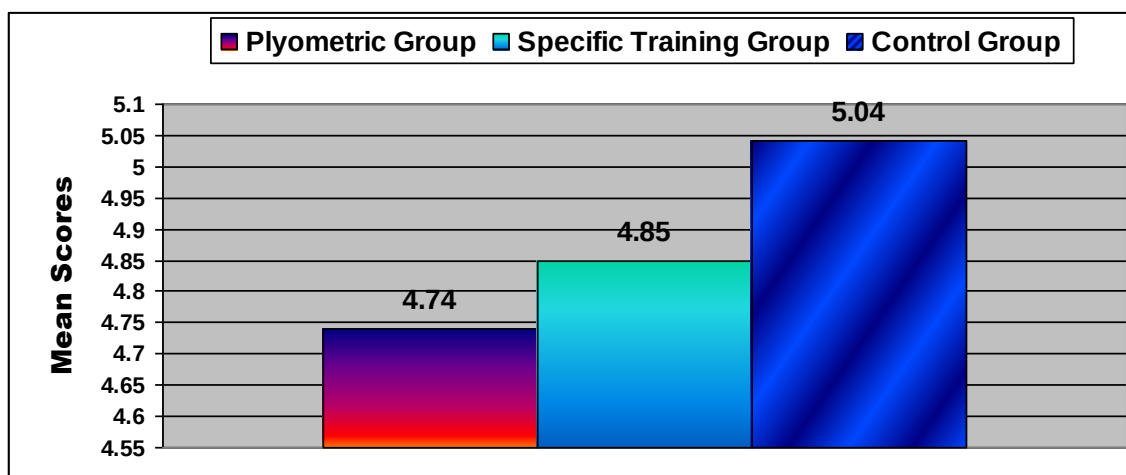


Figure 2: Adjusted Mean for Experimental Group and Control Group on Acceleration Speed.

DISCUSSION

The purpose of present investigation was to assess the relative contribution of plyometric training and specific competitive exercises programme on acceleration speed, of football players. Analysis of data on acceleration speed indicated significant differences among groups. Pre-test ($F=7.20$) and post-test ($F=8.33$) mean scores where as the difference among adjusted post mean scores was found to be statistically insignificant ($F=1.59$) at 0.05 level. Plyometric exercise did improve the acceleration speed of football players followed by specific competitive exercise group, but the effect was statistically insignificant. Finding of the present investigation concerning speed are in line with the finding of Watson, (1995). Researchers have shown that plyometric training when used with a periodized strength training programme can contribute to improvement in acceleration speed and overall performance (Harrison and Gattney, 2001; Hennessy and Kotly, 2001. Mitter et.al 2002; Passuke et.al, 2001).

CONCLUSIONS

1. The plyometric exercise did improve the acceleration ability but the improvement was statistically insignificant
2. Twelve week planned and systematic regular game practice is most effective in improving selected football skills.

IMPLICATION

The effectiveness of football training is principally depends upon scientific knowledge and experience of coach and players along with their willingness to get positive results from training. Some more factors responsible for effective training are the coaches execution, explanation, expectations, communication with the players and time spend on training. However, the most important piece of making an effective football training session is to make it competitive and game like situation. The results of the study may be helpful for the preparation of football teams. The findings may also suggest the ways and means to improve the components which are responsible for better performance. It may also provide the information that, at what extent the training modules are beneficial for the players. Finally the

results of the study may suggest which training method is more effective while preparing a football team.

FUTURE DIRECTION

In football performance of acyclic speed and affected by performance of cyclic speed. As the action is limited to a limited area/field, acyclic speed is more important in taking out the play and gaining advantage. Future research should focus on effect of speed drills formatted with acyclic. Similar study may undertaken by verifying the training phase duration, exercise/ drills and load parameters. Similar study may be replicated on female football players.

