INTRODUCTION

Students nowadays lead a sedentary lifestyle due to long study hours and spend most of their time sitting and accessing digital media. This is taking a toll on their health and decreasing their endurance. It is well known that such a lifestyle is a predisposing factor for cardiovascular diseases, diabetes, obesity, high blood pressure, osteoporosis, lipid disorders, depression and anxiety. Azad et al. (2011) noted that young subjects with sedentary lifestyle are at a higher risk for deterioration of their respiratory indices and may be at risk for developing chronic obstructive pulmonary disease in adulthood. He also reported a positive correlation between physical activity, physical fitness, and lung capacity [1]. Physical exercise has many positive effects on respiratory system functioning as it improves aerobic strength and reduces shortness of breath while also improving VO2max, an indication of harmony between the cardiovascular and respiratory systems [2,3]. Regular physical activity suppresses the production of inflammatory markers such as Interleukin-6 (IL-6), Tumor Necrosis Factor-Alpha (TNF-a), and C-Reactive Protein (CRP) [4].

Exercise improves the endurance and strength of the respiratory muscles of athletes, decreases resistance in the respiratory tract, and increases lung elasticity and alveolar expansion by promoting the expansion of pulmonary volumes and capacities [5].

Extensive research has shown that regular aerobic exercises constitute a way to increase inspiratory muscle function and elastic recoil of the trachea bronchial secretions, promote relaxation, which contributes to a significant increase in vital capacity (VC), FEV1, peak expiratory flow (PEF), and maximal voluntary ventilation (MVV) [6].

Through this study we aimed to investigate whether the students who are following a regular exercise regime (Gym exercises in present study) have better lung functions as compared to non-exercising students, so that such students can be sensitized to pursue a healthy lifestyle.

MATERIAL AND METHODS

A total of 40, age and BMI matched healthy, male medical students were recruited in the study, which was conducted in the research lab of the Physiology department, Rama Medical College, Hapur.

All subjects with any clinical history of respiratory or cardiovascular disease were excluded from the study. The experimental protocol was explained to the subjects and informed consent was taken. They were asked to avoid beverages, like tea and coffee and other stimulants and come with light breakfast before reporting. The study was approved by an institutional ethical committee.

Subjects were divided in two groups

Group 1 (n= 20) - Students with Gym training
Group 2 (n= 20) - Sedentary students.

The Group 1 subjects were following a regular workout regimen of 60 min. exercises like bench press, arm extension, leg press, abdominal crunches and squats for at least 5 days a week for the last 3 months. Group 2 subjects were not doing any type of exercise on a regular basis.

Height and weight of students was recorded, and BMI calculated using the Quelette's index: BMI= Weight(kg)/Height(m)^2.

Recording of lung functions was carried out on a computerized Spirometer- RMS Helios 401. The parameters chosen were:

1. Forced vital capacity (FVC)
2. Forced expiratory volume in 1'second (FEV1)
3. Peak expiratory flow rate (PEFR)
4. Percentage of FEV1/FVC ratio
5. Forced expiratory Flow during 25–75% of Expiration (FEF 25–75%)

The subjects were instructed to give maximum co-operation during the study. They were asked to take maximum inspiration and then blow into the spirometer as rapidly, forcefully and completely as possible for a minimum of 6 sec. followed by full and rapid inspiration to complete the flow volume loop. The nose clip was applied during the procedure. The best of the 3 trials was considered for data analysis.

Data Analysis

Data was entered in Microsoft Excel and analyzed using the SPSS version 20 Unpaired ‘t’ test was used for statistical analysis. P value <0.05 is considered as significant.

KEYWORDS : Gym training, Healthy lifestyle, Lung functions
OBSERVATIONS AND RESULT

The study which included 40 normal healthy MBBS students divided into two groups (20 Gym training students & 20 Sedentary group). The mean age and mean anthropometric measurements of both groups (Table 1) suggest that both the groups did not differ significantly and hence they are comparable.

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<th>Table 1</th>
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<td><strong>Variable</strong></td>
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<tr>
<td><strong>Age</strong></td>
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<tr>
<td>22.57</td>
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<tr>
<td><strong>Weight (Kg)</strong></td>
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<td><strong>Height (cm)</strong></td>
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The groups have been analyzed for various parameters and values for all measurements are expressed as mean ± SD (Table 2).

Mean percent of FEV1 /FVC also has a higher value for Gym group (94.41) than sedentary group (87.36) so statistically it is significant

<table>
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<tr>
<td><strong>Variable</strong></td>
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<tr>
<td><strong>FVC</strong></td>
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<tr>
<td>4.48</td>
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<tr>
<td><strong>FEV1</strong></td>
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<td><strong>FEV1/FVC %</strong></td>
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<td><strong>FEF (25-75 %)</strong></td>
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<td><strong>PEFR</strong></td>
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Though it is evident from this pilot study that regular Gym training improves the pulmonary functions, a detailed and comprehensive study with larger sample is needed to provide a better insight.

CONCLUSION

The study revealed that the sedentary subject’s performance on PFT was poorer when compared with subjects doing Gym training. This emphasizes the need to change their lifestyle and adopt measures like exercises for better pulmonary function and for better health.

The results of this study could be used for the selection of better sportsmen and in recruitment of army and police personnel as well as in the services where there is a need for better physical health.

REFERENCES: