Chapter V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to analyse the Physical, Physiological and Psychological parameters in Lean, Average and Obese College students.

Three groups, each consisting of 50 students representing Lean, Average and Obese groups having 7% and below, 8% to 15% and 16% and above fat respectively, were selected for the study. The age of the students ranged between 16 to 20 years.

In order to determine the fat percentage, the four skinfold measurements were recorded in millimetres with the help of Lange Skinfold Calliper. The four sites were - Front of the upper arm (Biceps), Back of the upper arm (Triceps), Inferior angle of Scapula (Subscapular) and suprailliac.

Before the administration of test, the subjects were given a chance to practice the prescribed test to familiarize them with the test. To ensure uniform testing condition, the subjects were tested only during morning
and evening sessions for Physiological and Physical variables respectively, however, Psychological test was administered at 10.00 am.

Data for Physical efficiency were collected on Pull-ups, Sit-ups, Standing Broad Jump, Shuttle Run, 12-Minutes Run/Walk and 50 Yards Dash. Physiological efficiency was determined by C.P. Index, which includes the measures of Pulse-rate, Maximum Expiratory pressure, Breath Holding Time, Diastolic Blood Pressure, Systolic Blood Pressure, Vital Capacity and Age. Eysenck's Personality Inventory was utilized to test the subjects in selected Psychological variables, namely Neuroticism - Stability and Extraversion - Introversion.

To compare the Obese and Non-Obese subjects in their Physical, Physiological and Psychological parameters the analysis of variance (F-ratio) was employed. Scheffe's Post Hoc Test was applied to the groups, where any significant differences existed. For testing the Hypothesis the level of significance was set at .05 level of confidence.

Analysis of data revealed that the F-ratio compared for Lean, Average and Obese groups on AAHPER- Test
(composite scores) had a value of 99.49 which was much higher than the F-value of 3.06 required to be significant at .05 level. After applying Scheffe's Post Hoc Test, it was evident that the mean difference of 12.48 between Lean and Average Groups was not found to be significant. Where as Mean differences of 191.59 and 204.07 for the Lean and Obese groups; Average and Obese groups respectively were found to be significant as the Confidence Interval of 49.38 was less than these values.

When all the three study groups were compared on each item of AAHPER Test. Analysis of data revealed that there was a significant difference between the three groups in all the AAHPER Test items namely Pull-ups, Sit-ups, Standing Broad Jump, Shuttle Run, 12-Minutes Run/Walk and 50 Yards Dash as the F values of 25.89, 22.71, 46.54, 36.35, 52.27 and 24.76 for each of the items respectively, were more than the required value of 3.06.

Analysis of data further revealed through the Scheffe's Post Hoc Test that the Lean and Average groups did not differ significantly from each other as the mean differences of .64, .82, .212, .06 and .216 for Pull-ups, Standing Broad Jump, Shuttle Run, 12-Minutes
Run/Walk and 50 Yards Dash respectively were not found to be significant, but the mean difference of 3.44 between the above mentioned groups in Sit-ups was found to be significant. When compared with the required confidence Interval Value for each items separately.

Analysis of data also revealed that the mean differences of 3.26, 5.3, 13.3, 0.884, 0.27 and 0.618 between Lean and Obese Groups and the mean differences of 2.62, 8.74, 14.2, 1.096, 0.33 and 0.634 between Average and Obese groups in Pull-ups, Sit-ups, Standing Broad Jump, Shuttle Run, 12-Minutes Run/Walk and 50 Yards Dash respectively were found to be significant, when compared to the confidence interval value for each items separately.

While comparing the study groups for Cardio-pulmonary efficiency on the basis of C.P. Index, it was found that all the three groups differed significantly as the obtained F-ratio value of 16.55 was more than the F-value of 3.06. After applying Scheffe's Post Hoc Test, it was observed that the mean differences of 0.077, 0.085 and 0.162 between Lean and Average groups; Lean and Obese groups and between Average and Obese groups respectively were found to be significant as the Confidence Interval of 0.069 was less than these values.
When all the three selected groups were compared to each item of C.P. Index, it was observed that a significant difference existed among all the three groups in Pulse Rate, Breath Holding Time, Diastolic Blood Pressure, Systolic Blood Pressure and Vital Capacity as the F-ratio of 20.43, 8.036, 12.328, 36.015 and 5.86 for each item respectively, were much higher than the required F-value of 3.06. It was further observed that no significant difference existed among all the three groups in one of the items of C.P. Index, that is maximum expiratory pressure, where the obtained F-value of 1.811 was less than the required F-ratio of 3.06.

Analysis of data also revealed that the paired mean differences of 1.76, 6.26, 0.16 and 1.6 for Lean and Average groups in Pulse Rate, Breath Holding Time, Diastolic Blood Pressure and Systolic Blood Pressure respectively were not found to be significant, where as the Mean difference value of 0.284 for Vital Capacity was found to be significant, when compared with the confidence interval value for each item separately.