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A COMPARISON OF PERSONALITY PATTERN OF INTER-UNIVERSITY LEVEL INDIVIDUAL AND TEAM GAME'S PLAYERS

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ABSTRACT

The purpose of the present study was to compare and assess the personality pattern among Inter-university level male and female players individual and team games of various sports and games. The total number of players in different games were one hundred and seventy four, who have taken part in inter-university level tournaments organized time to time in the different corners of India. The 100 players were selected as a sample for the study in their performance order to complete and fulfill the aim of my study. The introversion and extroversion type of personality of players was explored by using the Introversion and Extroversion Inventory of P.F. Aziz and Rekha Agnihori (1991). To assess the personality characteristics of inter-university level male and female players belong to individual and team games, percentage, mean, standard deviation and t-ratio were computed from raw scores. The results of the study revealed that most of the inter-university level male and female players different games and sports Inter-university level male and female players of individual and team games belong to different games and sports did not differ significantly in their total personality pattern. It was also observed that personality pattern of players does not effected by the game's types.

Key words: Personality pattern, Individual games , Team games , male and female players

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INTRODUCTION

Personality can be influenced by some factors such as environment (family, sports, community, school, nature of sports, etc.), heredity and gender. and individual. Personality is the product of environment and role of sport and personality traits in psychological heredity and childhood experience is separated

Some studies have shown the positive effect of sport on personality, on the contrary some have shown no positive effect of sport on personality. Some believe that team athletes are more extraversion, with higher anxiety and dependency, on the contrary individual athletes are more introspection and with higher self-confidence. Then the study of athletes' personality characteristics, either individual or team sport athletes provide an opportunity for sport counselor, coaches and specialists to discover and select the talented ones for guiding them to the highest level of skills. Based on this, the main purpose of the present study is to survey and diagnose athletes' personality characteristics in individual and team sports and to compare their personality characteristics with each other

Different levels of personality characteristics proportionally influences feelings, emotions, and behaviour. For example, high score in extraversion predicts positive emotions like happiness, liveliness, optimism, high level of energy and activity (David, Green, Martin & Slus, 1997; Magnus, Diener, Fujita, & Pavot, 1993)

In the view of Eysenck, the main reason for the difference between extroverts and introverts is their level of cortical stimulation. The level of cortical stimulation in extroverts is lower than introverts and they have a higher sensory threshold; thus, they less react to sensory stimulation and require many stimuli for reaching a desired level of stimulation; they look for highly stimulating situations and in other words, they have athirst for stimulation. Therefore, tendency toward liveliness and sociability can often be observed in their behavior and psychopathic introverts are usually prone to anxiety, depression, phobia, and obsessive-compulsive disorder. However, psychopathic extroverts are usually antisocial and aggressive. They often have criminal and aggressive tendencies.

On the basis of characterization, Jung (1925) has classified personality into two types; extroverts and introverts. The person taking more interest in others and has an attitude to face outer world is called as extrovert. Introvert, on the other hand, means the person with mental tendencies directed inwards to himself and has an attitude to face the inner world. In the general way an individual may have either extroversion or introversion type of personality. Extraversion is more apparent in participants of team rather than individual sports, and sprinters are more extraverted than marathon runners (Dowd & Innes, 1981; Eysenck et al., 1982; cf. also Svebak & Kerr, 1989).

The Catell sport psychologists has defined personality as "That which tells what a man will do when placed in a given situation." Alderman (1974) defines personality as "integration or emerging of all the part of one's psychological life the way one thinks, feels, acts and behaves. According to Eysenck a clinical psychologist defined the personality as: "Personality is sum total sum of actual Behavior pattern of the organism.

Fatemeh et.al.(2012) showed that there is a significant difference between individual and team athletes in extraversion. Team athletes have higher levels of extraversion than individual athletes. Agyajit (1990) stated that the individual games players are more extrovert than the team game players. Behzadi et.al. (2012)B showed that there is a significant difference

between individual and team athletes in extraversion, and that team athletes have higher levels of extraversion. Ghaderi and Ghasemi (2012) showed that team athletes are more extroverted than individually athlete. The results also showed that there was no significant relationship between extroversion, introversion, emotional intelligence. Ilyasi and Salehian (2011) indicated that the individual sportsmen have higher degree of extraversion than team sportsmen. Mirmansouri (2009) concluded that there is a significant difference between team and individual athletes in extroversion/introversion and that team athletes are more extrovert than individual athletes. Hoyt et.al. (2009) concluded that the scores of team athletes are higher in extraversion than individual sport athletes. Kirkcaldy (1991) concluded that those who are more extroverted and less neurotic are more inclined toward team sports. [Nia](#) and Besharat (2010) concluded that athletes' personality characteristics are different for individual and team sports. Moallesi (1968) concluded in a study that individual athletes are more introverted than team athletes. As the results of the present research show, there is a significant difference between individual and team athletes in personality traits. The results revealed that the level of extroversion and responsibility is higher in team athletes than the individual athletes

