Vol 6 Issue 8 September 2016

ISSN No : 2230-7850

International Multidisciplinary Research Journal

Indian Streams Research Journal

Executive Editor
Ashok Yakkaldevi

Editor-in-Chief
H.N.Jagtap

Welcome to ISRJ

RNI MAHMUL/2011/38595 **ISSN No.2230-7850**

Indian Streams Research Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial board.Readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

Address:-Ashok Yakkaldevi 258/34, Raviwar Peth, Solapur - 413 005 Maharashtra, India
Cell : 9595 359 435, Ph No: 02172372010 Email: ayisrj@yahoo.in Website: www.isrj.org

ISSN: 2230-7850 Impact Factor :4.1625(UIF) Volume - 6 | Issue - 8 | September - 2016

Indian Streams Research Journal

A MORPHOLOGICAL FOUNDATION IN CRICKET "AN INVESTIGATION OF SOMATOTYPE OF JUNIOR AND SENIOR CRICKET PLAYERS OF GOA"

Chandu G. Lamani[1] and Dr. Pratap Singh Tiwari[2]

[1]Physical Education Instructor, In Charge SAC & Sports, BITS, Pilani – K.K.Birla Goa Campus Deemed University Zuarinagar Goa-India, Research Scholar, Karnatak University, Dharwad.

[2]Retired, Ex- Director of Physical Education and Sports & Research Guide Department of Physical Education and Sports, Karnatak University, Dharwad.

ABSTRACT

The fundamental motivation behind the present study was to look at the Somato body sort profile of Junior and Senior cricketers of Goa, who are effectively partaking state and national competitions. Do the three Somatotype parts of junior cricketers vary from those of senior cricketers? A sum of 100 cricketers were inspected. Every one of the cricketers had contended at any rate at the state level and national level. With the end goal of the study 100 subjects were separated into Four Groups Under-14 (N=14), under - 16 (N=19), Under-18 and Seniors Above the age 18 underneath 23 years old. The creator found that there was contrast in Somato Body sort attributes among junior and senior cricketers of Goa.

KEYWORDS: *Morphology, Anthropometry, Somato body types, Junior and Senior Cricket players.*

INTRODUCTION :

Structure and capacities are two indivisible elements as for human execution in world class focused Sports. At the point when every single practical component, for example, Morphological, Physiological, Psychological and Motor wellness factors are equivalent, structure to a huge degree decides the level of achievement of a grown-up first class competitor (Nadgir, Anand 1986). In the early years cricket was considered as a fight amongst bat and ball and clearly wellness and sort of Body was not given due significance, With the presentation of One day cricket as of late, the diversion has experienced real changes and the physical request made on cricketers body have additionally expanded drastically. Contingent on the adaptation of the diversion assumed and pretended by the player in the group. (Simpson, Bob.1996).

Morphology and Anthropometry in Cricket, to foresee unrivaled execution in any games, various studies have been done in which exhibitions from different games have been contrasted with respect with some of these variables. A competitor morphology is yet one of the physical

qualities that impact best execution. Malina, 1984 conjectures that morphological qualities amid early adolescence give early upper hands in specific games, consequently inspiring the youngster to prepare and process in a particular game. On the off chance that this is genuine youngsters with certain morphological qualities ought to finish more than others by having an early focused edge in cricket performanceThere are various variables which are in charge of the execution of a sportsman. The body and body organization, including the size shape and frame are known to assume a huge part in such manner. At present, sportsman for predominant execution in any games is chosen on the premise of physical structure and body measure. Individuals vary from numerous points of view in their outside body shape. The varieties and the procedure of adjustment in physical viewpoint of people and the competitors occupied with various games is a fascinating perspective which has enticed the researchers to examinations and arrange: them. Athletic populaces are portrayed by enormous inconstancy in their morphological and hereditarily make-up (Malina).

