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Comparison of Effect of Yoga Nidra, Autogenic Training on Basketball Players

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Abstract: *The study was to compare the effectiveness of Yog Nidra, Autogenic Training on Electro dermal Response (EDR, measured in Kilo-ohms) of female basketball players in the age group of 13 to 17 years. The 90 girls were randomly assigned into three treatment groups. Group 1 served as a control group and pre and post Electro dermal response (EDR) was measured without any intervention/training being given to the group-1. Group 2 was given a regular 40 to 45 minutes Autogenic Training. Group 3 was given a regular 40 to 45 minutes Yog Nidra training. The 2 experimental groups were given training for 25 days (5 days per week). After 25 days, the EDR of all the 3 groups was measured. The Yoga Nidra group mean value showed significant rise in EDR values at 0.01 level of confidence and the Autogenic training group showed significant rise at .05 level of confidence. The control group did not show statistically significant increase in the EDR value at .05 or .01 level of confidence.*

Key words: Autogenic Training, Yoga Nidra, Electrodermal response.

Introduction

Statement of the problem: "Comparison of effect of yoga nidra, autogenic training on basketball players". All athletes react in some or the other way to before, during and after competition and training demands both physiologically and psychologically.

Stresses and tension states consisting of psychological and physical symptoms brought about by a sense of apprehension of a perceived threatbefore competition differs according to the level of competition and on pre-competition preparations, injury, orientation and can differ according to the situation and the individual's reaction. Applied to the sporting arena this means that a shooter for example may experience more anxiety playing in a major international ranking year ending tournament compared to a club competition. At the same time a club competition may draw the same nerves in another player. A sports person with an anxious personality may find many different everyday tasks stressful compared to someone who only gets nervous in extreme situationsAccording to Kremer and Moran (2008) one reason why we tend to get uptight before competition could be related the many unforeseen circumstances. Technically speaking some involuntary physiological functions like skin pore size, heart rate and respiration rate may not be perceptible as manifestation of stress, tension. Self imposed demand like not wanting to fail in front of home crowd can even more pressure on a player when as they become more aware of being observed and so the stress continues to grow. For a lot of athletes, stress and anxiety can be a very unpleasant feeling with physiological symptoms including a racing heartbeat, sweaty palms and muscle tension. Coaches and sport psychologists often look for more and more ethical techniques they can use to regulate anxiety. Some use mere observation techniques, where as some use traditional techniques like yoga, transcendental meditation, whereas others may use high end apparatus like digitally controlled biofeedback machines, so on and so forth. Green and Green (1977) studied Indian yoga practitioners and discovered they were able to control various physiological functions voluntarily including brain waves, body temperature and blood pressure. Their study was able to demonstrate how the mind and body are linked which brings us to the next technique. Performing a simple exercise such as breathing effectively can enable an athlete to relax and prepare for competition as more oxygen gets carried in the blood which in turn facilitates the working muscle. Diaphragmatic breathing involves a muscle in the abdomen called the diaphragm. A simple way to learn this technique is to place your left hand on your abdomen and the right on your upper chest. As you breathe in your left hand should move out and your right hand should remain relatively still. This is a sign you are breathing effectively using your full lung capacity. Try to exhale for twice as long as you have inhaled. This helps to slow the heart rate and in turn aids relaxation. By performing these simple techniques during training or when you have some free time can help to calm those nerves and also view them in a different way so that they do not interfere with performance. The present study aims to compare two well known performance enhancing techniques for their effectiveness in the context of female basketball players. Autogenic training is

a relaxation technique developed by the German psychiatrist Johannes Heinrich Schultz and first published in 1932. The technique involves the daily practice of sessions During each session, the practitioner will repeat a set of visualisations that induce a state of relaxation. Each session can be practiced in a position chosen amongst a set of recommended postures (for example, lying down, sitting meditation, sitting). Another technique called yoga nidra was being incorporated in the present study to one of the experimental group. Yoga nidra or "yogic sleep" is a sleep-like state which yogis report to experience during their meditations. Yoga nidra, lucid sleeping is believed to be among the deepest possible states of relaxation while still maintaining full consciousness. The practice of yoga relaxation[clarification needed] has been found to reduce tension and anxiety. The autonomic symptoms of high anxiety such as headache, giddiness, chest pain, palpitations, sweating and abdominal pain respond well. The yoga nidra technique as retrieved in 2011 from the works and philosophy of Swami Satyananda Saraswati has been used as an intervention in the present study. Null hypothesis was framed. It was hypothesized that post –intervention, the means of two or more groups will not be significantly different. $\mu 0 = \mu 1 = \mu 2 = \mu 3$. that there will not be any difference between the mean scores of the samples. μa = alternative hypothesis is that at least two treatment means will differ.

