A home based therapeutic exercise program to improve selected functional skills in school aged children with Down Syndrome in a low resource setting; a comparative interventional study

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OBJECTIVES

General: To compare the effectiveness of a therapeutic home based exercise program on selected functional skills in two randomly allocated student groups with Down Syndrome.

Specific objectives:
- To evaluate the level of functional skills (FS) before and after a therapeutic exercise program.
- Establish the validity of this intervention by two independent observers.

METHODS

- Design: Prospective comparative interventional study
- Study setting: a Special Needs School
- Study population: Children with Down Syndrome aged 5-10 years (with no other medical conditions) were randomly allocated into intervention and comparative groups.

1. Intervention
- The intervention group underwent 1 hour training session at the baseline on a specifically designed therapeutic physical training program.
- This included:
  - Warm-up
  - Clapping
  - Ball passing
  - Walking on a line
  - Hopping
  - Dancing
  - cool down
- A detailed pictorial booklet and verbal instructions was given to the caregivers.
- Both groups underwent 35 minute training sessions/day on 5 days per week over 10 weeks.
- Comparative group followed an unstructured leisure time physical activity program for the same duration.

RESULTS

- N=70; intervention:35, Comparison 35
- Mean age 7.8 (SD 1.59) years.
- There was no significant difference in age, sex and socio-demographic distribution within the two groups.
- Functional motor skills assessment by the two independent observers pre (spearman r = 0.993, p < 0.001) and post (spearman r = 0.998, p < 0.001) showed strong agreement in both intervention and comparative groups.

DISCUSSION

- The interventional therapeutic exercise program resulted in significant improvements in the test group in overhand throwing, catching and kicking.
- The improvements in standing long jump and running were not significant. These motor skills are described as more complex skills in this age group in previous literature.

CONCLUSIONS

Simple locally designed physical exercise programs can be used to improve the functional skills of children with Down Syndrome in low resource settings.

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