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[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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[\[PDF \(95K\)\]](#) [\[References\]](#)

The relationship between development of children's bodies and gravity center movement

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Abstract The relationship between the development of children's bodies and gravity center movement was studied. The subjects of this study were 61 children (30 boys, 31 girls) at nursery school. Foot-sole-prints were obtained using a stamp method and presence of foot arch formation was determined. The first measurement was taken in May 2003 and the second measurement was 6 months later. The children's physical functions were measured including standing height, body weight and foot length. In addition, the distance and the area of center of gravity movement when the subjects had their eyes opened and eyes closed were measured with automatic attitude analytical devices. Occlusal abilities were measured including occlusal contact area, average pressure and occlusal force with the Dental Prescale[®]. The male group showed a significantly wider occlusal contact area and a stronger occlusal force than the female group. A significant positive correlation was found between body height and occlusal contact area. A negative correlation was found between contact area and distance of BCG. A significant negative correlation was found between contact area and area of BCG. A significant difference was found between the eyes opened and eyes closed groups in the center of gravity movement for both children with formed foot arches and those without. The center of gravity movement of the foot arch formed group was less than that of the unformed group. A significant difference was found between the formed foot arch group and unformed foot arch group with regard to the improvement in gravity center movement based on the change in results from the first measurement to the second.

Key words Foot arch, Gravity center movement, Nursery school, Occlusal contact area,

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