Procedure

The study was conducted on 90 (N= 90) basketball players age between 13-17 years, who were regularly reporting for match practice session. Subjects were selected randomly for the subjects for the study. The selection of tests had adopted according to suitability of the study. The research scholar made sciencier efforts to review of related literature, and held a series of discussion with experts. All the subjects, after having been informed about the objective and protocol of the study, gave their consent and volunteered to participate in this study. They were further divided into three groups of 30 each (i.e., N= 30; Control group and N=30; Autogenic Group and N=30 ; Yoga Nidra).

The research scholar used the tools of demographic questionnaire, which asked basic information such as name, gender, academic status, experience, and position. To assure confidentiality, the responses were coded for each participant. The researcher had given Yoga Nidra training to the participants for 40-45 minutes in the morning after the end of their physical training session at the venue of their practice and made sure that they had recovered completely. The data was collected on the psycho- physiological variable namely electrodermal response (EDR) also known as Galvanic skin response (GSR) of the experimental as well as the control group was done on two occasions viz. Before the intervention (on 1st day) and on the 25th day of training. The pre-conditions for the positioning and placement of the subjects and biofeedback instruments (used as monitors) while recording the data on Psycho-physiological measures was same for the subjects in both experimental and control group.

A. <u>Administration of the Yog Nidra intervention was done as follows:</u>

Basketball players were made to lie down comfortably in SHAVASANA position. Next they were told to do the following exercises:

1. **Relaxation** : Preliminary preparation of the body.
2. **Resolve**: A personal goal is programmed into the unconsciousness. 'Sankalpa' (resolve)
   The 'Sankalpa' is affirmative autosuggestion of the statement. These are short, positive, precise about what you want to achieve.
   e.g. "I am successful," "I am peaceful," "I am becoming happier, healthier and more relaxed", "I will awaken my spiritual potential", "I will be successful in my all undertakings", "I will achieve total health", "I will be a positive help in spiritual progress of others", etc.
3. **Rotation of Consciousness:** The consciousness is taken on a tour of the whole body in a structured fashion. The person has to just visualize the parts of the body to rotate the awareness. one has to shift one's awareness from one part to the other. The whole process should be a pleasure and not a burden. There should not be any anxiety or expectation.
4. **Respiration:** A period of awareness of the breath at special positions in the body. After rotation of the consciousness in such a sequence, focusing the attention on the act of breathing completes physical relaxation. One simply maintains awareness of breath, either at the nostril or of its passage through the navel and throat. This helps to withdraw the sense centers from their objects of sensations in "pratyahara".
5. **Feelings and Sensations:** Pairs of feelings and emotions are experienced. Now an effort is made to bring to memory the intense physical and emotional feelings; they are re-experienced or re-lived and then effaced. Usually this is practiced with pairs of two opposite feelings like hot and cold, lightness and heaviness, pain and pleasure, joy and sorrow, etc. Relaxation at the emotional

level and building up of strong will-power are the two major outcome of this procedure.

6. **Visualization**: Images are visualised mentally.
The final stage of yoga nidra relates to mental relaxation. Generally such images and symbols are chosen for the visualization that have universal significance. To quote a few: the mountain, river, ocean, temple, church, cross, saint, flower etc.

7. **Resolve - is repeated. Return to Full Awareness**
A careful return to a normal state.

B. Administration of Autogenic training was done as follows:

1. Take a few slow even breaths. If you have not already, spend a few minutes practicing diaphragmatic breathing. Quietly say to yourself, "I am completely calm."
2. Focus attention on your arms. Quietly and slowly repeat to yourself six times, "My arms are very heavy." Then quietly say to yourself, "I am completely calm."
3. Refocus attention on your arms. Quietly and slowly repeat to yourself six times, "My arms are very warm." Then quietly say to yourself, "I am completely calm."
4. Focus attention on your legs. Quietly and slowly repeat to yourself six times, "My legs are very heavy." Then quietly say to yourself, "I am completely calm."
5. Refocus attention on your legs. Quietly and slowly repeat to yourself six times, "My legs are very warm." Then quietly say to yourself, "I am completely calm."
6. Quietly and slowly repeat to yourself six times, "My heartbeat is calm and regular." Then quietly say to yourself, "I am completely calm."
7. Quietly and slowly repeat to yourself six times, "My breathing is calm and regular." Then quietly say to yourself, "I am completely calm."
8. Quietly and slowly repeat to yourself six times, "My abdomen is warm." Then quietly say to yourself, "I am completely calm."
9. Quietly and slowly repeat to yourself six times, "My forehead is pleasantly cool." Then quietly say to yourself, "I am completely calm."
10. Enjoy the feeling of relaxation, warmth and heaviness. When you are ready, quietly say to yourself, "Arms firm, breathe deeply, eyes open."

