Vocational Rehabilitation

Indexing Metadata/Description

› **Procedure:** Vocational rehabilitation

› **Synonyms:** Occupational Rehabilitation, Work Rehabilitation

› **Area(s) of specialty:** N/A

› **Description/use:** Vocational rehabilitation is defined as “a multi-professional approach that is provided to individuals of working age with health related impairments, limitations, or restrictions with work functioning and whose primary aim is to optimize work participation.”¹ The objective of vocational rehabilitation is to allow persons with disabilities to engage in gainful employment.² A vocational rehabilitation specialist is someone who coordinates services for individuals with disabilities in order to attain their vocational goals. Services provided by vocational rehabilitation specialists include:²

• Diagnosis of impairments

• Counseling and guidance

• Restoration (includes services to address a physical or mental disability)

• Transportation services

• College or university training

• Income maintenance

• Adjustment training

• Business or vocational training

• Miscellaneous training

• Placement

• Information and referral services

• On-the-job training

› **Indications:** Persons with physical or mental impairments that result in impediment to employment.³ Persons who require services to prepare for, secure, retain, or regain employment consistent with their unique strengths, resources, priorities, concerns, abilities, interests, and informed choice

› **CPT codes**

• 97001 Physical therapy evaluation

• 97002 Physical therapy re-evaluation

• 97003 Occupational therapy evaluation

• 97004 Occupational therapy re-evaluation

• 97110 Therapeutic exercise

• 97112 Neuromuscular reeducation

• 97116 Gait training

• 97140 Manual therapy techniques

• 97530 Therapeutic activities

• 97532 Development of cognitive skills

• 97533 Sensory integration techniques

• 97542 Wheelchair management

• 97750 Physical performance test with written report

• 97755 Assistive technology assessment

• 97760 Orthotic management
• 97761 Prosthetic training

G-codes:

• Mobility G-Code Set:
  – G8978, Mobility: walking & moving around functional limitation, current status, at therapy episode outset and at reporting intervals
  – G8979, Mobility: walking & moving around functional limitation; projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting
  – G8980, Mobility: walking & moving around functional limitation, discharge status, at discharge from therapy or to end reporting

• Changing & Maintaining Body Position G-Code Set:
  – G8981, Changing & maintaining body position functional limitation, current status, at therapy episode outset and at reporting intervals
  – G8982, Changing & maintaining body position functional limitation, projected goal status, at therapy episode outset, at reporting intervals and at discharge or to end reporting
  – G8983, Changing & maintaining body position functional limitation, discharge status, at discharge from therapy or to end reporting

• Carrying, Moving & Handling Objects G-Code Set:
  – G8984, Carrying, moving & handling objects functional limitation, current status, at therapy episode outset and at reporting intervals
  – G8985, Carrying, moving & handling objects functional limitation, projected goal status, at therapy outset, at reporting intervals, and at discharge or to end reporting
  – G8986, Carrying, moving & handling objects functional limitation, discharge status, at discharge from therapy or to end reporting

• Self-Care G-Code Set:
  – G8987, Self-care functional limitation, current status, at therapy episode outset and at reporting intervals
  – G8988, Self-care functional limitation, projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting
  – G8989, Self-care functional limitation, discharge status, at discharge from therapy or to end reporting

• Other PT/OT Primary G-Code Set:
  – G8990, Other physical or occupational primary functional limitation, current status, at therapy outset and at reporting intervals
  – G8991, Other physical or occupational primary functional limitation, projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting
  – G8992, Other physical or occupational primary functional limitation, discharge status, at discharge from therapy or to end reporting

• Other PT/OT Subsequent G-Code Set:
  – G8993, Other physical or occupational subsequent functional limitation, current status, at therapy outset and at reporting intervals
  – G8994, Other physical or occupational subsequent functional limitation, projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting
  – G8995, Other physical or occupational subsequent functional limitation, discharge status, at discharge from therapy or to end reporting

