Study of the effects of environmental color on pain in mental retarded (Down syndrome) children in the age of 6-9

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Introduction. Improvement of acute pain threshold by intervention of changing the environmental color is one of the effective instances which is related to mental retarded children's routine life and improve their feeling. This research studies the variation of the acute pain threshold that is affected by color environment.

Materials and Methods. Witness group including twenty students at 6 age, triable group including twenty Down syndrome children, four degrees Celsius cold water, Pink LED lamp in order to change color of the room. By performing the cold water test (Harris et al. 1983) on the both hands of the child, the acute pain threshold has been examined in both groups outdoor with normal white and then the pink light. A week before the test and during it, they have been in the pink light four hours a day.

Results. Consequently, the acute pain threshold was higher in the Down syndrome children at normal light. (p < 0.01) The witness group's acute pain threshold didn't have a tangible change in the pink light as is the triable group. It did increase significantly. (p < 0.05)

Conclusion. Based on this study and other researches, less react of triable group into pain in normal and pink environment and higher influence of triable group under the pink color factor in increasing the acute pain threshold is probably related to the 2 pain transfer paths:

1. "Path of spinal cord – mesencephalon – amygdalas and 2. "Path of spinal cord – hypothalamic which is related with autonomic-supraspinal cord controller and endocrine complex. Further investigations of this theoretical mental retarded children are highly recommended.

Key words: Cold pain test, Down syndrome, Thermal acute pain.