

Meditation and Proprioceptive Training on Cognitive Neuromotor Development for Badminton Players- A Combined Effect

Mr. Shukla Shivesh, Mumbai., India

Introduction- The human brain is perhaps the most remarkable motor control device in existence. More than 10 billion neurons comprise the motor system in the human brain to command motor activation patterns that allow us to talk and sing; sit and stand; run and jump; and throw and catch - often without even paying attention. Neurocognitive is a term used to describe cognitive functions closely linked to the function of particular areas, neural pathways, or cortical networks in the brain which broadly seek to understand how the structure and function of the brain relates to thought and behaviour (Green, 1998). As we know that both meditation and proprioceptive training is related with brain functioning, so; we can define, meditation is a discipline by which one attempts to get beyond the conditional “thinking” mind into a deeper state of relaxation or awareness and proprioception is an automatic sensitivity mechanism in the body that sends message through central nervous system (CNS), and it can be enhanced with training, according to Greg Niederlander. The word proprioception derived from Latin word ‘proprius’, meaning "one's own" and perception is the sense of the relative position of neighboring parts of the body. Proprioceptive training can improve athlete’s strength, coordination, muscular balance and muscle-reaction time and also reduce risk of injury during sporting activity.

Method- The present experiment was conducted on 23 intermediate level badminton players age ranging between 19-24 years with the mean and SD of 21.60 ± 1.58 . Cognitive abilities were assessed by means of stroop test; trail making test & word puzzle test and neuromotor test include skill test in badminton and balance test (Bohannon, 1984). The experiment was of 6 weeks, 5 times a week with mixture of 15-20 minutes for meditation and proprioceptive training respectively. Paired t –test was applied at the result was tested for significance 0.05 level.

Results- After comparing the cognitive ability of mean and standard deviation there is significant difference is seen in stroop test I & II with the value of 8.71 ± 1.47 ; 8.18 ± 1.20 and 26.58 ± 7.82 ; 21.97 ± 5.53 , the correlation value is 0.63; 0.89 and tabulated ‘t’ value is 2.21; 5.78 against the require value of 2.07 respectively, in trail making I & II also there is significant difference is seen with the value of 21.20 ± 7.67 ; 16.84 ± 5.10 and 46.66 ± 13.38 ; 37.23 ± 7.03 , the correlation value is 0.60; 0.49 and tabulated ‘t’ value is 3.41; 4.82 against the require value of 2.07 respectively, and in word puzzle test also significant difference is seen with the value of

Variorum, Vol.-01, Issue-II, November 2010

9.95 \pm 1.99; 12.13 \pm 1.74, the correlation value is 0.46 and tabulated 't' value is 5.36 against the require value of 2.07 respectively.

After comparing the neuromotor ability of mean and standard deviation there is significant difference is seen in balance test right leg with closed eyes 1.91 \pm 1.02; 3.36 \pm 1.29, the correlation value is 0.56 and tabulated't' value is 6.24 against the require value of 2.07 and the value of balance test left leg with closed eyes is 2.51 \pm 1.04; 3.69 \pm 1.06, the correlation value is 0.42 and tabulated't' value is 5.04 against the require value of 2.07 respectively.

After comparing the skill ability of mean and standard deviation there is significant difference is seen in clear basic with the value of 16.60 \pm 5.45; 18.43 \pm 5.16 and the correlation value is 0.31, lob basic with the value of 15.21 \pm 4.35; 18.87 \pm 5.61 and the correlation value is 0.23, drop basic with the value of 11.52 \pm 4.31; 13.87 \pm 5.24 and the correlation value is 0.25, total of basic skill with the value of 43.43 \pm 9.61; 51.61 \pm 12.78 and the correlation value is 0.63, clear advance with the value of 20.30 \pm 4.35; 20.04 \pm 4.40 and the correlation value is 0.53, lob advance with the value of 14.78 \pm 4.59; 17.65 \pm 4.55 and the correlation value is 0.58, drop advance with the value of 11.26 \pm 6.35; 14.21 \pm 5.86 and the correlation value is 0.56, total of advance skill with the value of 45.87 \pm 12.55; 51.70 \pm 11.75 and the correlation value is 0.61 respectively and the tabulated't' values are lob basic with the value of 2.81, total of basic skill is 3.90, lob advance with the value of 3.28, drop advance with the value of 2.46 and total of advance skill is 2.60 against the require value of 2.07 respectively in which effect is seen and no effect is seen in clear basic, droup basic, clear advance.

Discussion and Conclusion-

Table 1
Descriptive Scores Comparison of Cognitive Ability Scores
of Cognitive Ability of Badminton Players

S.No	Test Item	Sample (N)	Mean (M)	Standard Deviation (S.D)	Correlation (r)	Tabulated 't'	DF
1	Stroop Test I-Pre.	23	8.71	1.46	Pre & post	Pre - post	
	S.T-I - Post	23	8.17	1.19	.635	2.21	22
2	Stroop Test II-Pre.	23	26.57	7.81	Pre & post	Pre - post	

	S.T-II - Post	23	21.97	5.52	.892	5.78	22
3	Trl. Mkn. Test I - Pre	23	21.20	7.67	Pre & post	Pre - post	
	T.M.T I- Post	23	16.83	5.10	.605	3.41	22
4	Trl. Mkn. Test II - Pre	23	46.95	11.20	Pre & post	Pre - post	
	T.M.T II- Post	23	36.89	7.61	.487	4.82	22
5	W.P.T- Pre.	23	9.95	1.98	Pre & post	Pre - post	
	W.P.T- Post	23	12.13	1.74	-.462	-5.36	22

