

Comparative Study of Body Composition between City and Rural Area Boys in Gandhinagar

Vyas, M.R., Thakur, S.J. & Parmar, P.P.

Sadra, District Gandhi Nagar, Gujrat

Abstract

The purpose of this study was to compare the Body Composition of Gandhinagar City and Rural Boys. Thirty boys of Gandhinagar City and thirty boys from rural institutions of Gandhinagar District were selected randomly for the the study. Weight (Kg), Body Mass Index, Fat (%), Fat Mass, Total Body Water was measured by standard techniques as described by *Weiner & Lourie (1969)*. The study revealed that the city and rural boys of Gandhi Nagar do not demonstrate significant differences in their body composition.

Keywords: Rural, City, Boys, BMI, Body composition, Weight, total Body Water

Introduction

Considerable changes are taking place in the India's` children in urban-rural conditions and have greatly impacted the social and biological transformation of populations. The urbanization process, however, occurs under different circumstances among countries (*Valladares and Coelho, 1993*). Living in areas distinguished by population size can be linked with differences in eating habits, right of entry to sport facilities, sanitation and health services and opportunities for physical activities (*Tsimeas et al, 2005*). Urban and rural environmental differences in growth of children have come into spotlight of interest in the last years. There are numerous studies which have reported contradictory evidences in samples from various countries and cultures and with various age ranges. *Bielicki (1986)* and *Eiben et al (2005)* reported that within a specific country or cultural group in Europe, children who were living in urban areas have greater size than children in rural areas, while there were no

significant differences in the growth status in children who were living in urban and rural areas in United States and Canada (*Malina et al, 1981; Eveleth & Tanner, 1990; Pena Reyes et al, 2003*), *Lin et al (1992)* reported China's` children in urban-rural conditions. Data from Africa, also, revealed that urban-rural contrasts are evident in the growth and body size (*Cameron et al, 1992; Pawloski, 2002*).

Because the special situation of Gandhi Nagar district of Gujrat State in India, which has many rural populations near to urban areas, the present study was chosen to consider urban-rural differences in body composition in urban-rural communities.

The purpose of this study was to compare the Body Composition & fitness of Gandhinagar City and Rural Boys. Thirty boys of Gandhinagar City and thirty boys from rural institutions of Gandhinagar District were selected randomly for the the study. Weight (Kg), Body Mass Index, Fat (%), Fat Mass, Total Body Water was measured by

standard techniques as described by *Weiner & Lourie (1969)*.

To compare the Body Composition Analysis of Gandhinagar City and Gandhinagar Rural Boys “t” test was applied.

Results & Discussion

Table 1 gives the statistical comparison of weight, BMI, fat %, fat mass & TBW of City & Rural boys of Gandhinagar.

Table 1: Statistical comparison of weight, BMI, fat %, fat mass & TBW of City & Rural boys of Gandhinagar

Sr No.	Event	City Boys	Rural Boys	Mean Difference	“ T ” Ratio
1	Weight, kg	41	40.09	0.91	0.5
2	BMI	16.44	17.15	0.71	0.54
3	Fat %	8.59	11.43	2.84	1.95
4	Fat Mas, kg	3.75	4.81	1.06	1.43
5	TBW	27.3	25.9	1.40	1.47

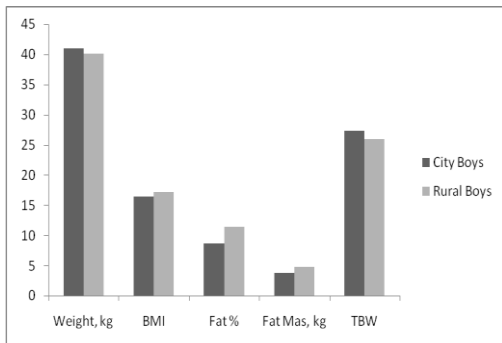


Figure 1: Comparison of weight, BMI, fat %, fat mass & TBW of City & Rural boys of Gandhinagar

On an average, the city boys were found to be heavier than the rural boys but the mean difference in body weight of the Gandhinagar City and Rural area boy was not found to be significant in statistical terms. Body mass index (BMI) reflects the relationship between adult weight and

height, and body composition are closely related and to determine body fat, thin, an important indicator of the degree. WHO recommends that adult body mass index (BMI) of the normal range of 18.5-25, less than 18.5 as malnutrition, more than 25 were overweight or obese. The average BMI of the boys belonging to rural and city areas was less than 18 in the present study. In BMI, although the mean values were slightly greater in rural boys as compared to the city boys, but in statistical terms the difference is non significant. In the same manner non significant difference in fat%, fat mass and total body water was observed between the city and rural boys. In general, statistical analysis shows that, there exist non significant differences in body composition between Gandhinagar City and Rural Area School Boys.

Conclusion

The city and rural boys of Gandhinagar do not demonstrate significant differences in their body composition.

References

Bielicki, T., 1986. Physical growth as a measure of economic well-being of populations: The twentieth century. In F Falkner and JM Tanner, eds.: Human Growth. A Comprehensive Treatise, Vol 3. Plenum Press, New York. pp: 283-305.

Cameron, N., Kgamphe, J.S., Leschner, K.F. and Farrant, P.J. 1992. Urban-rural differences in the growth of South African black children. Annual of Human Biol., 19: 23-33.

Eiben, O.G., A. Barabás and A. Németh, 2005. Comparison of Growth, Maturation and Physical Fitness of Hungarian Urban and Rural Boys and Girls. J. Hum. Ecol., 17: 93-100.

Eveleth, P.B. and J.M. Tanner, 1990. Worldwide variation in Human Growth. Cambridge University Press, 2nd edition, Cambridge.

Lin, W.S., A.C.C. Chen, J.Z.X. Su, Y.Q. Zhang, F.C. Zhu, W.H. Zing and J.Y. Li, 1992.

- Developmental perspective of pulse rate, blood pressure and vital capacity in Chinese children. *Annual of human Biol.*, 19: 387-402.
- Malina, R.M., Himes, J.H., Stepick, C.D., Lopez, F.G. and P.H. Buschang, 1981. Growth of rural and urban children in the valley of Oaxaca, Mexico. *American J. Physical Anthropol.*, 54: 327-336.
- Pawloski, L.R., 2002. Growth and development of adolescent girls from the Segou region of Mali (West Africa). *American J. Physical Anthropol.*, 117: 364-372.
- Pena Reyes, M.E., Tan, W.K. and Malina, R.M. 2003. Urban-rural contrasts in the physical fitness of school children in Oaxaca, Mexico. *American J. Human Biol.*, 15: 800-813.
- Tsimeas, P.D., A.L. Tsiokanos, Y. Koutedakis, N. Tsigilis and S. Kellis, 2005. Does living in urban or rural settings affect aspects of physical fitness in children? An Allometric approach. *British J. Sport and Med.*, 39: 671-674.
- Valladares, I. and M. Coelho, 1993. Urban research in Latin America: toward a research Discussion paper series No. 4 (<http://www.unesco.agenda.org/most/valleng.htm>).