PURPOSE OF THE STUDY

The primary motivation behind the present study was to portray the morphological and engine wellness profile of Junior and Senior cricketers of Goa, who are effectively taking an interest state and national competitions. Since the term morphology is an extremely wide idea, particular theory including some of Somatotype profile were detailed.

STATEMENT OF THE PROBLEM

The motivation behind the study was to distinguish the morphological qualities and physical wellness level of junior and senior cricketers of Goa.

1. Do the three Somatotype parts of junior cricketers contrast from those of senior cricketers?

HYPOTHESIS

For accommodation the theory have been assembled under the heading of Somatotype, morphological attributes and engine wellness.

SOMATOTYPE

Hypothesis 1: The Endomorphic component of the Somatotype of junior cricketers would be significantly smaller than that of senior cricketers.

Hypothesis 2: The Mesomorphic component of the Somatotype of junior cricketers would be significantly smaller than that of senior cricketers.

Hypothesis 3: The Ectomorphy component of the Somatotype of junior cricketers would be significantly greater than that of senior cricketers.

SIGNIFICANCE OF THE STUDY

It is trusted that the information produced and deciphered in this study will one day help the Goan cricket. It is apparent that the examination of body organization, which incorporates the assurance of muscle, fat weight, and fat rate among cricketers, is extremely fundamental. The data gathered can be utilized for observing the preparation program and in addition directing, giving data about the decision between turn bowler, quick bowler, batsman and wicket attendant. The creator likewise expect that this study will encourage the Goan cricket to enhance the standard of cricket in the state.

METHODOLOGY – SUBJECTS

A total of 100 cricketers were analyzed. Every one of the cricketers had contended at the state level and national level. With the end goal of the study 100 subjects were partitioned into four gatherings U-14, U-16, U-18 and seniors over the age of 18 yet beneath the age of 25 years. The quantity of subjects (N) and mean and standard deviation of every age gathering is outfitted in the table 1 as takes after.

Table-1: Number and Age ($\overline{X} \pm Sd$) of under 14 years, under 16 years, under 18 years and senior cricketers in the study

Age Group	N	Age ($\overline{X} \pm Sd$)
Under-14	14	13.059 ± 0.8322
Under-16	19	15.262 ± 0.6136
Under-18	17	16.65 ± 0.51
Senior	50	21.21 ± 1.71
Total	**100**	**18.16 ± 3.46**

Every one of the tests were controlled and recorded at Birla organization of Technology and Science College Gym. The subjects were measured from 6.00 AM to 8.30 AM. The accompanying anthropometric, and body structure measures were acquired amid every testing session. The estimations were altogether recorded in metric framework. Important substance was acquired from Goa Cricket Association and the mentors to test their players and get information. Standard systems were taken after for taking 18 anthropometric estimations from every cricketer.

DATA TRANSFORMATION AND DERIVED VARIABLES:

The three Somatotype segments were figured by utilizing total estimations of anthropometric measures, for example, skin folds (triceps, sub scapular, suprailiac, and average calf), and bone widths (Biepicondylar Humerus and femur) and strong size (strained arm, lower arm and calf).

List of Variables, which were derived by using certain formulas

1.Somato Type Components :

A) Endomorphy was obtained by finding sum of skin fold triceps, Sub scapular, and Supraspinale skin fold (X) using the following formula.

Endomorphy = $0.1451 \text{ x } -0.00068 X^2 + 0.000014 X^3 - 0.7182$

B) Mesomorphy component was obtained from the following equation.

C) Mesomorphy = $0.858 (E) + 0.601 (K) + 0.188 (A) + 0.161(C) - 0.131 (H) + 4.5$

Where E = Humerus breadth (cm);
K = Femur Breadth (cm);
A = Corrected arm girth:
Arm girth (cm) – triceps sf / 10) (mm);
C = Corrected Calf Girth:
Calf girth (cm) – (Medial Calf sf /10) (mm); and
H = Height (cm);

D) Ectomorphy component is obtained from the reciprocal of the Pondural Index X (RPI, or height divided by the cube root of weight):

R.P.I. = h/ (w^3) or h (w-0.333)
If RPI is greater than 40.75,
Ectomorphy = 0.732 RPI – 28.58
If RPI is equal t or less than 40.75 and greater than 38.25,
Ectomorphy = 0.463 RPI – 17.63
If RPI is equal to or less than 3825, a minimal Ectomorphy rating of 0.1 is assigned.

