

Defining Work Disability

Introduction: This discussion of models of disability determination documents the need to go beyond medical impairment ratings to make them job-related and take complex interrelations between permanent medical impairment and environment factors into account. In this discussion, we shall consider biopsychosocial factors and employability assessment in the context of organizational issues, vocational interest deficits and other psychosocial barriers to employment. Disability determination for Social Security is conservative. The sequential evaluation process required by Social Security asks whether a claimant can perform any type of work, which the WRQ can help to answer. Finally, WRQ job matching requires guarding against Type I and Type II errors.

Disability Management in the Workplace: In high-performance human resource management systems, human resource policies and practices are cost-effective, providing sustained competitive advantage, increased market value of the firm,¹ and higher levels of occupational safety.²⁻³ Schultz⁴ and her colleagues have formulated a Labor Relations Model of occupational disability in which work injury is understood and managed within the context of the workplace. In this model, preventive and post-injury interventions are directed toward the entire work system, including the worker, work demands, the work organization, and the environment. Economic and sociopolitical factors strongly affect this model, so it applies only in well-managed organizations with adequate resources and recognition of its importance, such as those described by Levine, Sistrunk, McNutt and Gael⁵. As necessary as it is to specify ties between medical impairment and job performance capability, actually doing so is less common and more difficult than simply saying that it needs to be done. A recent membership survey of the Society

¹ Becker, B. E. & Huselid, M. A. (1998). High performance work systems and firm performance. In G. Ferris (Ed.), *Research in Personnel and Human Resource Management*, 16, 53-101.

² Amick, B. C., Habeck, R. V., Hunt, A., Fossel, A. H., Chapin, A., Keller, R. B., et al., (2000). Measuring the impact of organizational behaviors on work disability prevention and management. *Journal of Occupational Rehabilitation*, 10, 21-38.

³ Zacharatos, A., Barling, J. & Iverson, R.D. (2005). High-performance work standards and occupational safety. *Journal of Applied Psychology*, 90, 77-93.

⁴ Schultz, I. Z., Crook, J., Fraser, K. & Joy, P. W. (2000). Models of diagnosis and rehabilitation in musculoskeletal pain-related occupational disability. *Journal of Occupational Rehabilitation*, 10, 271-293.

⁵ Levine, E. L., Sistrunk, F., McNutt, K.J. & Gael, S. (1988). Exemplary job analysis systems in selected organizations: A description of processes and outcomes. *Journal of Business and Psychology*, 3, 3-21.

of Human Resource Management in the U.S. and the Chartered Institute of Personnel and Development in the United Kingdom found that organizations in both countries provide very little training to occupational safety and medical staff in defining essential job functions and other workplace disability nondiscrimination topics.⁶ Jette and Badley⁷ observed further that lack of a uniform language and commonly understood definitions of disability and work disability constitute serious obstacles to understanding these concepts. The PAQ offers a uniform vocabulary and syntax that is [widely used by organizations](#) to define characteristics of jobs to use as bases for [making job-related decisions](#). The WRQ combines the vocabulary and syntax of the PAQ with algorithms for matching ratings of capabilities and tolerances of individuals with characteristics of jobs in PAQ databases.

Disability evaluation models in common use include [functional capacity evaluations](#) (FCEs), disability duration,⁸ mental impairment defined by the DSM-IV,⁹ and the *Guides to the Evaluation of Permanent Impairment* (*Guides*).¹⁰ These models are summarized and compared with the [WRQ in Table 1](#).

Going Beyond Medical Impairment: Physicians are likely to rely on the *Guides* to declare vocational disability. The *Guides* provide a standardized system by which the extent of injury to body parts converts to a tabled value to be understood and interpreted as a whole person impairment rating. A conceptual distinction should be made between impairment and disability. Impairment involves the loss of use or derangement of a body part, system, or function. However:

“Several contemporary schools of thought have defined disability as a series of related concepts the consequences or impact of a health condition on a person’s body, on a person’s activities, and on the wider participation of that person in society.

⁶ Bruyère, S. M., Erickson, W. A. & VanLooy, S. (2004). Comparative study of workplace policy and practices contributing to disability nondiscrimination. *Rehabilitation Psychology*, 49, 28-38.

