Physiotherapies

Comparison of Visual and Auditory Reaction Time in Physically Active and Inactive Male and Female Adolescents: An Observational Study

motor response. Response time is supposed to be the best factor for the maintenance of homeostasis. is fact provided an impetus to investigate the reaction time tasks for auditory and visual stimuli between normal healthy controls and physically active controls.

e ndings of our study indicate that regularly exercising healthy adolescents with higher activity score and the di erence between the two groups was statistically signi cant.

e signi cant decrease in reaction time (auditory, visual reaction time) in physically active controls can be explained on the following basis:

1. Improved concentration and alertness.
2. Arousal induced as a result of exercise supports alertness to external environmental stimuli in highly trained athletes. e e ects of exercise on arousal could be linked to neurophysiological changes such as level of plasma catecholamines with exercise duration or intensity.
3. Better muscular co-ordination.
4. Improved performance in the speed and accuracy task.
5. Decreased psychological tension.
6. Developing alertness and better contact of mind with body, which seems to be responsible for better performance of the individuals.
7. Establishment of new motor performance.
8. Increased vagal tone of adolescents with greater muscle tension and behavioral features which distinguish the active from the inactive.

ese ndings con rm the e ect of physical activity on improving RT which is supported by literature review done in this regard:

1. Devi and Madhuri [1] concluded that the VRT and ART were signi cantly di erent in Sedentary and Regularly exercising Medical students.
2. Jyothi et al. [2] observed that Reaction time was signi cantly less in runners when compared to controls
3. Jadhav et al. [3] found out that long-term regular practice of Sudarshan Kriya Yoga improves health and well-being of an individual and enhances the reaction times. Yoga is involved in restoring the under activities of the parasympathetic nervous system & GABA systems. is restoration may be partly through the stimulation vagal nervous.
4. Jain et al. [4] found out that regularly exercising medical students have faster RTs as compared to medical students with sedentary life styles. us, he strongly suggested that regular exercising to be encouraged in both male and female medical students to improve their e ciency levels.
5. Palashikar et al. [5] observed that agility was signi cantly more in basketball players as compared to healthy controls and hence reaction time was signi cantly less in basketball players as compared to healthy controls.
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2. Nikam and Gadkari [12] observed that VRT and ART in females were longer as compared to males for both the age groups(young and old), but not statistically signi cant.

3. Shenvi and Balasubramanian [13] found out that no statistically signi cant di erence was observed in the response to high and low pitch sound stimuli in both sexes.

4. However, Karia et al. [14] concluded from the study that reaction time is less in boys than girls.

5. Jain et al. [4] found out that there was a signi cant di erence between RT of male and female medical students ($p<0.001$)

And hence this study shows that with the increase in the level of physical activity there can be a reduced auditory and visual reaction time which would help the adolescents in their transition phase by increasing agility, concentration and performance. Reaction time as seen in various studies is also a parameter for selection and performance in sports. Lower the reaction times better the performance [9-14]. e young adolescents should therefore be encouraged to be more physically active which would help them not only in their sports but also in their academics and future life. Adolescents with a lower PAQ-A score had a higher reaction time and vice versa.

e limitations of this study being that equal number of samples were not obtained for the four distinguished groups. In future, interventional study can be conducted in which the e ect of physical activity as an intervention can be done in di erent age populations.

Concl ion

Physically active adolescents showed a lower reaction time as compared to the lesser physically active adolescents. Hence physical activity does play a major role in determining the reaction time. Hence a student must be encouraged towards a more physically active routine for better cognitive function and alertness.

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4. Jain A, Bansal R, Kumar A, Singh AKD (2015) A Comparative study of visual and auditory reaction times on the basis of gender and physical activity levels of medical frst year students. Int J Appl Basic Med Res 5: 124-127.

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