

ALTERATION OF GAIT PARAMETERS AS A MANIFESTATION OF ALTERED METABOLISM IN TEENAGE OBESITY

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Literature suggests that obesity has a wide range of effects on locomotion, including affected muscle metabolism and loading/unloading. However, effects of obesity on locomotion in adolescents specifically have not been studied extensively. Thirty normal weight, overweight, and obese adolescents' temporal, spatial, and force gait parameters were studied during walking and running. The study found that weight acceptance peak force and push-off peak force, when normalized by body weight, were significantly lower in obese adolescents. Further, obese adolescents demonstrated increased stance time and decreased step length. These changes suggest that muscular loading and unloading in obese teenagers is, in fact, altered, and results in adaptations that obese individuals take to reduce the energy expenditure during locomotion. The results of the study support previous literature findings; increased adiposity seems to create an altered chemical environment in the body, which is associated with various metabolic and inflammatory changes in the locomotion apparatus in obese teenagers.