⁷ Jette, A. M. & Badley, E. (2000). Conceptual issues in the measurement of work disability. In N. Mathiowetz & G.S. Wunderlich (Eds.), *Survey Measurement of Work Disability: Summary of a Workshop* (pp. 4-27). Institute of Medicine and National Research Council, Washington DC: National Academy Press. Retrieved February 10, 2004 from http://books.nap.edu/html/work_disability/ch2.html

⁸ Prezia, C. & Denniston, P. (2001). The use of evidence-based duration guidelines. *The Journal of Workers Compensation*, 10, 43-53.

⁹ American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders* (4th Edition). Washington, DC.

¹⁰ Cocchiarella, L. & Andersson, G. B. J. (Eds.). (2001). *Guides to the Evaluation of Medical Impairment* (4th ed.). Chicago: American Medical Association.

The major differences in these schools of thought are the terms used to describe disability and related concepts more than differences in their fundamental contents... Disability determined at the level of impairment is insufficient.”¹¹

An example of the difference between contemporary and more restrictive thinking might be with regard to hand injury. The *Guides* do not distinguish between hand dominance, and regard all the digits equally, except the thumb. Thus, a 20% impairment of the index finger on the dominant hand of a hotel manager, for example, would be far less disabling than the same impairment of a dentist. Such impairment could disable a dentist from performing essential functions of that job. Whether or to what extent the dentist could perform essential job functions with the nondominant hand, or whether essential functions exist that involve the nondominant hand, could be the focus of a [job-related FCE](#).

An insurance executive has made it clear that a disability examiner has to go one step past a medical impairment rating to reach an accurate, reliable, job-related, forensically-defensible assessment of residual work capacity because that is what drives decision-making within contractual definitions of work disability.¹² Despite the critical distinction between impairment and disability, the *Guides* are mandated for disability determination in 19 states.¹³ Butler and Park¹³ found that disability ratings based on the *Guides* are poor predictors of wage loss, which questions the validity of decisions based on the *Guides* for assessment of work disability. Physicians are not ordinarily trained in job-related assessment of employability or work disability,¹⁴ but they receive hundreds of

¹¹ Jette, A. M. & Badley, E. (2000). Conceptual issues in the measurement of work disability. In N. Mathiowetz & G.S. Wunderlich (Eds.), *Survey Measurement of Work Disability: Summary of a Workshop* (pp. 4-27). Institute of Medicine and National Research Council, Washington DC: National Academy Press. Retrieved February 10, 2004 from http://books.nap.edu/html/work_disability/ch2.html.

¹² Owens, P. (1999). The use of functional capacity measures in public and private programs in the United States and in other countries. In G.S. Wunderlich (Ed.), *Measuring Functional Capacity and Work Requirements. Summary of a Workshop*. (pp. 59-63). Institute of Medicine and National Research Council, Washington, D.C., National Academy Press. Retrieved February 10, 2004 from <http://www.nap.edu/openbook/030906385X/html/59.html#pagetop>.

¹³ Butler, R. J. & Park, Y. S. (2000). Impairment ratings for back claims are poor predictors of wage loss. *Journal of Occupational Rehabilitation*, 10, 153-168.

¹⁴ Bruyère, S. M., Erickson, W. A. & VanLooy, S. (2004). Comparative study of workplace policy and practices contributing to disability nondiscrimination. *Rehabilitation Psychology*, 49, 28-38.

thousands of requests each year to do so, which Ziporyn¹⁵ pointed out invites charges of bias, lackeyism and malpractice.

Biopsychosocial Information and Job-Related Employability Assessment: A critical need in employability assessment is to weigh biopsychosocial, psychometric, and other job information to make the disability determination job-related,^{16, 17, 18, 19} and to consider barriers that dramatically affect entry or reentry into the labor market after injury or illness. These include accommodation to disability income that results in no incentive to work; being involved in litigation and perceiving that getting better would have a negative influence on the amount of the final settlement; illness conviction; physical deactivation; length of time off work; anger at the system; unavailability of funds for rehabilitation and retraining; limited transferable skills; depression; anxiety; and a dozen other barriers.²⁰ The number and range of psychological difficulties and barriers to job entry or reentry helps to illustrate the need to generate adequate, relevant biopsychosocial information in the evaluation of employability.²¹

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¹⁵ Ziporyn, T. (1983). Disability evaluation: a fledgling science? *Journal of the American Medical Association*, 250, 873-880.

¹⁶ *Federal Register*. (Friday, July 26, 1991). Part V, Equal Employment Opportunity Commission, 29 CFR Part 1630, Equal Employment Opportunity For Individuals With Disabilities; Final Rule.

