



Relationship of school-based physical therapy to outcomes for children with disabilities in the USA

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Purpose

- Physical therapy (PT) school-based services support educational programs of children in the United States (US) & other countries, however minimal evidence exists on effectiveness.¹
- We examined relationships of school-based PT to student change using Goal Attainment Scaling (GAS) and standardized change using the School Function Assessment (SFA).
- Hypothesis:
- PT service amount & type, activity focus, & interventions will predict GAS & SFA outcomes.
- Knowing relationships of student outcomes & PT services should influence practice & research worldwide.

Participants

Physical therapists from across the US

| Attributes | Participating PTs (n=109) |
|----------------------------------|---------------------------|
| Female Gender, n (%) | 105 (95.5%) |
| Age in years, Mean (SD) | 46 (4.2%) |
| White Race, n (%) | 105 (96%) |
| Hispanic/Latino Ethnicity, n (%) | 2 (1.9%) |

Students (5-12 years-old) who received PT

| Parent-reported data | Students (n=296) |
|---|---------------------------------------|
| Female Gender, n (%) | 130 (44%) |
| Age, Mean (SD) | 7.3 (2.02) |
| White, n (%) | 213 (72%) |
| Hispanic/Latino Ethnicity, n (%) | 51 (17.6%) |
| Range of Diagnosis: CP, DS/Genetic, GD, Autism, LD/DCD, medical issues, MM, HI/VI, TBI, Limb def. | CP (35%); Genetic (30%); Others (35%) |

Methods

- Using practice-based evidence methods³, at the beginning of the 2012-2013 school year therapists:
- Completed GAS, SFA & School Physical Therapy Intervention for Pediatrics (SPTIP)^{4,5} training
 - Measured GAS goals & SFA on 1- 6 students
 - Completed SPTIP weekly for 6 months
 - Rescored GAS goals & SFA on same students
- Researchers used group comparisons & regression statistics to examine relationships of services to outcomes

Measures

- GAS goals**
 - Individualized Education Plan student goals were converted into sub-goals using GAS. Researchers categorized goals into posture/mobility, recreation/fitness, self-care, & academic categorizes. Therapists identified a primary goal for the year.
 - Dichotomized GAS scores for goal categories into: score of +1,+2 (> goal expectation, n=119) & 0,-1,-2 (met or < goal expectation, n=105)
 - Variables included in logistic regressions were selected based on services that differed between students who exceeded expected goal attainment and students who did not.
- SFA**
 - Criterion-referenced, standardized, judgment-based measure of child's participation in school environment, grades Kindergarten through 6th grade
 - Sub-sections included: Participation, Travel, Maintaining & Changing Positions, Manipulation with Movement, Recreation, Clothing Management, Eating & Drinking, Hygiene
 - Divided SFA Criterion Change Score into: SFA <-5 (n=9-14); -5 to 5 (n=151-157); >5 (n=123-134)
 - Variables included in multiple regression were selected based on services by sub-section that differed between students whose criterion change score was >5 & students whose score was -5 to 5.
- SPTIP**
 - Form & manual to record PT services (<http://www.mc.uky.edu/healthsciences/grants/ptcounts>)
 - Service to the student:** Time in activities, types of interventions, how/where services provided, student engagement in therapy
 - Service on behalf of the Student:** Inservice, consultation/ collaboration, curriculum development, documentation

Results: GAS Goals

Student whose GAS score >=1 (p<0.05)

Primary goals (58% posture/mobility): No significant associations with GAS >=1

Posture/mobility goals: More self care activities & greater minutes on behalf of the student associated with GAS >=1

- Increase of 100 minutes of services on behalf of the student, increased odds of exceeding goal by 24%
- Increase of 100 minutes of minutes on self-care activities, increased odds of exceeding goal by 380%

Recreation/Fitness goals: Greater use of functional strength & mobility for playground access and cognitive behavioral interventions with GAS >=1

- Increase in functional strength & mobility for playground access, increase odds of exceeding goal by 5.6%
- Increase in cognitive/behavioral, increase odds of exceeding goal by 8.8%

Self-care and academic goals: No regression analyses due to small n, instead group comparative analyses

- Self-care goals - more neuromuscular interventions & PT time with other students present; less documentation time with GAS >=1
- Academic goals - more mobility interventions with GAS >=1

Results: SFA

Student whose SFA criterion change scores >5 had: (p<0.05)

Participation:

- Higher average number of mobility interventions

Mobility Composite (Travel, Maintaining & Changing Position, Manipulation with Movement):

- Higher average number of mobility assistive interventions, higher total counts of motor learning and aerobic/conditioning interventions, & higher student engagement in therapy sessions
- Lower PE/recreation activity minutes & lower frequency of positioning interventions

Recreation:

- Higher total counts of mobility for playground access interventions, total counts of sensory processing interventions, & higher student engagement in therapy sessions
- Lower average number of orthoses & equipment interventions

ADL Composite (Clothing Management, Eating & Drinking, Hygiene):

- Higher average number of mobility & motor learning interventions

Conclusions

- GAS:** Students who improved most received more self-care activity, services on behalf of the student, & functional strength, playground access, cognitive/behavioral interventions.
- SFA:** Students who improved most on SFA had more time spent on active practice that facilitated mobility in the school environment and higher student engagement in therapy sessions.

Clinical Relevance

- Therapists should consider: time spent on behalf of students; a focus on active mobility practice in school environments utilizing motor learning intervention, increasing endurance, & engaging students in therapy

References

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