



P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 5.38
IJPESH 2016; 3(5): 504-507
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www.kheljournal.com
Received: 27-07-2016
Accepted: 28-08-2016

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International Journal of Physical Education, Sports and Health

Effect of Yog Nidra on reaction time and the anticipation time of the wrestlers

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Abstract

At the elite level the mental or psychological factors affect the sportsperson's abilities. For developing greater pressure-handling ability, we need to examine individuals who are exposed to handling risk and pressure. Stress refers to the physical, energetic state of activation in the body. It is the physical intensity level. The level of stress or activation can vary from deep sleep to intense excitement. The idea of peak activation level is that for every skill there is an optimal level of activation, a level that corresponds to a maximum performance level. The peak stress state is the level of energy and intensity that relates to an athlete's best performance level. Top achievers in sports operate in or near to their peak stress level in pressure situations. In the present research paper the 40 Indian male wrestlers in the age group of 18 to 25 years were studied on select psycho-physiological variables and their profiles were analyzed. The experimental group wrestlers (N=20) were then exposed to the Yog Nidra for 45 days and their responses were recorded on the psycho-physiological variables namely reaction time and the anticipation time (No. of early and late responses). Thus the complete pre – testing and the post training profiling for the comparative match group (N=20) as well as the experimental group was done and the outcomes were interpreted. The analysis of the present scenario of the psychological condition of the Indian male wrestlers was being done and accordingly the recommendations made for the improvement of the performance of Indian wrestlers so that they can perform better by overcoming the psychological hurdles at the elite level.

Keywords: yog Nidra, reaction time, anticipation time, wrestlers

Introduction

Statement of the problem: Effect of Yog Nidra on Reaction time and the Anticipation time of the Wrestlers. Accumulated stress and anxiety can predispose sportspersons to detrimental conditions. Some sports scientists estimate that stress and anxiety may be a contributing factor in 90% of failed sports performance. Anxiety disorders before, during and after the competition are illnesses that cause the sports person to feel frightened and apprehensive for no apparent reason. These conditions are often related to the biological/physiological and psychological makeup of the sportsperson and may be familial in nature. If untreated, these illnesses accruing out of anxiety can significantly reduce training quality and quantity and thus the competition performance or directly the moment the sports person has to perform in a given competition. It could inhibit a sportsperson's ability to function in daily life thereby affecting his training schedule that aims at peaking at the right time. Just like the other sports persons, different types of anxiety disorders that the strength endurance athletes like wrestlers experience are - *Panic disorder*, which is characterized by repeated episodes of intense fear of sudden onset, often occurring without warning and with varying frequency like chest pains, heart palpitations, sweating palms, dizziness, shortness of breath. Some novice wrestlers may have inherited such tendencies but moderate anxiety is often being not classified as always harmful. Specific to the kind of socio-economic back ground to which the Indian wrestlers belong, the social phobia i.e. intense fear of humiliation in a public situation in case of loss in the competition or not coming up to the expectations of the peer group. The tendency of some of the sports persons in the power events like wrestling is to tackle with the stress using unscientific methods of drugs and doping and other kinds of products knowingly or unknowingly. Accumulated effects of stress may lead to serious medical problems. Most often, stress results from a combination of many pressures. Stress may also be a factor in delayed recovery from critical injury that the wrestlers are predisposed to it being full contact sports.

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The use of specific therapy, therefore in these instances was a topic of the current research. The researcher would like to mention in view of the recent spurt in the medals in wrestling sports at major competitions, it is imperative to interact and devise a mechanism of systematic, scientific and pedagogical process of training for identification of talent and nurturing the talented at the elite level effectively and efficiently in the present scenario.

The investigation of believed to be voluntarily uncontrolled body functions has been facilitated by the recent laboratory additions of technologically advanced instrumentation used for psycho physiological assessment of the sportspersons using biofeedback for training and monitoring both.

Psycho physiological variables studied

1. **Anticipation time:** Anticipation time is an important variable and an indicator of how well the sportsperson can anticipate.
2. **Reaction Time:** Reaction time is the speed of a simple over learned movement to an external cue. The word 'over learned' that the response must be so automatic that no thought is necessary about what action is necessary once the cue is presented. Psychologists have named two basic kinds of reaction time experiments: simple and choice reaction times.