¹⁷ Gael, S. (Ed.) (1988). *The Job Analysis Handbook for Business, Industry and Government*. Vol. I and Vol. II. New York: John Wiley & Sons.

¹⁸ American Educational Research Association, American Psychological Association and National Council on Measurement in Education. (1999). *Standards for Educational and Psychological Testing*. Washington, DC: Author.

¹⁹ Society for Industrial and Organizational Psychology, Inc. (2003). *Principles for the Validation and Use of Personnel Selection Procedures* (4th ed.). Bowling Green, OH (Author).

²⁰ Weinhouse, S. (1989). Vocational issues in the rehabilitation of pain patients: The role of the rehabilitation counselor. In J.D. Loeser & K.J. Egan (Eds.), *Managing the Chronic Pain Patient* (pp. 152-156). New York: Raven Press.

²¹ Jette, A. M. & Badley, E. (2000). Conceptual issues in the measurement of work disability. In N. Mathiowetz & G.S. Wunderlich (Eds.), *Survey Measurement of Work Disability: Summary of a Workshop* (pp. 4-27). Institute of Medicine and National Research Council, Washington DC: National Academy Press. Retrieved February 10, 2004 from http://books.nap.edu/html/work_disability/ch2.html.

²² Melia, R. P., Pledger, C. & Wilson, R. (2003). Disability and rehabilitation research: Opportunities for participation, collaboration, and extramural funding for psychologists. *American Psychologist*, 58, 285-288.

Biopsychosocial models of illness behavior and work disability^{24, 25, 26, 27, 28} recognize complex, interactive relationships between medical impairment, pain, functionality or lack of it, and social and environmental aspects of disability. These models view human experience as integrated into a hierarchy of dynamically related, natural systems from smaller, less-complex systems to larger, more-complex systems. Disability is not inherent in the individual, but at the intersection of the individual and the environment.²⁹

Truchon and Fillion³⁰ listed the following predictors of work disability in the first 12 weeks after onset of low back pain: results of tests or medical conditions, negative evaluation of ability to perform the job, job dissatisfaction, perception of stress of performing a monotonous job or due to work tempo or caused by problematic relationships with other workers, pain level, personality, emotional expression and beliefs or other cognitions, or passive coping strategies e.g., catastrophizing, hoping, and praying (as opposed to active strategies, such as seeking distraction). Obviously, this understanding of disability goes well beyond typical FCEs or evaluations based solely on the *Guides*, the DSM-IV or the *Official Disability Guidelines*.³¹ The WRQ provides a structured, practical method for assessing cognitive, emotional, physical, and social functionality in the workplace of individuals with disabilities or functional limitations that do not rise to the level of a disability.

²³ Pledger, C. (2003). Discourse on disability and rehabilitation issues: Opportunities for psychology. *American Psychologist*, 58, 279-284.

²⁴ Friedman, R., Sobel, D., Meyers, P., Caudill, M. & Benson, H. (1995). Behavioral medicine, clinical health psychology and cost offset. *Health Psychology*, 14, 509-518.

²⁵ Wickramasekera, I., Davies, T. E. & Davies, S. M. (1996). Applied psychophysiology: A bridge between the biomedical model and the biopsychosocial model in family medicine. *Professional Psychology: Research and Practice*, 27, 221-233.

²⁶ Katon, W. J. & Walker, E. A. (1998). Medically unexplained symptoms in primary care. *Journal of Clinical Psychiatry*, 59 (Supplement 20), 15-21.

²⁷ Schultz, I. Z., Crook, J., Fraser, K. & Joy, P. W. (2000). Models of diagnosis and rehabilitation in musculoskeletal pain-related occupational disability. *Journal of Occupational Rehabilitation*, 10, 271-293.

²⁸ Truchon, M. & Fillion, L. (2000). Biopsychosocial determinants of chronic disability and low-back pain: A review. *Journal of Occupational Rehabilitation*, 10, 117-142.

²⁹ Pledger, C. (2003). Discourse on disability and rehabilitation issues: Opportunities for psychology. *American Psychologist*, 58, 279-284.

³⁰ Truchon, M. & Fillion, L. (2000). Biopsychosocial determinants of chronic disability and low-back pain: A review. *Journal of Occupational Rehabilitation*, 10, 117-142.

³¹ Prezia, C. & Denniston, P. (2001). The use of evidence-based duration guidelines. *The Journal of Workers Compensation*, 10, 43-53.