Statistical analyzes

Theories each of the three Somatotype parts of u-14, u-16, u-18 and senior cricketer were subjected to investigation of autonomous fluctuation. Taking after huge omnibus F-proportion, post-hoc, Scheffe's test was controlled to find huge distinction between means.

RESULTS

The speculations in this area are tried by autonomous investigation fluctuation (ANOVA). With the end goal of investigation gathering factors were cricketer's under-14, under-16, under-18 and seniors. Each of the Somatotype parts specifically Endomorphy, Mesomorphy and Ectomorphy were entered as needy factors. Taking after critical omnibus F-test, Post HOC examination was led. The outcomes are outfitted in the accompanying segments.

Outfitted in the table 2 are the mean and standard deviation ( ) of Endomorphy, Mesomorphy, and Ectomorphy for under-14, under-16, under-18, senior cricketers. It might be noticed that senior and Under-18 cricketers are more Endomorphic, while Under-16 year's cricketers are adjusted Mesomorphy with Endomorphy and Ectomorphy being practically equivalent.

Table-2: Mean and Standard Deviation of Endomorphy Mesomorphy and Ectomorphy of Four Age Group Cricketers

Group	Endomorphy	Mesomorphy	Ectomorphy
Under-14 (N=14)	3.66 ± 1.66	2.77 ± 1.44	2.82 ± 1.65
Under -16 (N=19)	3.60 ± 1.86	1.98 ± 1.25	3.62 ± 1.04
Under -18 (N=17)	5.22 ± 1.54	2.73 ± 0.90	3.18 ± 1.20
Seniors (N=50)	5.25 ± 1.36	3.37 ± 1.33	2.38 ± 1.21

Hypothesis 1:

The analysis of Endomorphy for this four age group resulted in a significant F ratio indicating that these four groups are significantly different in Endomorphy (Table-3).

Table-3: Summary of Analysis of Variance of Endomorphy of the Four Age Group Cricketers

	Sum of Square	df	Mean Square	F
Between Group	57.981	3	19.327	8.240*
Within Group	225.173	96	2.346	
Total	283.155	99		

α =p<0.05- In the Scheffe Post-hoc analysis indicated that under14, Under-16 years, are significantly less endomorphic than senior cricketers and Under-16 years cricketers are significantly less endomorphic compared to Under-18 years age group cricketers (Fig-1.)

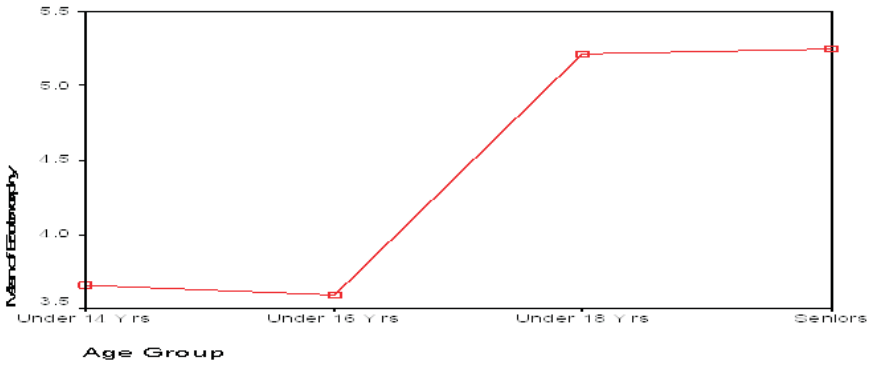


Fig-1: Differences of Endomorphic Components in Junior and Senior Cricketers

The first hypothesis which stated that the Endomorphic component of junior cricketers would be significantly smaller than that of senior cricketers was supported by the analysis (Table-4).

