SUMMARY AND CONCLUSION

The human body is such a complex machine that attracts scientists to probe into its complex nature and its sophisticated mechanism. In spite of extensive inventions and discoveries, there still exists tremendous demand on scientists to obtain appropriate answers to certain queries about the mechanism of human body. Anthropometric measurements now-a-days have become important tools in evaluating the changes in body size and shape due to illness, level of physical activity and nutritional intake during the long period of adulthood. Physical deterioration associated with old age is responsible for a large and still growing fraction of the health problems. Clinical and biological studies have provided a substantial body of knowledge on the nature and progress of specific age related disorder and changes. In the last several decades, obesity and its alarming increase have become one of the most important topics in the human biology. Obesity is the outcome of complex interactions between genetic and environmental factors (Perusse and Bouchard 2001). The latter are mostly associated with modern lifestyles (Popkin, 1994). The acute rise in rates of obesity is common between men and women, and rich and poor from different ethnicities (World Health Organization).

Manipur is one of the seven states of North East India, having a total area of 22,327 Sq.Km. (Hodson). Geographically, it is divided into two tracts, namely the hills consisting of five districts and plains with four districts. It is bounded by Myanmar on the east, Nagaland on the north, Assam and Mizoram on the west and Myanmar and Mizoram on the South. The total
population of the state is 2,388,068 (Dinamani 2001). The state is inhabited by three major ethnic groups, namely Meiteis including the Meitei Muslims and Scheduled castes in the valley, and the Nagas and Kuki Chin tribes in the hills. People are predominantly Mongoloid in their physical features.

Meitei inhabiting the central valley is the most populous and dominant community of the Manipur state. Racially, they are predominantly Mongoloid and linguistically they belonged to Tibeto-Burman family. The community is endogamous group practicing clan exogamy. Looking into the physique, the stature of Meitei women ranges between 131cm to 164cm though the average is 151.5 cm which falls under the medium stature. They usually have long silky hair and fair complexion of a yellowish brown colour. They play a major role in the productive process of the state. It is a common sight, in rural areas to see women working in the paddy fields from early morning till evening. Rice cultivation depends heavily on women's labour. Majority of the rural women below sixty years of age are engaged in the paddy fields. Apart from this, women look after the vegetable gardens of their homestead by preparing soil for planting. Now-a-days the economic contribution made by the educated working ladies is immense. Most of them work in government departments and in teaching professions. They are not only contributing economically but also engaged in heavy household duties. Inspite of these immense economic contributions, the status enjoyed by them is low. They have a much inferior status than men.

The present research work has been conducted to find out variations in ageing related changes in body composition, physiological traits and somatotype components between the urban and rural Meitei women. An
attempt has been also been made to find out the important factors determining body composition and influencing physiological traits as well as the relation if any found between body composition and physiological traits. The subjects studied were the adult females ranging in age from 20 to 79 years. Urban sample were collected from Imphal Municipality areas and rural data were collected from different villages of four valley districts of Manipur.

The cross sectional sample comprise of 400 subjects (200 each from Urban and Rural). Information regarding age, educational status, socio-economic status, assessment of their physical activity, food habit, smoking habit and age at menarche and menopause were collected.

Various body measurements viz. stature, body weight, bi-epicondylar diameter of humerus and bi condylar diameter of femur, girths of biceps, waist, hip, calf and chest at maximum inspiration, maximum expiration and at normal inspiration, skinfol thicknesses of triceps, sub-scapular, suprailiac, thigh and calf, body density, total body water, blood volume, body fat, lean body mass, body surface area, body mass index, waist to hip ratio, ponderal index, three somatotype components- viz. endomorphy, mesomorphy and ectomorphy, heart rate, blood pressure- systolic and diastolic, force vital capacity, force expiratory volume in one second and force expiratory ratio, were collected from the subjects.

The data collected from the subjects were subjected to proper statistical treatment using MS-Excel. Measures of Cental tendencies viz, Mean and Measures of Dispersion viz, Standard Deviation and their respective standard errors were calculated. Student t-test was applied to test the level of
significance for the differences between the urban and rural as well as among
different age groups within the population. Karl Pearson’s co efficient of co-
relation was used to find out the co-relation between body composition
parameters with physiological traits. Various graphic illustrations were used
to represent the data and findings in a systematic and illustrative manner. The
findings of the present study can be summarized as:

