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## Assessment of effect of low calorie intake on cycle rickshaw pullers in Agra cant railway station

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### Abstract

Energy required for internal functions, repairs, builds and maintains cells and body tissues, and supports the external activities that enable to interact with the physical world. External functions supported by energy include exercise, work and play. This study has been done for the assessment of energy consumption and expenditure of the cycle rickshaw pullers. The rate of impact of lower energy intake on the body has been assessed. Comparative study has been carried out in 3 groups of 60 cycles of rickshaw pullers of Agra cant railway for this study. It was found in this study that due to lack of necessary caloric intake of cycle rickshaw pullers, their sickening rate increased and the ability to work decreased. Rickshaw pullers have to leave this business because of less functionality. In a state like Uttar Pradesh, where there is a shortage of employment, in this case, due to low physical capacity of rickshaw pullers, leaving this business is a matter of concern. Along with the energy required, other factors also influence the physical condition, so there is a need for integrated study.

**Keywords:** Rickshaw pullers; calorie intake; health status

### Introduction

About 30% of the population of Uttar Pradesh lives below the poverty line and there is a huge lack of local employment. In this way, the job of bicycle rickshaw pulling is the means of local employment for the unskilled workers living in urban and semi urban areas. The number of registered rickshaw puller registered in Delhi Municipal Corporation is about 6 lakh, which is 90% of the puller have been displaced for employment from the state of Uttar Pradesh and Bihar (Voice 2011) [4]. Due to low income group, lack of Education and awareness, these people cannot fulfill the needs of essential calories and nutrients such as protein, carbohydrate, fats, vitamins and minerals. A study by Aligarh Muslim University students (2010) found that 68% of rickshaw puller in Aligarh is uneducated. There for, the group cannot concentrate enough on their diet.

Energy requirement is the amount of food energy needed to balance energy expenditure in order to maintain body size, body composition and a level of necessary and desirable physical activity consistent with long-term good health. This includes the energy needed for the optimal activities. The recommended level of dietary energy intake for a population group is the mean energy requirement of the healthy, well-nourished individuals who constitute that group. According to the National Sample Survey Organization (2011-12), the average per capita energy in Uttar Pradesh is 2200 kcal of rural and 2144 kcal in urban areas. When according to R. D.A. (2010) those persons pulling rickshaw (heavy activity), every person should consume energy between 3120 to 3840 kilocalories per day. As it is necessary to stay healthy, energy is consumed every day according to energy expended. The peoples doing heavy work and need high calorie intake, if they take insufficient calories for long periods of time, then after some time physical disorder is seen.

The main objective of this study is to measure the daily calorie intake of rickshaw puller and to assess the effects on the body (measurement of weight, middle-upper arms and sickening rate).

### Methodology

Calculation of energy intake for rickshaw pullers, based on estimates of total daily energy expenditure and on energy needs for their activities. This study was conducted as a comparative study in Agra Cant railway stations.

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For these study 60 men cyclic rickshaws pullers have been selected in three groups, whose age is 25 to 30 years, 20 men have been included in each group. Who have been pulling cycle rickshaw since less than one month is first group, who have completed cycle Rickshaw pulling, have completed 2 years is Second group, who have leave pulling of rickshaw but the pull earlier that is third group. Nutrition anthropometry (weight, height, middle-upper arm), calorie intake of last one day by 24-hour recall method and measurement of age in all groups have done. For collection of data for selected information the tools was used standardized by National Nutrition Monitoring Bureau (NNMB), National Institute of Nutrition (ICMR) Hyderabad. Rating scale, comparative questionnaire was used. Analyzed data compared with I.C.M. R. standard for anthropometry and calories intake. It was seen that the men of rickshaw pullers are affected by less energy intake.

### Result and Utility

It has been observed in this study that the cycle rickshaw puller consumes only 73.51% of caloric calories per day, due to the insufficiency of 26.49% calories per day, weight loss and muscle weakening have seen. Some figures are shown in the table below:

Variables	Group first	Group second	Group third
Energy intake per day, compared to the required calories	78.55%	77.00%	65.00%
Weight, compared to the ideal weight	89.50%	68.89%	75.00%
MUAC, compared to the ideal dimension	92.50%	75.00%	68.14%
Sickenning rate	1.22	5.12	5.98
Frequency of meal intake per day	2.5	2.4	3

After the completion of two years of rickshaw pullers running the rickshaw, their weight and mid-upper arm measurement decreased by 21.61% and 17.5%, respectively. The same rate of sickness has increased four times more than before. The rickshaw pullers, who left the job of rickshaw pulling, had to leave the rickshaw for 35% of the rickshaw pullers due to physical abilities. Their weight and mid-upper arm measurement decreased by 14.5% and 24.36%, respectively. The rate at which he fell ill had increased almost five times as compared to the first group. Generally a person consumes meal 5 times a day, in which 3 times a full meal and 2 time snakes. But in the case of rickshaw puller, it is insufficient to rate the feeding rate 2-3 times a day. There is a long gap between the two diets. The physical changes in normal men (skin, bones, muscles, secretion of the body) come after the age of 40 years; the change was seen in the rickshaw puller at the age of 30 years.

### Conclusion

With the lack of proper energy intake per day in the rickshaw puller, the muscles become weak, the rate of sickness increases, the physical capacity starts decreasing ahead of time. Rickshaw pullers have a bad effect on their income and social level, falling ill again and again. The 35% rickshaw puller whose age was only 25-30 years, due to physical abilities, leaving the rickshaw is a matter of concern. Rickshaws pullers often miss meals because they get busy or are haven't food. Several observational studies

and short-term experiments have suggested an association between meal skipping and poor health. The researchers found that skipping meals during the day and eating one large meal in the evening resulted in potentially risky metabolic changes. The meal skippers had elevated fasting glucose levels and a delayed insulin response — conditions that, if they persisted long term, could lead to diabetes (Carison, O. 2007) <sup>[6]</sup>. Losses of storage energy due unnecessary gape in between two meals was raised unexpected weight loss and caries muscles degradation.

There is a large number of rickshaws pulling in the country, the main source of employment for unskilled labour. Cycle rickshaws have been play importance role in local transport. Therefore, along with the effect of lower calorie consumption, there is a need for integrated study of other factors, which are affecting the nutrition and health of this group.

### Acknowledgments

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### Declarations

It was a social study, contains with human subjects therefor written agreement have done. Financial assistance has not been received from any agency or institution for this study. This study was presented verbally in the National scientific seminar, National Institute of Occupational Health (ICMR), Ahmedabad.

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