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The Effect of Aerobic Walk on Verbal Creativity and Verbal Fluency of Adults with Intellectual Disability with Non-Specific Etiology, Compared to Adults with Typical Development

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Abstract

Healthy lifestyle and exercise have become more popular in recent years. One can sense the Many studies have examined the effect of aerobic exercise on individuals with typical development. Aerobic exercise has been found to improve cognitive, executive function, and working memory. In addition, a positive effect of aerobic activity on mental flexibility, Divergent Thinking and creativity has been noted (Blanchette, Ramocki, O'del & Casey, 2005; Oppezzo & Schwartz, 2014).

While in individuals with typical development, the effect of walking on creativity was examined, no studies were conducted about the corresponding effect on individuals with mild intellectual disability. This population have Learning disability, attention disabilities, impairment of mental flexibility (Salthouse, 2009). Because creativity is associated with mental flexibility and executive functions,impairment of mental flexibility directly impacts creativity (Paulus & Brown, 2007).

The main goal of this present study is to examine the effect of aerobic walking on verbal creativity and semantic fluency and phonetic fluency, in adults (CA=50-25) with intellectual disability (IQ=55-70), with No Specific Etiology, Compared to adults with typical development (CA=50–25).

63 adults were divided into two groups. The first group contained 31 adults (N=31) with mild intellectual disability (IQ=55-70) (CA=50-25). The second group contained 32 adults (N=32) with typical development, at the same chronological age. Both groups were randomly divided into 2 subgroups - in one subgroup (the research group), the subjects performed the tasks while walking on a treadmill at low intensity. The second subgroup (the control group) performed the tasks while sitting.

The research findings were compiled using seven research tools: Two cognitive level evaluation tests-Raven's Matrix-Cognitive Level Test and Peabody Test, Two administrative tests for evaluation of semantic fluency and phonetic fluency, Two creativity tests-Torrance A and B, and the metaphor test for verbal creativity evaluation.

The results of the study indicate that in both study groups, the subgroups which performed the tests while walking, obtained better achievements on the creative ideas evaluation Torrance tests. In the verbal fluency tests, there was a difference in achievement between the two study populations. However, on the verbal fluency tests, especially on phonetic, subjects with intellectual disabilities showed a definite advantage over walking rather than sitting, and it was also concluded that walking predicts improvement in phonetic fluency. Contrary to that, subjects with normal development didn't display a distinct advantage for walking. In the Metaphor Production Test, walking has been shown to influence metaphor production in subjects with typical development, especially on originals metaphor. Walking also predicts improvement in new metaphors.

In conclusion, it was found evident that walking affects verbal fluency and verbal creativity, on both subjects with normal development, and subjects with intellectual disabilities. This present study is a pioneering study assessing the contribution of walking to improving verbal and conceptual and creative fluency in a population with intellectual disabilities. The implications are that physical activity programs should be incorporated under the guidance of trained professionals in different settings for adults with intellectual disabilities to improve their physiological as well as cognitive functions. The verbal fluency and the verbal creativity.