Table-4: Mean Difference in Endomorphy Component among the Four Age Group Cricketers

	U-14	U-16	U-18	Seniors
U-14		0.0657	1.5580	1.5886*
U-16			1.62238*	1.6544*
U-18				0.031
Senior				

* p<0.05

Hypothesis-2:

The analysis variance of mesomorphic component for the four age group cricketers resulted in a significant F-ratio (Table-7) indicating significant differences in mesomorphic components among the four groups.

Table-5: Summary of Analysis of Variance of Mesomorphy of the four age group cricketers

	Sum of Square	df	Mean Square	F
Between Group	27.883	3	9.294	5.794*
Within Group	153.993	96	1.604	
Total	181.876	99		

$\alpha = p<0.05$

Scheffe's Post-hoc test indicates that the only difference in Mesomorphy between Under-16 cricketers and senior cricketers is significant. Under-16 age group cricketers are significantly less mesomorphic than senior cricketers (Table-8). Though under-14 years and under-18 year's age group cricketers are less mesomorphic than senior cricketers, the difference did not reach significant level (Fig-2).

Table-6: Mean Differences in Mesomorphic Component among the Four Age Group Cricketers

	U-14	U-16	U-18	Seniors
U-14		.7839	3.5714	0.6063
U-16			.7482	1.3902*
U-18				0.6420
Senior				

* p<0.05

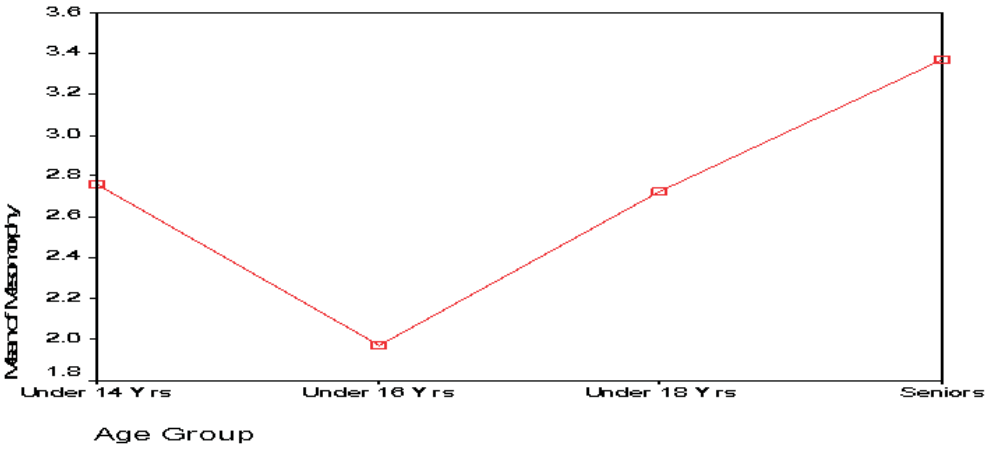


Fig-2: Differences in Mesomorphic Components among Junior and Senior Cricketers

The second hypothesis, which stated that the mesomorphic component of junior cricketers would be significantly smaller than that of senior cricketers, was partially accepted.

Hypothesis –3: As was observed in the case of Endomorphy and Mesomorphy the analysis variance of Ectomorphy component also resulted in a significant F-ratio (Table-7).

Table-7: Summary of Analysis of Variance of Ectomorphy of the Four Age Group Cricketers

	Sum of Square	df	Mean Square	F
Between Group	23.786	3	7.929	5.106*
Within Group	149.063	96	1.553	
Total	172.850	99		

$\alpha = p<0.05$

The Scheffe post-hoc test again indicated that under-16 year age cricketers are significantly more Ectomoprhic than senior cricketers. Though under-14, under-18 age group cricketers are more Ectomorphy than senior cricketers the difference did not reach significant level (Table-10).

