1RYHO 3K\VLRWKHUDSLHV

Melam, et al., J Nov Physiother 2014, 4:4
http://dx.doi.org/10.4172/2165-7025.1000222

5HVHDUFK $UWLFOH 2SHQ $F

Reaction and Movement Time in Down syndrome Children under Different Visual Feedback Conditions

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August 05, 2014, August 28, 2014, August 30, 2014

The purpose of this study was to determine the reaction time (RT) and movement time (MT) in Down syndrome children under two different visual feedback conditions.

An observational cross-sectional study was conducted in which30 mild to moderate Down syndrome children were allocated randomly into two groups. The full visual feedback group comprised 15 participants with an average age of 12(± 1.4) years, and the no visual feedback group comprised 15 participants with an average age of 12(± 1.7) years. All the participants repeated the same activity 20 times with the order of conditions randomized across individuals.

RT and MT were analyzed while participants performed the movement sequence. After 20 trials, both groups showed significant differences in their MT but no significant differences in RT. Intergroup analysis also showed that there was no statistically significant difference in either RT or MT.

Down syndrome children exhibited longer movement and RTs than normal children regardless of vision condition. Knowledge of their performance at regular intervals and encouragement helped to improve their MT. Down syndrome children were less affected by the elimination of visual feedback and showed no significant variation in RTs.

'RZQ V\QGURPH 5HDFWLRQ WLPH 0RYHPHQW WLPH

,QWURGXFWLRQ

'RZQ V\QGURPH '6 DOVR NQRZQ DV WULVRP\ LV D JHQHWLF GLVRUGHU FDXVHG E\ WKH SUHVHQFH RI DOO RU SDUW RI D WKLUG FRS\ RI FKURPRVRPH > @ $ VXUYH\ RI '6 LQ +\GHUDEDG E\ ,WDDE HW DO [illegible] DQ LQFLGHQFH RI SHU RU LQ [illegible] UHJLRQ WKH IUHTXHQF\ RI '6 ZDV [illegible] FDVHV RXW RI '6 IURP 'HOKL ZLWK IUHH WUL[illegible] LQ DQG ZLWK PRVDLFLVP ,W LV HVWLPDWHG WKDW PRUH WKDQ EDELHV DUH ERUQ ZLWK '6 HYHU\ \HDU LQ ,QGLD > @ '6 LV RQH RI WKH PRVW FRPPRQ ELUWK GHIHFWV LQ WKH 8QLWHG 6WDWHV ZLWK DSSUR[LPDWHO\ ELUWKV DQQXDOO\ UHVXOWLQJ LQ DQ HVWLPDWHG ELUWK SUHYDOHQFH RI SHU OLYH ELUWKV > @

'6 KDV VHULRXV LPSOLFDWLRQV IRU [illegible] ELRPHFKDQLFDO V\VWHPV ZKLFK FDXVHV [illegible] SHFXOLDULWLHV VXFK DV EHLQJ fFOXPV\g [illegible]

FKDUDFWHUL]HG E\ VORZ PRYHPHQWV DQ 7KHVH LQFOXGH D YDULDEOH DQG GHOD\H GHILFLWV LQ WDVNV LQYROYLQJ EDODQF ELODWHUDO FRRUGLQDWLRQ DQG EHLQ LQYHVWLJDWLRQV KDYH UHYHDOHG WKDW [illegible] LQ SHRSOH ZLWK '6 WKDQ WKH FRQWURO [illegible] VNLOOV WHQG WR EH LPSDLUHG FRPSDUH[illegible] 0RWRU GHYHORSPHQW LQ '6 LV WKH VDPH [illegible] YDULDELOLW\ LQ PRWRU SURJUHVV ZLWK [illegible] FRPSDUHG ZLWK DJH PDWFKHG FRQWUROV [illegible] ,QGLYLGXDOV ZLWK '6 RIWHQ H[KLELW [illegible] 3DUHQWV WHDFKHUV DQG SK\VLFDO WKHU[illegible] '6 LV WROG KRZ WR SHUIRUP D PRYHPHQW [illegible] GRHV QRW SHUIRUP DV ZHOO DV ZKHQ WK[illegible] WKHP > @ 6RPH H[SHULPHQWDO VWXGLHV [illegible] DUH PRUH VXFFHVVIXO [illegible] [illegible]

UHVSHFWLYHO\ 1R VLJQLILFDQW GLIIHUHQFH ZDV REVHUYHG DW S 7KHUH ZDV DOVR QR VLJQLILFDQW GLIIHUHQFH LQ 57 EHWZHHQ WKH JURXSV

0RYHPHQW WLPH 07

7KH PHDQ 07 IRU WKH ILUVW DQG WKWULDOV LQ WKH)9) JURXS ZDV s DQG s PV UHVSHFWLYHO\ ,Q WKH 19) JURXS LW ZDV s DQG s IRU WKH VW DQG WK WULDOV UHVSHFWLYHO\ :LWKLQ WKH JURXSV D VLJQLILFDQW LPSURYHPHQW L 07 ZDV REVHUYHG EXW WKHUH ZDV QR VLJQLILFDQW GLIIHUHQFH EHWZHHQ WKH JURXSV DW S '6 FKLOGUHQ ZHUH OHVV DIIHFWHG E\ WKH HOLPLQDWLRQ RI YLVXDO IHHGEDFN 7KH UHVXOWV RI WKLV VWXG\ VKRZHG WKDW UHDFWLRQ DQ PRYHPHQW WLPHV ZHUH SURORQJHG LQ '6 FKLOGUHQ UHJDUGOHVV RI YLVXDO FRQGLWLRQ +RZHYHU 07 FDQ EH LPSURYHG JLYHQ NQRZOHGJH RI UHVXOWV

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				(P≤0. 05)
Full visual feedback (FVF)	921.67 ± 193.58	810±167.41	1.689	0.102*
No visual feedback (NVF)	1070 ± 271.79	941.34±202.52	1.47	0.153*
t-value	−1.721	−1.935		
P value((P ≤ 0. 05)	0.096*	0.063*		

*No significant differences in the reaction time

FKLOGUHQ ZLWK '6)XWXUH UHVHDUFK LV QHHGHG WR XQGHUVWDQG PXOWL MRL