

**MORPHOLOGICAL CHARACTERISTICS OF ELITE INDIAN TRACK AND FIELD
PROBABLES OF 2010 COMMONWEALTH GAMES**

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ABSTRACT

Track & Field incorporates a range of sporting discipline in which specific physique or morphological features play a major role in competition success. More than 100 Scientists have attended to describe the morphological characteristics of elite athletes with objective of relating their physiques to athletic performance. Theoretically, the most successful athletes are those with the appropriate body structure to perform their events.

In the present study, an attempt has been made to investigate the morphological characteristics of the elite Indian Track and Field athletes preparing for 2010 Common Wealth Games. The data have been collected on 246 athletes belonging to the different events of Track & Field. The data collected on 246 athletes were grouped under four major events such as running, jumping, throwing and other categories. Major events were further sub grouped as 100-m, 200-m and 400-m (Sprinters), 400-m and 800-m (middle distance runners), 3000-m, 5000-m and 10,000-m (long distance runners), long, high and triple (jumpers), Javelin, Hammer, Discus and Shot put (thrower), 20 Km walkers, Decathlons and Heptathlon (as other categories) .

A total of 30 anthropometric measurements were taken on each athlete by using standardized techniques and instruments. The morphological characteristics such as height (cm), sitting height (cm), height Trochanterion (cm), weight and height – weight ratio, Ponderal index, body fat (% & Kg), lean body mass (% &Kg), muscle mass (% & Kg), bone mass (% & Kg) and somatotype were observed for each athlete.

Somatotype ratings have been computed by the modified Carter method of somatotype (1976). The body composition has been studied from the total body fat, bone mass and muscle mass. Body fat was calculated by Brozek (1963) equation, for which the body density was calculated by equation devised by Durnin and Womerslev (1974).

The study concluded that the Indian CWG-2012 probables were found to be shorter in height as compared to their Olympic Counterpart in most of the events. The probables were further found to be heavier in the body weight due to more fat mass as compared to their Olympic counterparts in the many events of Track & Field. Majority of 2010 CWG Track & Field probables were not found in the desirable ranges of Height-Weight Ratio when compared to their Olympic Counterparts. In the body composition, amount of muscle mass calculated in Kg were found to be significantly lesser as compared to their Olympic Counterparts.

In long distance running many athletes were found to possess more bone mass and more fat mass as compared to their Olympic counterparts. In the somatotype, Indian T & F probables of 2010 were found to more in ectomorphic component, less in mesomorphic and significantly high in endomorphic component. However Indian sprinters (specially 400 m runners, throwers (specially discuss) and walkers were found to possess better anthropometric characteristics as compared to athletes of other events. These athletes were found to possess anthropometric characteristics at par with their Olympic counterparts except with sole exception of body fat which was found to be significantly higher in them.