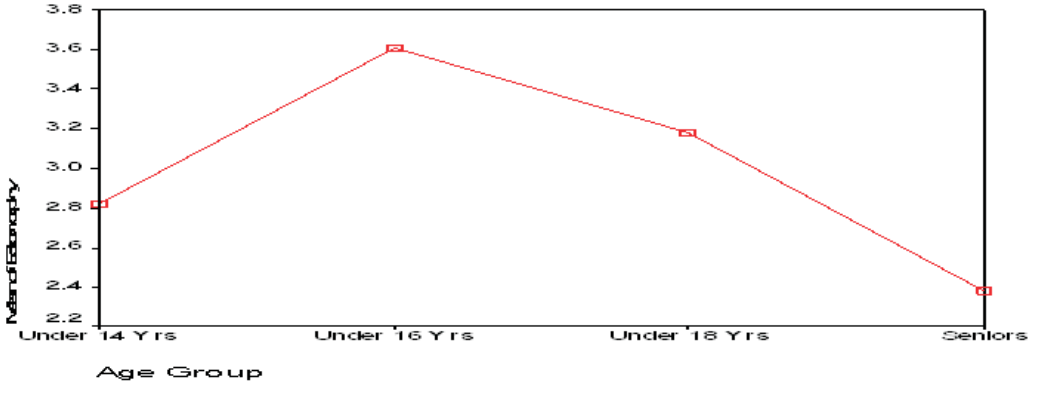
The third hypothesis which stated that the Ectomorphy component of junior cricketer's would be significantly greater than that of senior cricketer was partially accepted (Fig-3).

Table-08: Mean Difference in Ectomorphy Component among the Four Age Group Cricketers

	U-14	U-16	U-18	Seniors
U-14		.7926	.3605	.4393
U-16			.4321	1.2318*
U-18				.7998
Senior				

* p<0.05

Fig-3: Differences in Ectomorphy Components among Junior and Senior Cricketers



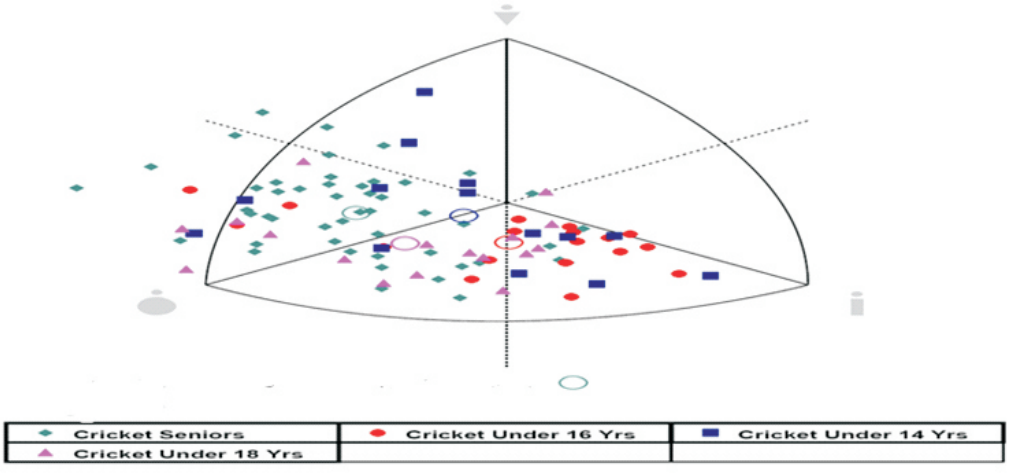


Fig. 4: Somatoplot of All Cricketers (Combined)

DISCUSSION

The author found there was contrast in morphological level among junior and senior cricketers of Goa. The vast majority of the amusement related aptitudes, anthropometrical and physical engine capacities change amid the formative years of youthful sportsman. These progressions can be because of the physiological changes a youthful sportsman under goes amid his or her advancement year (8-18 years). Ability recognizable proof is done at youthful age. Yet, fruitful game members at all level of game and rivalry have certain special attributes and these qualities incorporate anthropometric profile capacity.

