The Investigation of effects of simultaneous stimulation of Exteroception and Proprioception on dexterity of 6-7 years old educable children with Down's syndrome

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Abstract:

Background and aim: Down's syndrome is the most common chrosomal disorder in which the fine and gross motor skills due to lack of proper sensory experience are disturbed. the role of dexterity in Activity of daily living, interaction with environment and independency is quiet crucial in Down's syndrome. Therefore, the aim of this study was to investigate the effects of simultaneous application of exteroceptive and proprioceptive stimuli on the dexterity of 6-7 year old educable children with Down's syndrome.

Materials and methods: 33 Educable children with Down's syndrome were assigned in three groups (i.e. extercoceptive, proprioceptive, simultaneous application respectively) and participated in this study. In the first group, children received only exteroceptive stimulation for 30 minutes, 3 times a week. Children in the second group received only proprioceptive stimulation in the same period. Children in the third group received both stimulations simultaneously. Dexterity was evaluated through purdue peg bourd test after 5^{th}, 10^{th}, 15^{th}, 20^{th}, 25^{th}, and at 30^{th} sessions.

Results: Dexterity changes were significantly differed in all 3 groups ($p<0.05$) using repeated measurement test. In order to assess the improvement process of dexterity, every group was evaluated separately with dexterity test (purdue peg board). Third group showed significant improvement in comparison with other groups ($p<0.05$). There was no significant improvement in dexterity in first and second groups ($p>0.05$).

Conclusion: The findings of current study suggest that simultaneous application of exteroceptive and proprioceptive senses could be used for improvement of dexterity in children with Down's syndrome and perhaps in children with motor control problems.**Key Words: Proprioception, Exteroception, Dexterity, Down's syndrome, Sensory integration**

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