Equation of Moore and Garb for Predicting the Incidence Rate of Distal Upper Extremity Disorders from Occupational Exposure

Overview: Moore and Garb developed an equation to predict the incidence rate of distal upper extremity disorders in workers based on work conditions. This can help identify those workers who may benefit from occupational interventions to reduce risk. The authors are from the Medical College and University of Wisconsin.

Distal upper extremity disorders includes carpal tunnel syndrome DeQuervain's tenosynovitis stenosing tenosynovitis in digits or other disorders of the fingers hand wrist and elbow.

Parameters:

(1) incidence rate as occurrences of distal upper extremity disorders per 100 workers per year

(2) intensity of exertion as percent of maximum strength

(3) recovery time as percent of cycle time

where:

- Both intensity of exertion and recovery time are percentages. The equation appears to use them as decimal fractions (percent divided by 100); using them as whole numbers results in unacceptable results.

- Wrist posture during the task is an independent risk factor but to a lesser extent.

incidence rate as percent = (30 * ((percent of maximum strength as decimal fraction)^2)) / ((percent recovery time as decimal fraction) ^ (0.6))

References:

Moore JS Garg A. Upper extremity disorders in a pork processing plant: Relationships between job risk factors and morbidity. Am Ind Hyg Assoc J. 1994; 55: 703-715 (page 709).

Moore JS Garg A. The strain index: A proposed method to analyze jobs for risk of distal upper extremity disorders. Am Ind Hyg Assoc J. 1995; 56: 443-458. (page 447)