



## Grant Information Summary:

# Relationships Between Impairments, Three-Dimensional Kinematics, Functional Limitation, and Disability in Patients with Subacromial Impingement Syndrome

### Practical Significance:

**The impairments associated with subacromial impingement syndrome are theorized to lead to functional loss and disability, based upon Nagi's disablement model. Evaluation and treatment of this disorder is based upon these presumed causal relationships. The results of this study did not provide evidence for the proposed relationships. All dimensions of the disablement model should be examined and considered in the evaluation and treatment of patients with subacromial impingement syndrome, without an assumed presumption of causality between these dimensions.**

#### Background

Subacromial impingement syndrome is a multi-dimensional musculoskeletal disorder, accounting for 44 - 65% of all complaints of shoulder pain. This disorder can be depicted by Nagi's disablement model (Figure 1). The relationships between the entities of the disablement model are untested in patients with subacromial impingement.

#### Objective

The purpose of this study was to examine the relationships between and among the composite variables of impairment, functional limitation, and disability to enhance the understanding of this disorder to aid in evaluation and treatment.

## Design and Setting

Correlational design.

## Subjects

Patients with subacromial impingement syndrome (n = 48) were examined on one occasion.

## Measurements

Each subject completed three self-report questionnaires; the Short-form 36, the American Shoulder and Elbow Surgeon's Standardized Shoulder Assessment Form, and the University of Pennsylvania Shoulder Score. Pain was assessed by a visual analog scale, range of motion with a goniometer, strength of the rotator cuff musculature and scapular musculature with a hand-held dynamometer, thoracic spine posture with a gravity

inclinometer, and forward shoulder posture with a carpenter's square and ruler. Three-dimensional glenohumeral and scapulothoracic kinematics were assessed using a magnetic tracking device.

## Results and Conclusion

There were multiple linear relationships between the variables. However, pain was the only impairment that significantly predicted the composite variables of function and disability. Moderate canonical correlations existed between the composite variables of impairment, functional limitation, and disability. However, the data from this study does not support the proposed causal model of disablement by Nagi in patients with subacromial impingement syndrome.

## Primary Investigator:



Lori Michener,  
PhD, ATC,  
PT, SCS

Department of Physical Therapy  
Phone: 804.828.0234 Fax: 804.828.8111  
lmichene@hsc.vcu.edu

## Publication and Presentations

Michener LA, Leggin BG. A Review of self-report scales for the assessment of functional limitation and disability of the shoulder. *J Hand Therapy*. 2001; 14:68-76.

Michener LA, McClure PW, Sennett BJ. American shoulder and elbow surgeons standardized shoulder assessment form: reliability, validity, and responsiveness. In press with the *Journal of Shoulder and Elbow Surgery*.

Michener LA, McClure PW, Karduna AR, Sennett BJ. The relationships between impairments, functional limitations, and disability in patients with subacromial impingement syndrome. In review with the *Journal of Physical Therapy*.

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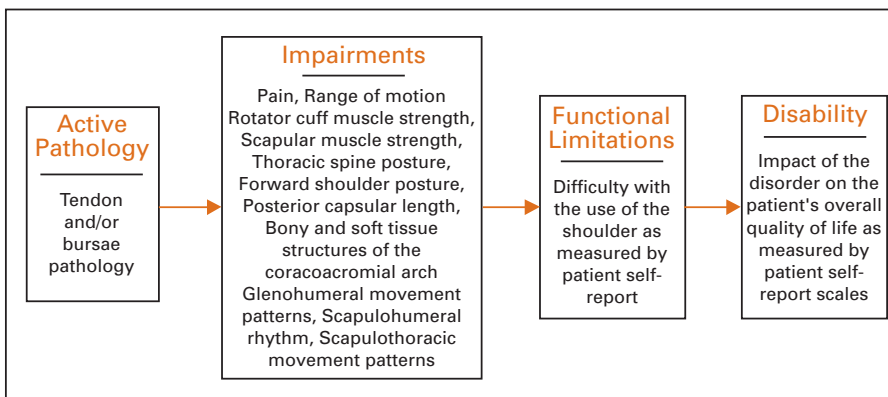


Figure 1 Disablement Model for Subacromial Impingement Syndrome



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214-637-6282

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