* < 0.05 (22 df) 2.07

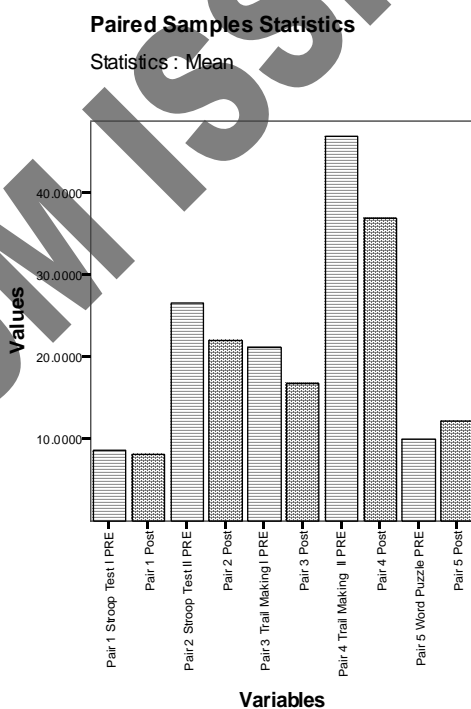


Figure 1. Mean Scores of Cognitive Ability at Pre and Post Conditions

Table 2
Pre and Post-Training Descriptive Scores & Comparison of Neuromotor Balance
Ability of Badminton Players

S.No	Test Item	Sample (N)	Mean (M)	Standard Deviation (S.D)	Correlation (r)	Tabulated 't'	DF
1	BRLCE Pre.	23	1.91	1.02	Pre & post	Pre - post	
	Post	23	3.36	1.29	.559	-6.24	22
2	BLLCE Pre.	23	2.51	1.04	Pre & post	Pre - post	
	Post	23	3.69	1.06	.429	5.78	22

* < 0. 05 (22 df) 2.07

Table 3

Pre and Post-Training Descriptive Scores & Comparison of Neuromotor Balance
Ability of Badminton Players

S.No	Test Item	Sample (N)	Mean (M)	Standard Deviation (S.D)	Correlation (r)	Tabulated 't'	DF
1	Clear B Pre.	23	16.60	5.45	Pre & post	Pre - post	
	Post	23	18.43	5.16	.311	-1.405	22
2	Lob B Pre.	23	15.21	4.35	Pre & post	Pre - post	
	Post	23	18.86	5.61	.239	-2.81*	22
3	Drop B Pre	23	11.52	4.31	Pre & post	Pre - post	
	Post	23	13.86	5.24	.254	-1.914	22

4	Total Skill B Pre	23	43.43	9.61	Pre & post	Pre - post	
	Post	23	51.60	12.78	.630	-3.90*	22
5	Clear A Pre.	23	20.30	4.35	Pre & post	Pre - post	
	Clear A Post	23	20.04	4.40	.533	.295	22
6	Lob A Pre.	23	14.78	4.59	Pre & post	Pre - post	
	Lob A Post	23	17.65	4.54	.579	-3.28*	22
7	Drop A Pre	23	11.26	6.34	Pre & post	Pre - post	
	Drop A Post	23	14.21	5.86	.557	-2.46*	22
8	Total Skill A Pre	23	45.86	12.54	Pre & post	Pre - post	
	Total Skill A Post	23	51.69	11.75	.617	-2.62*	22

* < 0.05 (22 df) 2.07

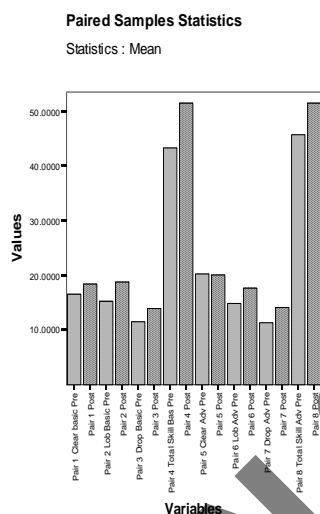


Figure 3. Mean Scores of Skill Ability at Pre and Post Conditions

Recommendations

1. Similar study can be conducted on other players of different game and also on general population in large scale.
2. Further study should be conducted on a larger group for longer duration and for other racket games player.
3. It can be conducted on subjects with varied age levels and for both the sex.
4. Similar study could be undertaken for players suffering from various injuries.
5. This study could help to include the meditation and proprioceptive training in every games and sports.
6. This study could help to improve concentration ability also

References

- Bhaskarananda, swami (2001)** *Meditation, Mind, and Patanjalis Yoga* (page 3), Shri Ramakrishna Math Printing Press.
- Lavallee, Kremer, Moran, Williams (2004)** *Sports Psychology Contemporary Themes* (page 36-7,161), Palgrave Macmillan
- Acharya, Jayashree ; Bhattacharya, Debolina & Bal, Anshuman (2007)** Effect of Incremental Physical Stress on Cognitive Abilities And Affective Response of Female Athetes Published in the Proceedings of *Joint Congress 2007 SEA Games & ASEAN Para Games Scientific Congress and 5th ASPASP International Congress on Sport Psychology* 1st – 4th December 2007, Bangkok THAILAND ISBN 978-974-13-0988-7

Variorum, Vol.-01, Issue-II, November 2010

Acharya, Jayashree and Kumar, Pradeep (2007) Breathing and Meditation as a Means for Improving Pain Tolerance Will to Win and Self-Esteem among Athletes *Joint Congress 2007 SEA Games & ASEAN Para Games Scientific Congress And 5th ASPASP International Congress on Sport Psychology* 1st – 4th December 2007, Bangkok THAILAND ISBN 978-974-13-0988-7

VARIORUM ISSN 0976-9114