Egloff and Gruhn (1996) indicted that the tri-athletes and long-distance runners were more extraverted. Outstanding athletes were more extraverted than average sportsmen. Attila (1992) stated that endurance athletes have higher extraversion than non-athletes. Ericson (1993) found a significance difference in personality traits between athletes and non-athletes (Besharat, 2001) showed no differences between athletes and non-athletes college students. Morgan (1978) studied the personality traits of a team of marathoners and concluded that these athletes are less anxious and more introverted.

Pasaei et.al. (2013) indicated that personality introversion-extraversion variable have the ability to predict the performance of skilled archers. Thus suggests that athletic trainers [and coaches] and those involved in the selection, training, exercises and games should be given the necessary attention to personality introversion-extraversion variable.

Furthermore, Eysenck, Nias & Cox (1982) believe that there is no explanation for similar personality characteristics between team and individual sport athletes. However, despite being acceptable theoretical supports for this suggestion, it is leaved without any study and empirical confirmation.

Today, the study of sports has become essential as it is a recognized mode of behaviour. As a result, anthropologist, human biologists and sports scientists are interested in differentiating several groups of phenomena that lead to the maturity of the individual as well as species. Sports influence both personality traits and improve psychomotor efficiency (Kane 1970).

The process of discovering talented athletes for participation in an organized exercise program is one of the most important issues in sport nowadays, so the study of athletes' personality characteristics, either individual or teams port athletes provide an opportunity for sport counsellor, coaches and specialists to discover and select the talented people for guiding them to the highest level of skills. Based on this, the main purpose of the present study was to compare and assess the personality pattern among Inter-university level male and female players individual and team games of various sports and games.

METHODOLOGY

Selection of Sample:

A general survey is done first of all to select the sample in which it includes the different game's player of chhattisgarh state, who have participated in inter-university level tournament of current year as per age required by AIU Sport Board. Out of these Games, 5 to 6 players from each game as per their best performance during university team selection are taken from in total team and individual player. The total number of players in different games were one hundred and seventy four, who have taken part in inter-university level tournaments organized time to time in the different corners of India. The 100 players were selected as a sample for the study in their performance order to complete and fulfill the aim of my study. 59 male player of individual and team games and 41 female players of individual and team games were selected in the form of sample. The details of sample is given in Table 1

TABLE 1
DISTRIBUTION OF SAMPLE

S.No.	Name of games	Type of Game	Male	Female	Total
1.	Hockey	Team Game	06	05	11
2.	Football	Team Game	05	05	10
3.	Volleyball	Team Game	05	05	10
4.	Basket ball	Team Game	06	06	12
5.	Kho-Kho	Team Game	06	06	12
6.	Gymnastic	Individual game	06	04	10
7.	Badminton	Individual game	06	05	11
8.	Wrestling	Individual game	07	00	07
9.	Athletes	Individual game	06	05	11
10.	Table Tennis	Individual game	06	00	06
	Total Players		59	41	100

Selection of Variables:

Keeping in view the importance of the selected psychological variable amongst male and female players of various sports and games, the sexes, form of games, and type of games have been selected as Independent variables. The personality pattern in the form of extrovert, introvert and ambivert sportsperson in various games and sports will serve as the dependent variables.

Instrumentation:

The sports student's introversion and extroversion type of personality was explored by using the Introversion and Extroversion Inventory of P.F. Aziz and Rekha Agnihori (1991) for the sport's students. This inventory consisted of 60 items. In which 30 items pertaining to an introversion characteristics and 30 items to an extroversion characteristics with 'Yes' and 'No' responses. Its reliability has been determined as ' $r=0.91$ '. The criterion validity is ' 0.95 ' which is in terms of validity coefficient. Researcher prepared the inventory in Hindi

language as per the convenience of the players. Ordinarily an individual will take 10 to 15 minutes to fill up this inventory. It was also emphasized that all the items have to be answered either in the positive or in the negative in 'Yes' or 'No'. One mark is awarded for each correct response. After checking the responses of the subject, score is calculated by the following formula:- Score obtained = No. of correct responses - No. of incorrect responses.