Job elements listed on the WRQ are taken directly from the PAQ. The basic assumption of the WRQ is that jobs can be described with acceptable validity with the PAQ, and this information can be used to infer which personal attributes may be most important for doing jobs listed by the WRQ. This information about job requirements and inferred attributes may help assure improved matches between jobs and people disabilities or functional limitations. Arguments for internal validity of the WRQ are based on the direct matching of WRQ items with job requirements stated on the same items. This assumes that the WRQ items have been correctly understood, that the WRQ ratings are accurate in terms of the individual's capabilities and tolerances, and that ratings are made with the same frame of reference as PAQ ratings on jobs. The latter assumption holds when PAQ item definitions are used to make ratings and set [item limits](#).

WRQ results will vary according to ways in which items are rated and item limits are set. Thus, the effects of single items can be material and significant, and extreme error can result when item ratings and item limits are set carelessly. The appropriateness of the WRQ for identifying occupations appropriate for an individual with a disability is *not* based on specific (job-oriented) work experience, but rather on the similarities of the basic human behaviors assessed on the WRQ and job elements described by the PAQ. Workers who have performed, or could perform, generically-stated work activities presumably could be expected to learn to perform other jobs that involve such activities more readily than other persons who cannot perform those activities or more readily than they could learn to perform jobs with work activities that are not consistent with their capabilities and tolerances (E. J. McCormick, personal communication, May 10, 1985).

Even though a job listed on a WRQ report may appear to be appropriate for an individual, placement of the individual in an available job is not a sure-fire guarantee of success on the job. Characteristics of the organization in which the job exists are important. More research has been reported on the fit between persons and organizations than on the fit between persons and jobs.³² Research has found that individuals make job choice decisions that are consistent with their preferences, personality, self-esteem, locus of control, values, interests, and needs.^{33, 34} Hogan, Hogan & Roberts³⁵ have related Big Five personality measures to employment decisions.

³² Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology, 49*, 1-50.

³³ Saks, A. M. & Ashforth, B. E. (1997). A longitudinal investigation of the relationships between job information sources, applicant perceptions of fit and work outcomes. *Personnel Psychology, 50*, 395-426.

Holland³⁶ and Tracey & Hopkins³⁷ hold that vocational interests are major determinants of career selection and subsequent satisfaction. Gati³⁸ acknowledged the importance of vocational interests in job choice, but offered a hierarchical model for the structure of vocational interests, in contrast to Holland's well-known circular-hexagonal model. Gati, Krausz & Osipow³⁹ investigated this hierarchical model further and tested a taxonomy of 44 difficulties in career decision-making. These difficulties may be relevant for individuals with disabilities who are forced into occupational change. Fouad and Bynner⁴⁰ have discussed voluntary vs. involuntary work transitions in detail. Major categories of difficulties found by Gati, Krausz and Osipow include lack of readiness to make career decisions at the beginning of the process, lack of information about oneself, about occupations, or about ways of obtaining additional information, inconsistent or unreliable information, unwillingness to compromise, dislike of accessible career alternatives and external conflicts, such as disagreement with a significant other concerning career alternatives or other factors. Gati, Shehav & Givon⁴¹ found that readiness to compromise on occupational alternatives different from an ideal occupation is an important issue in lack of occupational decision-making. Wanberg, Kanfer, &

³⁴ Judge, T. A., Bono, J. E. & Locke, E.A. (2000). Personality and job satisfaction: The mediating role of job characteristics. *Journal of Applied Psychology, 85*, 237-249.

³⁵ Hogan, R., Hogan, J. & Roberts, B. W. (1996). Personality measurement and employment decisions: Questions and answers. *American Psychologist, 51*, 469-477.

³⁶ Holland, J. L. (1992). *Making Vocational Choices: A Theory of Vocational Personalities and Work Environments* (2nd ed.). Odessa, FL: Psychological Assessment Resources, Inc.

³⁷ Tracey, T. J. G. & Hopkins, N. (2001). Correspondence of interests and abilities with occupational choice. *Journal of Counseling Psychology, 48*, 178-189.

³⁸ Gati, I. (1991). The structure of vocational interests. *Psychological Bulletin, 109*, 309-324.

³⁹ Gati, I., Krausz, M. & Osipow, S. H. (1996). A taxonomy of difficulties in career decision making. *Journal of Counseling Psychology, 43*, 510-526.

⁴⁰ Fouad N. A. & Bynner, J. (2008). Work transitions, *American Psychologist, 63*, 211-225.

