

Peak Expiratory Flow Rate Among Child Labourers in West Bengal, India

This study was conducted to evaluate Peak expiratory flow rate (PEFR) in different groups of working children. Study population comprises of 300 child workers, 100 in each group (agricultural workers, constructional workers, control group or domestic workers with equal sex, age and socioeconomic distribution). PEFR value was lowest among construction workers. PEFR values of all subjects had a linear relationship with age, weight, and height.

Key words: *Child labor, Peak expiratory flow rate, Occupational illness.*

The workplace whether construction-related or agricultural, has long been known to be associated with respiratory disorders. Respiratory diseases are among the chronic health conditions which affect the child laborer. The present study was conducted to compare the peak expiratory flow rates (PEFR) of different groups (agricultural and constructional) of child workers with the control subjects. Study population comprised of 300 children, 100 in each group (agricultural workers, constructional workers, control group matched for sex, age and socio-economic status). Each group of subjects was selected from the rural part of West Bengal. Before conducting the study, permission was obtained from Institutional Ethical Clearance Committee.

The stature and weight of the participants were measured by Martin's Anthropometer and weighing machine, respectively. Assessment of respiratory systems was done using a questionnaires, consisting of three parts, (i) personal and work characteristics and medical history, (ii) respiratory health and illnesses, (iii) smoking habits. Measurement of PEFR was done with the help of a Wright's Mini Peak Flow Meter (Clement Clarke). The PEFR test was performed in standing position while holding the peak flow meter horizontally. Subjects were asked to take in a deep breath as far as possible and then blow out as hard and as quickly as possible. The highest of the three ratings was recorded. One-way ANOVA was employed for comparing the PEFR data between the three groups. Statistical analysis was performed using the statistical package (Primer of Biostatistics).

The agricultural and constructional workers were noted to work seven days a week, working 10.5 (± 1.37) and 7.2 (± 1.46) hours per day, respectively. The controls worked 4.1 (± 1.52) hours per day. No history of smoking or pre-existing respiratory symptoms was elicited in any child.

The average PEFR value of male agricultural workers construction workers and controls were 286.9 (± 32.32) L/min, 282.5 (± 29.66) L/min and 303.0 (± 31.05) L/min, respectively. There was a significant difference in PEFR values ($P=0.003$) between the three groups of male subjects. The average PEFR value of female agricultural workers construction workers and female control group were 272.5 (± 22.0) L/min, 270.5 (± 28.38) L/min and 283.0 (± 27.27) L/min, respectively. There was a significant difference in PEFR values ($P=0.039$) between the three groups of female subjects. The PEFR in all groups were significantly positively correlated with age, height and weight.

The PEFR is an accepted index of pulmonary function and is widely used in respiratory medicine [1]. Similar to previous reports, we also found that the PEFR values significantly correlated with age, weight, and height of the subjects [2]. This study revealed that child construction workers had much lower PEFR value than those working in agricultural sector. Similar findings have been reported by previous workers with respect to workers in the construction industry [3,4]. Construction workers are exposed to a wide range of substances that are potentially hazardous to the respiratory system, including cement dust, wood dust from sawing, dust from the ground, fumes from welding, which lower the PEFR value [5,6]. Debray, *et al.* [7] suggested that the inhalation of these dust particles leads to deposition on the lining of the alveoli, which may reduce the ventilation-perfusion ratio and thus reduces the maximum oxygen uptake. This deposition may also be the cause of lower lung capacity and thus lower PEFR.

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Assessment of Nutritional Status of Rural Tribal Children in Tripura

This cross-sectional study evaluated the nutritional status of 608 rural tribal children (age 6 to 15 years) from Jampuijala block of West Tripura district, India. Prevalence of stunting, thinness and overweight were 23.7%, 33.4% and 0.8%, respectively. The prevalence of stunting and thinness was found to be higher in boys than in girls.

Key words: *Growth, Tribal, Undernutrition.*

Undernutrition is an important public health issue, especially among the tribal populations in India [1]. Anthropometry is a widely accepted tool for assessing the nutritional status in children and adolescents [2,3]. Very few studies on nutritional status of children have been reported from the tribal populations of northeast India [3-5]. Tripura, the second smallest state of northeast India, consists of nineteen classified tribal populations. The *Tripuri* is the numerically major tribal population of Tripura, and physically they exhibit mongoloid features [6]. In the present study, nutritional status of 6-15 years old children in rural Tripura was assessed.

The subjects for the present cross-sectional study were selected from the schools of *Jampuijala* block of West Tripura district. The cluster random sampling method was followed for selecting the subjects. Schools were randomly selected, and all the students of eligible age were included in the study. A total of 608 Tripuri school children (306 boys and 302 girls) aged 6 to 15 years were studied. All children were from low socio-economic status. Age of each subject was verified from school records. Data were collected after obtaining the necessary approval from the school authorities and written consent was obtained from each subject. The protocol and procedure employed was in accordance with the Helsinki Declaration of 1964, as revised in 2004 [6]. Height and weight of each child were measured using standard techniques [7] and body mass index (BMI) was calculated. The indices of under nutrition such as stunting, thinness and overweight were calculated according to the classification of World Health Organization [2], using the 2007 WHO growth reference data for 5-19 years [8].

The peak height velocity was between 12-13 years for boys, and between 9-10 years for girls. Prevalence of stunting, thinness and overweight of rural Tripuri children is represented in **Table I**. The overall (sex and age combined) prevalence of stunting, thinness and overweight were 23.7%, 33.4%, and 0.8%, respectively. The prevalence of stunting and thinness were higher in boys than that in girls. With the advancement of age (10 years onwards), decreasing trend of thinness was observed among girls. The results of this study are contrary to the