RESULTS

To assess the personality characteristics of inter-university level male and female players belong to individual and team games, percentage, mean, standard deviation and t-ratio were computed from raw scores and data pertaining to this have been presented in Table 2 to 5 and depicted in Figure 1 to 4

TABLE 2
PERCENTAGE INDICATION OF EXTROVERT, AMBIVERT & INTROVERT IN INTER-UNIVERSITY LEVEL MALE & FEMALE PLAYERS

Sex	Extrovert		Ambivert		Introvert	
	Scores	percent	Scores	percent	Scores	percent
Male	42	72.88	13	20.03	03	5.08
Female	29	70.73	12	29.26	00	00
Total	72	72.1	25	25	03	2.9

It is evident from table 2 that the 72.88 % inter-university level male players of different games and sports were found extrovert followed by 20.03 % ambivert and 5.08 % introvert personality pattern. In case of the inter-university level female players of different games and sports, 70.73% were found extrovert followed by 29.26% ambivert and 00.00% introvert in nature. As a whole, 72.1% of players of inter-university level players were found to be extrovert followed by 25% ambivert and 2.95 introvert personality pattern.

TABLE 3
DESCRIPTIVE STATISTICS OF INTER-UNIVERSITY LEVEL MALE AND FEMALE PLAYERS

Games	Sex	N	Mean	SD
Individual Games	Male	31	19.12	7.15
	Female	14	17.92	4.75
Team Games	Male	28	2.05	8.39
	Female	27	17.18	4.86

The mean scores of total personality pattern as scored by inter-university level male and female players belong to different individual and team games have been depicted in figure 1 to 4.

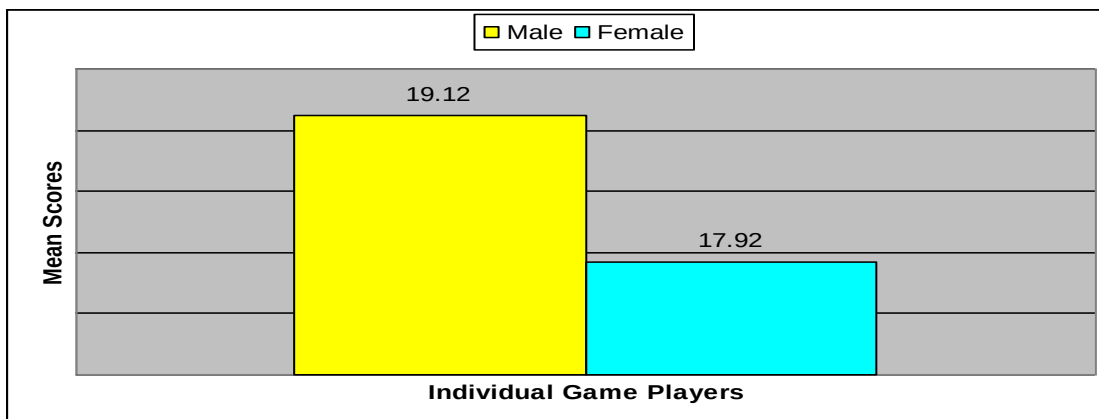


Figure:1-Mean Scores of Inter-university level Male and Female players of Individual Games.