Discussion and Findings:

Three groups of girls were found to be matched and comparable on demographic independent variables namely age and level of participation. They were not suffering from any chronic illness or psychological condition, declared medically fit.

Table-1

Comparison of the 3 groups (N=30 in each group) on electro-dermal response (GSR) using t-test before the treatment is given to the AT and YN groups

Pairing	Group	Mean	Std. Deviation	t	Df	Sig. (2-tailed)
Pair 1	Pre- intervention control	186.93	16.72	-.31	29	.75(NS)
	Pre- intervention Autogenic	188.47	19.74			
Pair 2	Pre- intervention control	186.93	16.72	.63	29	.53(NS)
	Pre- intervention Yog Nidra	184.10	21.25			
Pair 3	Pre- intervention Autogenic	188.47	19.74	.89	29	.37(NS)
	Pre- intervention Yog Nidra	184.10	21.25			

Sig. (2-tailed): Not significant (NS) at .05 level of confidence (p>.05)

Table-1 above shows comparison of the 3 groups on electro-dermal response (GSR) before the intervention of autogenic training and yog nidra was given to the two experimental groups. Upon comparison of Electro dermal response between control and autogenic training groups on first day showed non-significant differences from each other with t(29) = -.31, p = .75. Upon comparison of Electro dermal response between control and yog nidra groups on first day showed non-significant differences from each other with t(29) = .63, p = .53. Upon comparison of Electro dermal response between autogenic training and yog nidra groups on first day showed non-significant differences from each other with t(29) = .89, p = .37. The 3 groups were comparable initially.

	Sum of Squares	Df	Mean Square	F	Sig
Between Groups	72618.68	2	36309.34	42.29	.000
Within Groups	74696.03	87	858.57		
Total	147314.72	89			

Table-2: One way analysis of variance (ANOVA) of 3 groups on electro-dermal response (GSR) after 25 days.

Above Table-2 shows that one way ANOVA of between the 3 groups to compare electro-dermal response (GSR) values using SPSS 20 software after 25 days. The 3 groups differed significantly on EDR value after measuring on 25th day, $F(2,87) = 42.29$, $p < .01$. In view of the significant ANOVA observed at least one of the groups differs from the other groups. LSD post-hoc test was applied to see where the significant differences lie actually and up to what level of confidence.

Table-3

Shows the mean and standard deviation values of GSR of the 3 groups post intervention measurement on 25th day

Descriptives								
					95% Confidence Interval for Mean			
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Control group	30	186.40	16.70	3.04	180.16	192.63	161.00	220.00
Autogenic Training Group	30	197.86	27.35	4.99	187.65	208.08	139.00	291.00
Yog Nidra Group	30	251.56	39.35	7.18	236.87	266.26	196.00	314.00
Total	90	211.94	40.68	4.28	203.42	220.46	139.00	314.00

Table-3 shows that Mean GSR value of the Yoga nidra group increased substantially (M=251.56, SD=39.35) with highest value of 314.00 k-ohms in comparison to the Autogenic training group (M= 197.86, SD=27.35) with highest value of 291 kilo-ohms and the Control group (M=186.40, SD=16.70) having highest value of 220.00 kilo-ohms only. Yog Nidra was found to be more effective in comparison to Autogenic Training since the mean and standard deviation value was found to be more for the said group post intervention as shown in the table-3.