⁴¹ Gati, I., Shenhav, M. & Givon, M. (1993). Processes involved in career preferences and compromises. *Journal of Counseling Psychology, 40*, 53-64.

Rotundo⁴² investigated three broad classes of individual differences variables as predictors of job-search intensity among unemployed job seekers: job search motives (commitment to being employed and avoidance of financial hardship), job-search competencies (job search self-efficacy, emotion control and motivation control) and job-search constraints (illness, child care and family responsibilities, and transportation restrictions). They found a positive association between job-search intensity with the probability or speed of obtaining employment.

Assessing Work Disability Using Social Security Criteria: For adults, the Social Security Administration (SSA) defines disability as the “inability to engage in any substantial gainful activity by any medically determined physical or mental impairment that can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than 12 months.”^{43, 44} SSA has developed a “Listing of Impairments” or “Listings” consisting of a set of medical evaluation criteria for all body systems and a list of more than 100 of the most common diseases and disorders that are considered to be very serious or life-threatening. A claimant who “meets” a Listing and is not engaging in substantial gainful activity is considered disabled. The current SSA disability determination process for adults with mental impairments follows a sequential evaluation process.⁴⁵ Step One in the sequence asks if the claimant is performing substantial gainful activity. Step Two asks if the claimant has a medically determinable impairment(s) that is severe. Step Three asks if the claimant’s medically determinable impairment(s) meets or equals any “Listings.” Step Four asks if the claimant’s medically determinable impairment(s) precludes the ability to perform past relevant work. Step Five asks if the claimant’s medically determinable impairment(s) precludes the ability to perform any other work. Teams composed of physicians/psychologists and disability examiners working in state disability determination service agencies determine disability for SSA. The final two steps in SSA disability determination are to ask whether a claimant’s

⁴² Wanberg, C. R., Kanfer, R. & Rotundo, M. (1999). Unemployed individuals: Motives, job-search competencies, and job-search constraints as predictors of job seeking and reemployment. *Journal of Applied Psychology, 84*, 897-910.

⁴³ Social Security Administration (1998). Medical/Professional Relations: Answers for Doctors & Other Health Professionals. Office of Disability Programs, SSA Publication No. 64-042, p. 1.

⁴⁴ American Psychiatric Association, American Psychological Association & Social Security Administration Office of Disability Programs (n.d.). *Understanding Social Security’s Disability Programs: Mental Impairments*. Social Security Administration Office of Disability Programs. SSA Publication No. 64-086.

⁴⁵ American Psychiatric Association, American Psychological Association & Social Security Administration Office of Disability Programs (n.d.). *Understanding Social Security’s Disability Programs: Mental Impairments*. Social Security Administration Office of Disability Programs. SSA Publication No. 64-086.

impairment on the “Listings” is severe enough to preclude him or her from performing 1) a past job or 2) any other job. This is a strict criterion of disability, and one that the WRQ can help to assess (see [programming the WRQ to take disability into account](#)).

Type I and Type II Errors in the Application of WRQ-Listed Jobs: If the individual is likely unable to perform any of the jobs in the PAQ database, it is fair to ask what jobs outside that database might be appropriate for the individual. A great many jobs exist outside the PAQ database. The problem is to discover what jobs are out there and what their requirements are. The greater the number of jobs that present insurmountable difficulties that cannot be reasonably accommodated, the greater the likelihood an injured worker is disabled from working. However, an occupational specialist should be on guard against a Type I error. A Type I error occurs when a hypothesis that is true is rejected in favor of a false alternative. In a Type I error, the WRQ may not list jobs that have been performed by the claimant since the injury or jobs not in the PAQ database that the claimant may be able to perform or learn. The WRQ offers no way to guard against Type I error.

The occupational specialist must guard against Type II error—accepting a hypothesis as true that is actually false. A Type II error would occur if an individual were placed in a job that is not appropriate and in which he or she subsequently fails. A Type II error is fairly easy to minimize by analyzing the performance demands of specific jobs in specific workplaces in terms of the individual’s knowledge, skills and abilities. Specifying individual capabilities, tolerances, and functional limitations in terms of job elements enables development of work samples, [job-related FCEs](#) or other measures to evaluate performance ability. This information can help to assess whether an individual is likely able to perform or learn any of the 2,491 jobs in the master PAQ database. To completely eliminate a Type II error, it would be necessary to place the person in the job so the fit could be evaluated. At some point, the cost of guarding against a Type II error by thoroughly checking out the person’s ability to perform the job would approach the cost of a mis-assignment or a selection failure.