

The effectiveness of allied health therapy in the  
symptomatic management of progressive  
supranuclear palsy: a systematic review

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# Abstract

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## Background

Progressive supranuclear palsy is an adult onset neurodegenerative condition. Progressive supranuclear palsy is an aggressive condition associated with a continual loss of function and commonly, death due to aspiration pneumonia. Currently there is no cure, and dopaminergic medications have limited symptomatic benefit for patients. Physiotherapy, occupational therapy, and speech therapy strategies to optimize independence and function are important and show promising effectiveness in practice. Mobility, speech and swallowing problems are some of the most commonly experienced symptoms and are experienced across all stages of the disease.

## Objectives

This systematic review aimed to identify and examine the effectiveness of physical, occupational, and speech therapy interventions in the symptomatic management of progressive supranuclear palsy.

## Inclusion criteria

This review included participants with progressive supranuclear palsy as per the National Institute for Neurological Disorders and Stroke and the Society of Progressive Supranuclear Palsy criteria, aged over 40 years of age from all community and clinical settings. This review included studies evaluating any physical, occupational or speech therapy interventions that addressed mobility, vision, swallowing, communication or cognitive/neuropsychiatric difficulties experienced by patients with progressive supranuclear palsy compared with usual care and/or baseline measurements. Outcomes of interest included the degree of change, or no change in common symptoms including mobility, vision, swallowing, communication and cognition. All types of quantitative study designs were eligible for inclusion.

## Methods

A three-step search strategy was utilized to identify published and unpublished English language studies from between 1996 and 2014 from 11 databases. Methodological appraisal was conducted by two independent reviewers using standardized instruments and relevant data was extracted from included papers using standardized data extraction tools and presented in narrative form due to heterogeneity of interventions.

## Results

Six studies of varying methodological quality and small sample sizes were included.

No occupational therapy or speech therapy interventions were identified. Five studies examined physiotherapy rehabilitation programs and one study examined non-invasive brain stimulation. There is preliminary evidence to support the use of various physiotherapy rehabilitation programs. Physiotherapy rehabilitation programs that combine a dynamic antigravity postural system and a vibration sound system or combine balance and posture exercises with audiobiofeedback appear to improve balance. Combined balance and eye movement training appear to improve stance time and gait speed. Balance training appears to improve step length. Balance and eye movement training may improve vertical gaze fixation and gaze error scores. Balance and posture exercises with audiobiofeedback may improve cognition and communication aspects of quality of life.

## **Conclusion**

Research into the effectiveness of allied health therapeutic interventions for progressive supranuclear palsy symptoms is in its infancy with what can be understood as preliminary evidence for the effectiveness of a number of physiotherapy interventions. High quality studies with large sample sizes are needed. Further research is urgently required to both add further evidence to these results and to identify and investigate effective interventions including occupational therapy and speech therapy interventions to manage mobility, vision, swallowing, communication and cognitive/neuropsychiatric symptoms associated with this devastating condition.

## **Keywords**

*Physiotherapy; physical therapy; occupational therapy; speech therapy; speech pathology; Steele-Richardson-Olszewski syndrome; Richardson's syndrome; PSP; systematic review.*

# Declaration

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I, Erica Tilley, certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

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Erica Tilley

8<sup>th</sup> February 2016

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