The aftereffects of the present study for junior and senior cricketers were not as definitive with respect to the senior cricketers. One reason, why a considerable lot of the morphological a profile of junior cricketers neglected to achieve the essentialness level was that, the lesser cricketers were all the while developing and senior cricketers were at that point developed.

• The age class for junior cricketer was under 18 years old and for senior cricketers it was over 18 however underneath the age of 25. The reason suggests that the morphological and engine wellness profile of junior cricketers change as they propel development partner.
• The second explanation behind the absence of contrast might be that lesser cricketers contended at lower level that that of senior cricketers as such the lesser cricketers were less refined than the senior cricketers in the present study, and hence the morphological profiles of junior cricketers were not as affirmed.
• The third reason is that of rivalry of junior cricketers likewise implied that the force of their preparation was less contrasted with the senior cricketers.

Along these lines, these might be variables which may have contributed in separating these two gatherings. Level of development, achieved and preparing force of senior cricketers have made them to stand one stage in front of junior cricketers of Goa.

CONCLUSION - SOMATOTYPE PROFILES

The Somatotype investigation uncovered that the cricketers of Goa at all ages are marginally endomorphic either Meso-endomorphic or endomorphic. Advance it was seen at age of 16 the mesomorphic segment lessened to the most minimal level as a consequence of which the Ectomorphy part expanded while the endomorphic segment stayed enduring. The variety, it was finished up, is maybe because of the direct development of young men between the ages of 14 to 18 years. As the young men developed or developed it was watched that this mesomorphic segment and also endomorphic segment consistently expanded. This prepared for last somatotypical profile of senior cricketers which was Meso-endomorphic. It was likewise intriguing to note that the Ectomorphy segment expanded at 16 years old years and diminished bit by bit then onwards. In any case one ought to be cautious in making such judgments since the information was gotten from free specimens and was not a development examine.

RECOMMENDATIONS FOR FUTURE RESEARCH

1.Extensive research have been embraced in a few games orders to indentify morphological qualities of youthful games kids which empowers mentors to recognize promising ability in their separate games disciplines. In any case, no exploration is traceable which distinguish morphological and different qualities of youthful cricketers. In this manner it is prescribed to embrace examine which may distinguish the morphological, physiological, mental profiles of youthful cricketers from ordinary populace or other brandishing populace.

2.In the present study test size of youthful cricketers was little. Along these lines, it is prescribed to duplicate such an examination with bigger example measure.

3.It is prescribed to examine development example of youthful crickets with either longitudinal or blended longitudinal or cross area consider.

4.Within every games teaches the requests set on different pros contrasts. Hence their morphological, physiological and mental prerequisites likewise contrast. Examination of morphological, physiological and mental profiles of cricketers spend significant time in rocking the bowling alley, batting, wicket keeping is prescribed.

5.The present examination included cricketers at state level. The morphological profile at national and global level might be emphasizd for different reasons. Accordingly an examination including cricketers of national and global notoriety might be embraced.

RECOMMENDATION FOR COACHES AND ADMINISTRATORS

1.The present examination uncovered that including junior's all cricketers were Meso-Endomorphic in the majority of the focused games. The sportsmen are either Ecto-Mesomorphic or Meso-Ectomorphy. Thusly it is suggested that either preparing administration be made requesting or select hopefuls with reasonable body sorts.

2.Based on the exploration discoveries including youthful youngsters in games, recognize capable cricketers at early age and mentor them right. It is suggested that mentors in light of their insight into morphological and physiological profile required for different bureaus of the round of cricket may advise their wards.