- There is no consistent trend of Heart Rate with age and no significant
difference between HR of urban women and rural women.
- Systolic blood pressure increases with increasing chronological age in
both the groups of women. Urban women show higher Systolic Blood
Pressure than the rural women.
- Diastolic blood pressure shows an irregular trend with age. Inter age
group significant difference could be observed only for the age group
30-34 years.
- Force Vital capacity and Force expiratory volume in one second show a
decline with increasing age thereby indicating a decline in respiratory
efficiency. There is no significant difference in lung functions between
urban and rural women.
- Force expiratory ratio shows an irregular trend with age. FER% is
higher among urban women than among rural women.
- Muscular strength gradually declines after 45 years of age in both the
groups of women. Muscular strength is higher among rural women.
- Total Body Water shows an increasing trend followed by a decreasing
trend in both the groups of women. Total Body Water was higher
among urban women.
• Body density does not show any consistent trend in both the groups of women. Body density is higher among rural women.

• Body fat shows an increasing trend in younger age groups followed by a decreasing trend in older age group among urban women. No such regular trend in younger age groups but a gradual decrease in body fat among rural women is observed. Body fat is higher among urban women.

• Blood volume shows an increasing trend followed by a decreasing trend in both the groups of women. Blood volume is higher among urban women.

• Body surface area shows an increasing trend followed by decreasing trend with increasing age in the two groups of study. Body surface area is higher among urban women.

• Lean body mass shows an increasing trend followed by decreasing trend among urban women but there is no regular trend of increasing but a gradual decrease is seen among rural women. Lean body mass is higher in rural women in younger age group but it is higher in urban women in older age groups.

• BF% shows an increasing trend followed by a decreasing trend. BF% is higher among urban women.

• BMI shows an increasing trend followed by decreasing trend in both the groups. BMI is higher among urban women. Qualitatively significant difference is observed between urban and rural women.

• WHR shows an increasing trend with increasing chronological age among both the groups of women. The WHR is higher in urban women.
• Ponderal Index shows no consistency with age. Ponderal Index is higher among rural women.

• Body weight shows an increasing trend with age followed by a decreasing trend among urban women. Though no regular trend is found before the middle age among rural women, a clear cut decreasing trend with ageing is found. Body weight is higher among urban women.

• Stature does not show any consistency with age. Rural-urban difference is found in stature qualitatively but not quantitatively.

• Waist girth shows an increasing trend with age in both the groups of women. Waist girth is higher among urban women.

• Hip girth shows an increasing trend followed by a decreasing trend in both the groups of women. Hip girth is higher among urban women.

• Arm girth shows no consistency with age in both the groups of women. Arm girth is higher in urban women in 4th and 5th decade.

• Calf girth shows a decreasing trend from 6th decade of life among urban women. No regular trend is found among rural women. Calf girth is higher among urban women.

• Chest girths show an increasing trend followed by decreasing trend among urban women. Among rural women, no such consistent trend with age has been observed. Chest girths are higher among urban women.

• Not much variation in bi-epicondylar breadth of humerus and femur are found between urban and rural women as well as in inter-age groups.
• Endomorphic component shows an increasing trend followed by decreasing trend among both the groups of women. Urban women possess greater value of endomorphic component.

• Mesomorphic component shows an increasing trend followed by decreasing trend among both the groups of women. Urban women possess greater value of mesomorphic component after the age of 50 years.

• Ectomorphic component shows a decreasing trend followed by unmarked changes in both the groups of women. Rural women possess greater value of ectomorphic component from 40 years of age onwards.

• Total body water shows positive co-relation with lung functions while no consistent co-relation with other physiological traits.

• Body density shows negative co-relation with physiological traits with minor fluctuations.

• Body fat and Body fat% shows positive co-relation with all the physiological traits although some deviations are found.

• Blood volume shows positive co-relation with all the physiological traits except in the case of heart rate.

• Body surface area shows positive co-relation with all the physiological traits except with heart heart rate where a few negative co-relations are found.

• Body Mass Index shows positive co-relation with all the physiological traits with a few exceptions.

• Waist to Hip Ratio shows negative co-relation with lung functions whereas positive co-relation with remaining physiological variables although some fluctuations are found.
• Ponderal Index shows negative co-relation with all the physiological traits in majority.

• Lean Body Mass shows negative co-relation with heart rate but it shows positive co-relation with other physiological traits with minor fluctuations.

The present study is a simple attempt to study the physique and physiology of Meitei women. However, further in depth study on different communities in a similar line shall be of a substantial help in adding flavour to the present work besides enriching data on human population variation. In conclusion it is certain that the present study would provide valuable scientific data for the present population. This information may profitably be utilized for future planning in the field of physiological anthropology in Manipur and of the country and also for planning of population health care measures in this present century of obesity and overweight.