



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

Sarah Westcott McCoy, PT, PhD, FAPTA<sup>1</sup>; Susan Effgen, PT, PhD, FAPTA<sup>2</sup>; Lisa Chiarello, PT, PhD, PCS, FAPTA<sup>3</sup>; Lynn Jeffries, PT, PhD, PCS<sup>4</sup>; Heather Bush, PhD<sup>2</sup>

<sup>1</sup>University of Washington, Seattle, WA; <sup>2</sup>University of Kentucky, Lexington, KY; <sup>3</sup>Drexel University, Philadelphia, PA; <sup>4</sup>University of Oklahoma, Oklahoma City, OK, USA



## 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.<sup>1</sup>
- 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 methods<sup>3</sup>, at the beginning of the 2012-2013 school year therapists:
- Completed GAS, SFA & School Physical Therapy Intervention for Pediatrics (SPTIP)<sup>4,5</sup> 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 6<sup>th</sup> 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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## Acknowledgements

We thank the physical therapists & children who participated in this study.  
 Funding: U.S. Department of Education, Institute of Educational Sciences, R324A110204. Presented at the WCPT Congress 2015, Singapore.  
 Email: SW McCoy: [westcs@uw.edu](mailto:westcs@uw.edu); S Effgen: [susan.effgen1@uky.edu](mailto:susan.effgen1@uky.edu);  
 L Chiarello: [lisa.chiarello@drexel.edu](mailto:lisa.chiarello@drexel.edu); L Jeffries: [Lynn-Jeffries@ouhsc.edu](mailto:Lynn-Jeffries@ouhsc.edu)