The intervention: Yog Nidra: The Yoga-nidra was experienced by Swami Satyananda Saraswati when he was living with his guru Swami Sivananda in Rishikesh. He began studying the tantric scriptures and, after practice, constructed a system of relaxation, which he began popularizing in the mid 20th Century. He explained yoga-nidra as a state of mind between wakefulness and dream that opened deep phases of the mind, suggesting a connection with the ancient tantric practice called nyasa, whereby Sanskrit mantras are mentally placed within specific body parts, while meditating on each part (of the body mind). The form of practice taught by Swami Satyananda includes eight stages (Internalisation, Sankalpa, Rotation of Consciousness, Breath Awareness, Manifestation of Opposites, Creative Visualization, Sankalpa and Externalisation). The techniques have been extensively studied and shown to be very successful in reducing muscular tension. The capacity to remain consciously aware while producing delta waves and experiencing deep sleep is one of the indications of the superconscious state (turiya). This is the ultimate state of yoga nidra in which the conventional barriers between waking, dreaming and deep sleep are lifted, revealing the simultaneous operation of the conscious, subconscious and unconscious mind. The result is a single, enlightened state of consciousness and a perfectly integrated and relaxed personality.

Methodology

- a. **Sample size:** The researcher selected 40 state level and above wrestlers
- b. Age group 18 to 25 years
- c. The sports persons practicing all over Delhi stadiums and other places. And through personal discussion with the administrators and the coaches obtained permission to conduct the study with the respective wrestlers. Informed consent was obtained from participants prior to participation in this investigation.
- d. **Tools:** The participants completed a 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 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 variables namely Reaction time and Anticipation time (number of early and late responses). The recording of the Psycho-physiological responses of the experimental as well as the control group was done on two occasions viz. Before the intervention (on 1st day) and on the 45th day of training. The pre-conditions for the positioning and placement of the subjects and instruments while recording the data on Psycho-physiological measures was same for the subjects in both experimental and control group. Following instruments were used for collecting the data using the procedures as mentioned below -

1. The Audio Visual Reaction Timer: This instrument measures the four types of audio reaction time and three types of Visual reaction time. In the present study, it was used to measure only two types of visual reaction times viz. (SVRT) simple visual reaction time and Complex Visual Reaction Time (CVRT). The visual lights are soothing Red, Yellow and Green. After the machine was plugged to the mains socket the machine is switched on and the L.E.D. displays starts glowing. The reaction time was measured in seconds/milli-seconds.

2. Basin Anticipation timer: The Basin timer is a ten-foot long row of lights that is controlled by a variable speed potentiometer. In the experiment, the sequence of lights travel down the track at a rate of three miles per hour. The subject was instructed to anticipate the arrival of the light at the end of the track and press the button to stop the light the moment it reaches the last L.E.D. which was aligned with the end of the track to record his or her time. There is a digital display meter, which shows the subjects response in seconds/milliseconds and the no. of early and late responses. The panel on the machine has controls for setting warning signal time, runway speed, the start switch, the reset switch & the push button as an option, attached to the machine.

Administration of the YOG NIDRA intervention was done as follows

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

Relaxation: Preliminary preparation of the body.

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.

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.

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".

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.

Visualisation: 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.

Resolve - is repeated

Return to Full Awareness

A careful return to a normal state.

A short yoga nidra follows. You can make your own script into a tape player or other recording device, and play it back anytime you wish. This particular yoga nidra took 45 minutes for the practice.

Discussion and Findings

Table 1 shows the comparison of the demographic variables of the wrestlers. The results on the listed variables showed insignificant values. Thus the two groups were found to be suitable for matching initially.

Table 1: Demographic Characteristics of Wrestling Respondents

Characteristics	Experimental Group		Control Group	
	Number	Percentage	Number	Percentage
Habitation				
<i>Rural</i>	17	85	18	90
<i>Urban</i>	3	15	2	10
Socio-Economic Status				
<i>Low</i>	2	10	1	5
<i>Medium</i>	12	60	10	50
<i>High</i>	6	30	9	45
Qualification				
<i>X Th</i>	3	15	2	10
<i>Xii Th</i>	11	55	6	30
<i>Undergraduate</i>	4	20	8	40
<i>Graduate</i>	2	10	4	20
<i>Post Graduate</i>	0	0	0	0
Occupation				
<i>Student</i>	10	50	11	55
<i>Unemployed</i>	6	30	6	30
<i>Professional</i>	4	20	3	15
Level of Participation				
<i>State</i>	10	50	10	50
<i>National</i>	10	50	10	50
<i>International</i>	0	0	0	0
Characteristic	Experimental Group		Control Group	
	MEAN	STAND. DEV.	MEAN	STAND. DEV.
Age	20.6	1.93	21.15	2.08
Experience	2.75	0.85	2.65	0.81