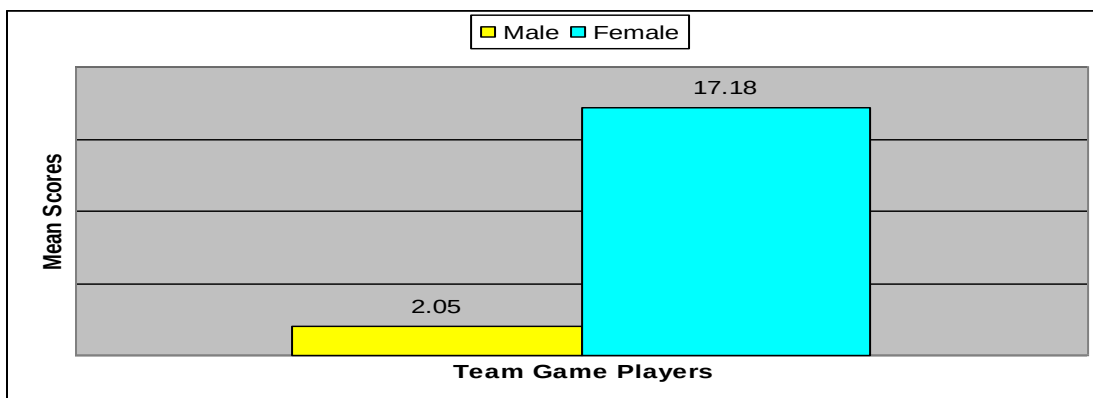


Figure:2 -Mean Scores of Inter-university level Male and Female players of Team Games.

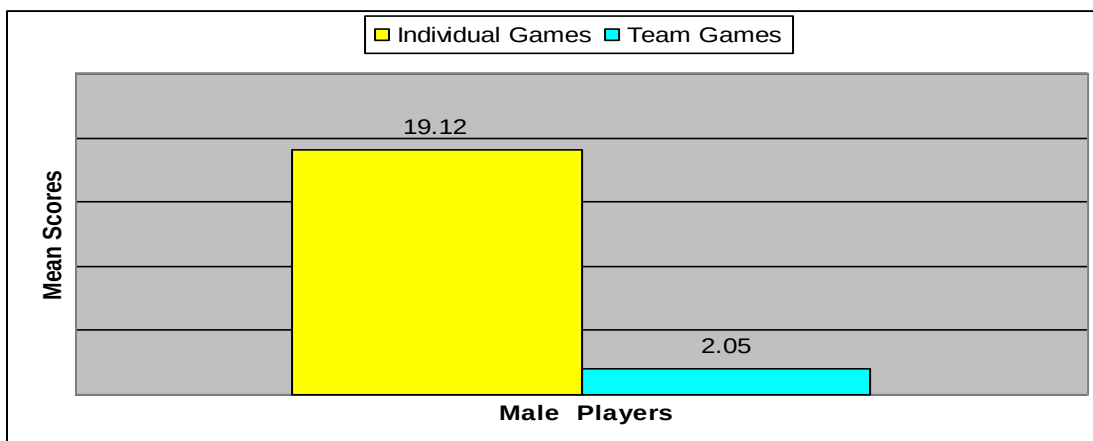


Figure:3-Mean Scores of Inter-university level Male players of Individual and Team Games

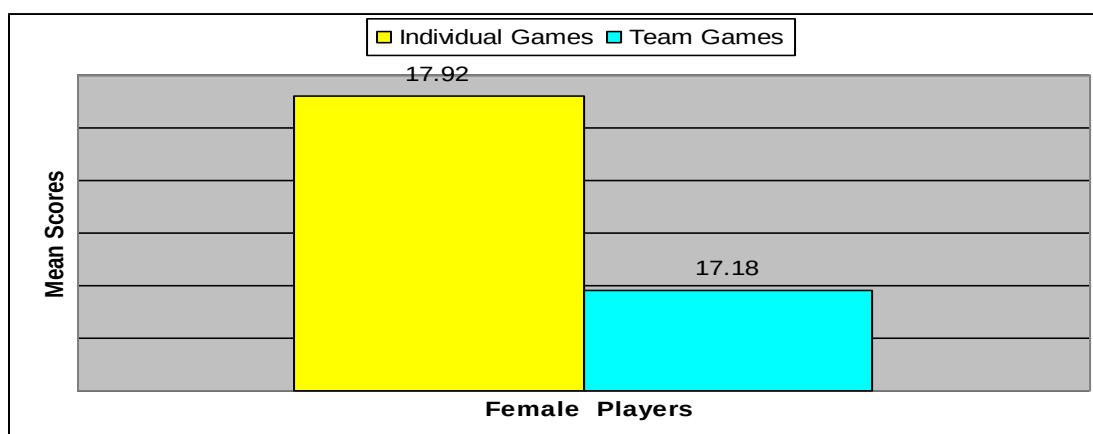


Figure:4-Mean Scores of Inter-university level Female players of Individual and Team Games