Graph

pre and post Mean and standard deviation values of the 3 groups

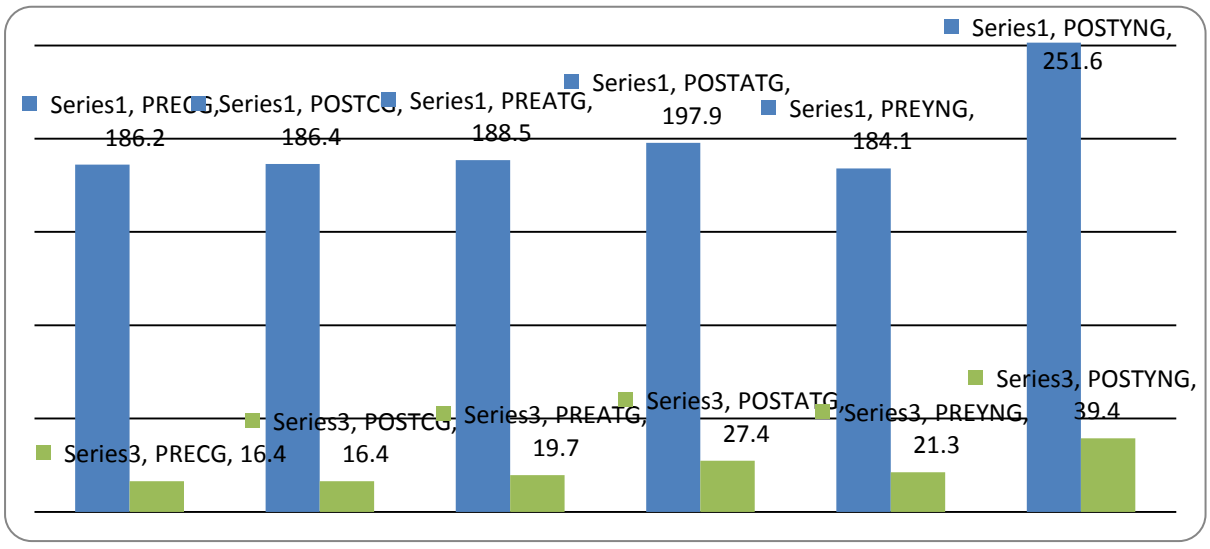

Table-4
Comparison of the 3 groups on electro-dermal response (GSR) after 25 days using Least Significant Difference (LSD)

Multiple Comparisons						
(I) Group	**(J) Group**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
					Lower Bound	**Upper Bound**
Control	**Autogenic training**	-11.46	7.56	.13	-26.5041	3.5708
	Yog Nidra	-65.16*	7.56	.00	-80.2041	-50.1292
Autogenic training	**Control**	11.46	7.56	.13	-3.5708	26.5041
	Yog Nidra	-53.70*	7.56	.00	-68.7375	-38.6625
Yog Nidra	**Control**	65.16*	7.56	.00	50.1292	80.2041
	Autogenic training	53.70*	7.56	.00	38.6625	68.7375

***. The mean difference is significant at the 0.05 level.**

Table -4 shows that the comparison of the 3 groups on electro-dermal response (GSR) after 25 days. After Intervention of autogenic training and yog nidra was being given to the two experimental groups. Upon post hoc comparison using LSD test indicated that the mean difference for the control group and yog nidra group (MD= -65.16, SE= 7.56) was significantly different on 25th day. Further mean difference for the yog nidra group and Autogenic group (MD= 53.70, SE= 7.56) was significantly different on 25th day. However, the mean difference for the control group and Autogenic group (MD= -11.46, SE= 7.56) did not significantly different on 25th day. Taken together, these results suggest that yog nidra and autogenic training did effect in raising the GSR levels. Specifically, our results suggest that yog nidra produced better results (higher GSR value) as compared to autogenic training. This is supported by the fact that non-significant results were seen when comparing control and autogenic training while the significant result was observed while comparing control and yog nidra groups.

Conclusion:

Research studies on comparison of yoga nidra and autogenic training have been sporadic the world over. A few on the impact of singular method have been conducted on in-patients or on other than physically active population using blood profiles and other medical parameters. The present study showed significant improvement in the galvanic skin response thus indicating improved psycho-physiological activity of the players, lower stress and lower anxiety levels post intervention of the two experimental groups. Although statistically non-significant results were found between control and autogenic training group, the GSR values showed significant difference among the yoga nidra and autogenic training group. Thus it can be said that the two intervention techniques have been effective in improving sports person's extant anxiety levels with yoga nidra being comparatively more effective over the 2 days period.

Implications of research findings:

Although the above information is not in itself detailed enough to formulate a concrete training plan, it does suggest to coaches and the trainers that we must consider other components of the sports performance besides sport specific techniques if we are truly going to offer our athletes a well structured training system aimed at helping them performance prognosis using ongoing psycho-physiological activity. To utilize and devise training plans accordingly to maximize the sports person's potential.

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