Table 2: Shows the mean and standard deviation values of the wrestlers on the reaction time variables of both the groups before and after the intervention:

Variable		1st Day		45th Day	
		Mean ± S.D (EXPTL)	Mean ± S.D. (CTRL)	Mean ± S.D (EXPTL)	Mean ± S.D. (CTRL)
Reaction Time (milli-seconds)	SVRT	190.2±22.71	186.25±19.89	169.1±17.00	187.75±22.59
	CVRT	272±39.36	292.85±39.77	249.3±55.55	293.1±39.41

Table 3: Shows the mean and standard deviation values of the wrestlers on the Anticipation time variables of both the groups before and after the intervention:

Variable (Anticipation errors)	1st Day		45th Day	
	MEAN ± S.D (EXPTL)	MEAN ± S.D. (CTRL)	MEAN ± S.D (EXPTL)	MEAN ± S.D. (CTRL)
No. Of Early responses	9.6±4.04	8.9±3.13	9.5±1.19	9.00 ±2.49
No. Of Late responses	10.4±4.04	11.1±3.13	10.5±1.19	10.85±2.41

Table 4: shows the values for each five psycho-physiological variable as shown in the table - 4 are as follows:

S. No.	Variable	Experimental Group	Comparative Match Group
		1st vs 45th Day	1st vs 45th Day
1	SVRT	5.42**	1.03
2	CVRT	3.14**	0.33
5	No. Of E	0.12	0.29
6	No. Of L	0.12	0.71

*= significant at 0.5 level

**= significant at .01 level

Reaction Time: Simple visual reaction time (SVRT) for experimental group was found to be significant at 0.05 level ($t = 5.42$) from 1st to 45th day. The difference for control group was not found to be significant from 1st to 45th day ($t=1.03$).

Choice visual reaction time (CVRT) for experimental group was also found to be significant from 1st to 45th day (3.14). Choice visual reaction time for the control group was not found to be insignificant from 1st to 45th day (0.33).

In wrestling it is imperative to have identified talented wrestler for the game is too demanding on strength and endurance and thus in a short span of playing age, the coaches lay more emphasis on developing the trainable components like strength and endurance and reaction time improvement strategies may be overlooked. The multi-factorial nature of wrestling sports performance makes its study complex. Though the transfer from improvement in the laboratory/consulting room to the sporting arena has not been proved; all the benefits achieved have been largely anecdotal, it can, however be safely said that Yog Nidra as incorporated in the present study may not change recreational players into great ones, but it can help to improve their sporting performance, as well as giving an edge to elite performers. If we have detected a stimulus and are processing that information when a second stimulus occurs, we are unable to attend to and process the second stimulus until we have attended the first one, making our reaction time longer. The pioneer reaction time study was that of Donders (1868) [1]. He showed that a simple reaction time is shorter than a choice reaction time, and that the recognition reaction time is longest of all. Laming (1968) [2] concluded that simple reaction times averaged 220 m sec but recognition reaction times averaged 384 msec. This is in line with many studies concluding that a complex stimulus (e.g., several letters in symbol recognition vs. one letter) elicits a slower reaction time (Welford, 1980) [7]. An example very much like our experiment was reported by Surwillo (1973) [5], in which reaction was faster when a single tone sounded than when either a high or a low tone sounded and the subject was supposed to react only when the high tone sounded. Miller and Low (2001) [3] determined that the time for motor preparation (e.g., tensing muscles) and motor response (in this case, pressing the spacebar) was the same in all the different types of reaction time test, implying that the differences in reaction time are due to processing time.

Anticipation Time: In the experimental group the two variables viz. number of early responses and number of late responses did not show significant differences from 1st to 45th day. The control group also did not show any significant difference from 1st to 45th days.

Conclusion

Research studies on anticipation time have been sporadic the world over. A few on the impact of vision training methods and biofeedback assisted imagery training on baseball batting averages is still underway. However in the light of present investigation on anticipation time it was seen that statistically

the anticipation ability did not improve significantly among the wrestlers in the experimental group as result of the YOG NIDRA training but the small changes in the values as seen from the tables are an indicator of better performances in the actual competition situation leading to indirectly improving focus and attention as per the encouraging feedback provided by the wrestlers themselves.

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 maximize their potential.

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