TABLE 4

SIGNIFICANCE OF DIFFERENCES BETWEEN MEAN SCORES OF TOTAL PERSONALITY PATTERN OF MALE AND FEMALE PLAYERS OF INDIVIDUAL AND TEAM GAMES OF DIFFERENT GAMES AND SPORTS

Sports	Mean	SE _D	Md	t-ratio
Individual Game (N=45)	19.12	2.03	1.38	0.67
Team Game(N=55)	2.05			

Insignificant at .05 level

t.05 (98) = 1.98.

It is clear from table 4 that statistically insignificant difference was observed between inter-university level male players of individual and team games in their total personality pattern, as the obtained t-value of 0.67 was less than the required t-value of t.05 (98) = 1.98. It suggest that the male players of individual and team games have similar personality pattern.

TABLE 5

SIGNIFICANCE OF DIFFERENCES BETWEEN MEAN SCORES OF TOTAL PERSONALITY PATTERN OF MALE AND FEMALE PLAYERS OF INDIVIDUAL AND TEAM GAMES BELONG TO DIFFERENT GAMES AND SPORTS

Sex	N	Mean	SE	MD	t-ratio
Male	59	19.77	1.27	2.34	1.84
Female	41	17.43			

Insignificant at .05 level

t.05 (98) = 1.98.

It is clear from table 5 that statistically insignificant difference was observed between inter-university level male and female players of individual and team games belong to different games and sports in their total personality pattern, as the obtained t-value of 1.84 was less than the required t-value of t.05 (98) = 1.98. It suggest that the male and female players of individual and team games of different games and sports have similar personality pattern.

DISCUSSION

Participation in individual or team sport activities is a demonstration of personality of athletes. Team sport's athletes are different from individual athletes. It denotes the change in the personality characteristics of athletes. It is one of the important issue that have always been of interest of behavioral scientist. These scientists are always faced with questions such as :participation in individual or team sport activities and a demonstration of personality by these athletes in changing pattern of their personality characteristics.

The mental profiles of athletes in different sports is different due to the type of sports. Coaches can make more precise decisions for certain sports by having knowledge of their personality of athletes in different sports . It is one of the important issue that have always been of these scientists. They are always faced many questions such as: Is participation in individual or team sport activities a demonstration of personality? Is the individual athletes? Do some specific sports change the personality characteristics? And does the mental profiles of athletes change due to the type of sport? To assess the personality characteristics of inter-university level male and female players belong to individual and team games, percentage, mean, standard deviation and t-ratio were computed

Percentage of different type of personality pattern showed that about three-fourth inter-university level male players of different games and sports belong to individual and team games were found extrovert in nature. This was supported by Moallefi, 1968; Hoyt et.al., 2009 and Kirkcaldy, 1991. less than one fourth male players were of ambivert in nature. Very few male players were found to be introvert in nature. When the percentage was calculated for inter-university level male and female players as a whole, about three -fourth players were of extrovert in nature, one-fourth ambivert and very few of introvert in nature.

Inter-university level female players of different games and sports indicated the same personality pattern in extraversion. But more than one -fourth of female players were of ambivert nature, where as, non of them was found introvert nature. When the inter-university level of both sex's players of individual and team games were compared together on total personality pattern, t-ratio resulted insignificant in their total personality. This study was supported by Eysenck, Nias & Cox (1982). Inter-university level players of both sex of individual games as a whole were found more extrovert in nature than their counter parts. When the inter-university level male and female players of different games and sports as a whole were compared together on total personality pattern, they exhibited statistically the insignificant difference between both sexes players. It suggest that the male and female players of different games and sports as a whole have similar type of personality pattern.

CONCLUSIONS

1. Most of the inter-university level male and female players of individual games and team games were found extrovert followed by ambivert and introvert in nature
2. Similar personality pattern was observed between inter-university level male players of individual and team games belong to different games and sports..
3. Inter-university level male and female players of individual and team games belong to different games and sports did not differ significantly in their total
4. The personality pattern of players does not effected by the game types.

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