REFERENCES:

1.Broekhoff, J., Nadgir, A. and Pieter, W. (1986) Morphological differences between young gymnasts and non-athletes matched for age and gender. In T. Reilly, J. Watkins and J. Borms (Eds), Proceedings of

the VIII commonwealth and international conference on sports, physical education, dance, recreation and health: Kinanthropometry III (pp. 204-210). London: E. & F. N. Spoon.
2.Carter, J.E.L. (1971) Somatotype characteristics of champion athletes. In Academia (Eds), Anthropological congress dedicated to Alies Hrdliicka (pp. 241-252).
3.Chandu, L, 2015, a comparative study on Physical fitness variables of Bowlers and Batsman of Goa U-22 state cricket team, International Conference on Health fitness wellness 2015, Conference Proceedings LNIPE Gwalior
4.Chandu, L 2015,"A Comparative study On Motor Fitness variables among Bowler, Batsman, and Wicket keeper of Elite Cricket Players of Goa" International Multi-Disciplinary Research Journal. Golden Research Thoughts- Vol-5/Issue 6 / Dec 2015-ISSN N0: 22315063
5.Chandu, L 2015 "Anthropometric Study of Goa U-19 State Cricket team" Academia sports scholar journal- volume-4/issue-12/Dec 2015. ISSN N0: 2277-3665
6.Chandu, L 2015 "A study of Biomechanical and Anthropometric variables of off spin Bowler of Goa" International Journal of Physical Education, sports and Health: 2016:3 (1): 01-03. P. ISSN: 2394-1685, E.ISSN:2394-1693
7.Chandu, L, 2010, a study of Morphological and Motor Fitness of Junior and senior cricket players of Goa- MPEd Dissertation
8.Diwakar, L.A., 2003, Kinanathropometrical Study of elite Nepalese National Under 19 Cricketers. Kathmandu Publication. Houghton, LA, Running between the wickets: what is the fastest technique? international journal of scientific coaching 5: 101-107,2010
9.Johnston, JA and Ford, PA. Physiological profiles of professional cricketers. J Strength conditioning research 24:2900-2907,2010
10.Malina, R. M. (1986). Maturational consideration in elite young athletes. In J.A.P. Day (Ed.), The 1984 Olympic Scientific Congress Proceedings Volume 1: Perspectives in Kinanthropometry (pp. 29-43). Champaign, IL: Human Kinetics.
11.Nadgir, A. (1986). Morphological differences between young male gymnasts, young non-gymnasts, and adult elite gymnasts. Eugene, OR: Microform publications
12.Robert, lockie, 2013, Analysis of specific speed testing for cricketers, International journal of strength and conditioning research.

Chandu G. Lamani
Physical Education Instructor, In Charge SAC & Sports, BITS, Pilani – K.K.Birla Goa Campus Deemed University Zuarinagar Goa-India, Research Scholar, Karnatak University, Dharwad.

Publish Research Article
International Level Multidisciplinary Research Journal
For All Subjects

Dear Sir/Mam,

We invite unpublished Research Paper,Summary of Research Project,Theses,Books and Book Review for publication,you will be pleased to know that our journals are

Associated and Indexed,India

- International Scientific Journal Consortium
- OPEN J-GATE

Associated and Indexed,USA

- Google Scholar
- EBSCO
- DOAJ
- Index Copernicus
- Publication Index
- Academic Journal Database
- Contemporary Research Index
- Academic Paper Databse
- Digital Journals Database
- Current Index to Scholarly Journals
- Elite Scientific Journal Archive
- Directory Of Academic Resources
- Scholar Journal Index
- Recent Science Index
- Scientific Resources Database
- Directory Of Research Journal Indexing

Indian Streams Research Journal
258/34 Raviwar Peth Solapur-413005,Maharashtra
Contact-9595359435
E-Mail-ayisrj@yahoo.in/ayisrj2011@gmail.com
Website : www.isrj.org