

Comment on “Plasmatic adipocyte biomarkers and foot pain associated with flatfoot in schoolchildren with obesity”

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Obesity presents a major impact on the quality of lifestyle and essential physical activities such as walking ability, aerobic capacity, and muscle strength¹. In younger individuals, as well as in adults, obesity has been associated with a range of bone and musculoskeletal disorders, particularly the development and progression of knee osteoarthritis (OA) and foot deformations¹⁻³. Maximum loads on the knee and hip joints can create considerable variation in peak loads and significant effects on the function and structure of the foot⁴⁻⁶. It has been reported that obesity in children negatively impacts foot structure and function; the feet are broader, flatter, rounder, and may have a deformity in ligamentous laxity within the foot that exerts a position of extreme pronation, known as flat foot, which is extended even in adolescent or adult feet⁶⁻⁹. In addition, the abnormality in foot structure, such as flat foot, makes the foot supple (or prone to collapse) and lacks the ability to supinate in order to form a rigid lever during push-off in gait¹⁰⁻¹². In young obese children and adolescents, photography, computed tomography scans, and other anthropometric measurements have shown that excessive increase

in weight-bearing forces may cause micro-trauma to the ligaments and muscular structures, damaging soft tissue and increasing the risk of joint collapse and flat feet⁹⁻¹⁵.

Finally, supporting comments on plasmatic adipocyte biomarkers and foot pain associated with flatfoot in schoolchildren with obesity¹², many research works have reported that adipocytokines, particularly adiponectin, leptin, and resistin, have a significant association as physiological biomarkers of childhood obesity, with foot pain and flat foot among young and older ages with obesity¹⁶⁻²⁰. These markers along with pro-inflammatory ones (TNF- α , IL-6) showed a significant association with bone mineral density (BMD) and bone mineral content (BMC)²⁰⁻²³. Thus, early identification of any structural abnormalities in the biomechanics of bone and its related biomarkers including adipocytokines is required to minimize the risk of future functional complications across a lifespan, particularly in childhood obesity. In addition, controlled exercise training programs of moderate-intensity are advised to minimize the potential risks of childhood obesity on the musculoskeletal system¹⁹⁻²³.

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