It was also evident that the mean differences of 7.28, 5.30 and 9.72 between Lean and Obese groups in Pulse-rate, Diastolic Blood Pressure and Systolic
Blood Pressure respectively were found to be significant, whereas the mean difference values of 7.08 and 0.092 for Breath Holding Time and Vital Capacity respectively were not found to be significant, when compared to the Confidence Interval Value for each item separately.

Analysis of data further revealed that the mean differences of 9.04, 13.34, 5.46 and 11.32 between Average and Obese groups in Pulse Rate, Breath Holding Time, Diastolic Blood Pressure, and Systolic Blood Pressure were found to be significant, whereas, the mean difference value of 0.192 for vital capacity was not found to be significant when compared to the obtained Confidence Interval Value for each item separately.

While comparing the study groups for Eysenck's Personality Inventory; it was evident that there was no significant difference among the three groups in neuroticism-stability as the F-ratio of 0.744 was less than the F-value of 3.06. But when the above groups were compared for the dimension of Extraversion-Introversion, all the three groups differed significantly as the obtained F-value of 4.560 was more than the required F-value of 3.06.
Analysis of data further revealed that for the dimension of Extraversion, the Mean difference of 0.04 between Lean and Obese groups was not found to be significant, whereas the Mean differences of 4.4 and 4.36 between Lean and Average groups; Average and Obese groups respectively were found to be significant, when compared to the obtained confidence interval value of 4.136.

It was quite clear from the analysis, that the Lean and Average groups did not differ significantly, whereas, the Lean and Obese groups and Average and Obese groups differed significantly on the composite scores of AAHPER Test. When the comparison was made for each item separately, Lean and Average groups did not differ significantly from each other on all the items of AAHPER Test except for sit-ups. Whereas, the Lean and Obese groups and the Average and Obese groups differed significantly on all the items of AAHPER Test.

When the comparison was made for C.P. Index, it was found that all the three groups differed significantly from each other on the scores of Cardio-pulmonary Index. But when the comparison was made for each item separately, Lean and Average groups did not differ
significantly on all the items of C.P. Index except for Vital Capacity. Whereas, the Lean and Obese groups differed significantly on the scores of Pulse Rate, Diastolic Blood Pressure and Systolic Blood Pressure, but did not differ on the scores of Breath Holding Time and Vital Capacity. In the comparison for Average and Obese groups, it was found that they differed significantly on all the items of C.P. Index, except for Vital Capacity.

While comparing the three groups in selected Psychological Parameters, it was found that, there was no significant difference among the three study groups in the dimension of Neuroticism - Stability. But when the comparison was made for Extraversion - Introversion dimension of Eysenck's Personality Inventory, Lean and Obese groups did not differ from each other significantly but the Lean and Average groups and the Average and Obese groups differed from each other significantly.

Conclusions

Based on the findings of this study, the following conclusions were drawn:

1. Lean and Average groups did not exhibit significant difference in Physical Fitness, however, both
these groups were found to be superior when compared to the Obese group.

2. When compared on each item of the AAHPER Youth Fitness test, Lean and Average groups did not show significant differences on all items of the test except for Sit-ups, where Average group excelled, thus proving its superiority over the Lean group in Abdominal strength. Further, both the Lean and Average groups were found to be better than the Obese group on all items of the AAHPER Test.

3. All the three study groups, i.e. Lean, Average and Obese revealed significant differences on the Cardiopulmonary efficiency, their superiority being in the order of Average group, Lean group and the Obese group.

4. When all the three study groups were compared on different items of C.P. Index, the Average group was better than the Lean group in the Vital capacity but no difference was found between the Average and Obese groups as well as between the Lean and Obese groups; Average and Lean groups were found to be superior than the Obese group on the variables of Pulse Rate and Blood Pressure; the Average group also demonstrated its superiority on the Obese group in Breath holding Time,
however, all the three study groups did not differ from each other on the maximum Expiratory pressure.

5. All the three study groups did not indicate any difference in one of the dimensions of Eysenck's Personality Inventory i.e. Neuroticism.

6. Average group was found to be more Extrovert than the Lean and Obese groups whereas, the Lean and Obese groups did not show any difference between them.

Recommendations

In the light of the conclusions arrived at in this study, the following recommendations are made:

1. Excess Body Fat plays negative role in maintaining one's Physical Fitness Status.

2. Excess Body Fat is a Negative Factor in Cardio-pulmonary Efficiency.

3. Obese people have shorter Breath Holding Time, Low Vital Capacity, Higher Blood Pressure and Pulse Rate.

4. Obesity does not in any way affect the Personality Structure of an individual.
5. It is recommended that a similar study may be conducted on female subjects of the same age group.

6. A similar study may be conducted on adult males and females.