Introduction

•Individuals with Down syndrome often experience low levels of physical activity, which can contribute to both cardiovascular disease and obesity.

•Decreased balance, coordination and muscular strength are often characteristics found in individuals with Down syndrome.

•An adapted dance program was specifically designed for individuals with Down syndrome which may have many positive effects, such as increased agility, fine motor skills and dexterity, for participants.

Objectives

•The purpose of this study was to examine the effects that dance may have on the physical abilities of young adults with Down syndrome.

•Twenty young individuals with Down syndrome from the ages of 12 to 30 participated in a 6 week dance program that met twice a week. Participants were tested using the BOT 2 Brief form and the Berg balance test one week prior to the start of the program and again after the conclusion of the program.

•During the dance sessions participants were led by dance instructors and physical educators through a structured class, including a warm up, skill building, and a choreographed dance routine.

• The results of this study will benefit professionals in the adapted physical education field and dance instructors when developing interventions and programs for individuals with Down syndrome.

Methods

•Twenty dance participants, age 12-30, participated in a 6-week adapted dance program. Dance classes met twice per week for 1 ½ hours. There was 1 lead dance instructor, 4 assistant dance instructors and 12 additional volunteers that assisted during each class.

•One week prior to the 6 week program, participants were evaluated on balance and coordination using the BOT 2 Short form and the Berg Balance Test.

•Each week had a different theme and the dance classes corresponded to the weekly theme. The themes included Hip Hop, Fiesta, Country, Jungle and Hawaiian. Dancers received props to be used for each theme.

•Each dance class followed the same format to develop a familiar routine:

1) Review of dance class rules
2) Warm-up
3) Skill building across the floor
4) Break
5) Choreography
6) Break
7) Choreography review and/or dance activity stations
8) Cool-down

•The dancers learned a total of 8 dances, which they performed in a recital for family and friends.

•At the conclusion of the recital all dance participants received a certificate of completion.

•After the completion of the 6 week program, participants were once again evaluated using the BOT 2 Short form and the Berg Balance Test.

Methods cont.

BOT 2 Shortform

The Bruininks-Oseretskey Test of Motor Proficiency is an individually administrated reliable and efficient test to measures fine and gross motor skills. The subtest include:

- Filling in a star
- Drawing a line through a path
- Coping overlapping circles
- Coping a diamond
- Stringing blocks
- Touching nose with index fingers - eyes closed
- Pivoting thumbs and index fingers
- Walking forward heal-to-toe on a line
- One-legged side hop
- Catching a tossed ball - one hand
- Dribbling a ball – alternating hands
- Push ups (knee or full)

Berg Balance Scale

The Berg Balance scale is a valid test that has been found to be useful in calculating balance in a variety of positions. It is a very simple assessment that requires little equipment and not a lot of space. The subtest for this assessment include:

- Sitting to standing
- Standing unsupported
- Sitting unsupported
- Standing to sitting
- Transfers
- Standing with eyes closed
- Standing with feet together
- Reaching forward with outstretched arm
- Retrieving object from floor
- Turning to look behind
- Turning 360 degrees
- Placing alternate foot on stool
- Standing with one foot in front
- Standing on one foot

Results and Conclusions

•15 subjects completed the Pre and Post-Assessments of the Berg and BOT-2

•Using SPSS to compare

•Mean value of the Berg Pre Assessment 49.8750 ± 7.98227

•Mean value of the Berg Post Assessment 52.8125 ± 3.20871

•Paired Samples T-Test of the Berg Pre and Post their was a significant effect at P=.037

•Berg showed a large effect size (.9675)

•BOT-2 Shortform showed no significance

•Dance appeared to improve balance for individuals with Down syndrome

•These findings can influence future dance opportunities for individuals with Down syndrome.

•Further research is needed on similar programs being held in various locations in order to validate these results.

References

Bruininks, R.H. & Bruininks, B.D. (2005). BOT-2 (*Bruininks-Oseretsky Test of Motor Proficiency*; 2nd ed.). Minneapolis, MN: NCS Pearson.

Berg K, Wood-Dauphinee S, Williams JI, Gayton D (1989) Measuring balance in the elderly: preliminary development of an instrument Physiotherapy Canada 41, 6, 304-311

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