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<tr>
<th>G-code Modifier</th>
<th>Impairment Limitation Restriction</th>
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<tr>
<td>CH</td>
<td>0 percent impaired, limited or restricted</td>
</tr>
<tr>
<td>CI</td>
<td>At least 1 percent but less than 20 percent impaired, limited or restricted</td>
</tr>
<tr>
<td>CJ</td>
<td>At least 20 percent but less than 40 percent impaired, limited or restricted</td>
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<tr>
<td>CK</td>
<td>At least 40 percent but less than 60 percent impaired, limited or restricted</td>
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Reimbursement: In the United States, the Rehabilitation Act of 1973 authorized federal funds for state rehabilitation agencies to provide services to persons with disabilities that qualify. The federal government provides 80% of the funding; states must provide the remaining 20%. State agencies administer the programs under the Rehabilitation Services Administration in the Department of Education. State agencies are usually found in the state division or bureau of vocational rehabilitation. The state provides direct services as well as refers individuals to private agencies and training programs.

- Tax incentives are available for potential employers who provide training.
- The state agency also can fund a salary for the employer on a sliding scale, with the employer gradually taking over the responsibility as the person becomes trained.
- Similar programs exist in other countries (e.g., Canada, United Kingdom, Netherlands).
- Policy changes aimed at addressing an unsustainable increase in disability benefits that has occurred over the last decade are predicted to impact the need for professionally qualified vocational rehabilitation counselors.

Researchers in Australia observed that there has been an increase in demand for vocational rehabilitation service delivery for persons with disabilities, but that persons with complex needs are not consistently receiving the services they need to access and maintain employment.

- Authors of a systematic review of payment models for vocational rehabilitation indicate that there is limited evidence suggesting that models providing financial incentives for stakeholder-agreed rehabilitation outcomes tend to improve service effectiveness in workers’ compensation settings.

- Evidence about service quality or client satisfaction is lacking.
- The authors noted that working in a system that identifies payments for stakeholder-agreed outcomes might be more satisfying for rehabilitation practitioners by allowing clinical autonomy and innovative practice.

Indications for Vocational Rehabilitation

- Mental illness
- Traumatic brain injury (TBI)
- Visual impairment
- Hearing difficulties
- Musculoskeletal conditions
- Intellectual disability
- Cancer
- Autism
- HIV infection/AIDS
- Spinal cord injury (SCI)
- Stroke
- Multiple sclerosis (MS)
- Burn injuries
- Cystic fibrosis
- Diabetes mellitus
- Cardiovascular conditions
- Amputation
Guidelines for Use of Vocational Rehabilitation

Traditional approaches

• Begins with a referral by a medical provider, insurance case manager/adjuster, or agency of a person with a disability to a vocational rehabilitation counselor, followed by an interview between the counselor and the person with a disability that includes:
  – Previous job skills and experiences
  – Educational level
  – Motivation
  – Perceived abilities and disabilities
• The counselor then assesses the skills the person had pre-morbidly and the skills needed before placement in a suitable position (previous employers should be contacted if possible). If no positions are available, vocational testing is performed
  – Aptitude matching
    - Testing is performed to assess the person’s general intelligence, achievement, aptitudes, interests, and work skills; formal testing consists of administering a battery of paper and pencil standardized tests
    - Performance is compared against a list in the Dictionary of Occupational Titles, published by the Department of Labor
      - When a person’s aptitude matches an occupation, a job search is undertaken
  – Work sample
    - Focuses more on work skills than intelligence, aptitude, and academic performance
    - Valpar Component Work Sample Series (VCWSS) is an example
• Next, a vocational goal is developed, and the requirement of the potential position is determined with a job analysis
• Finally, training is initiated
  – Training should include funding for or provision of transportation, books, tuition, and adaptive equipment
  – Can last weeks to years
  – Can be conducted at a trade school, college, university, or on the job with state funding
• Once the person has completed training and has been placed in employment for 60 days, the case is considered a success and is closed, typically with no follow-up evaluation

Alternative approaches

– Developed due to the poor success record of the traditional approaches with the most severely disabled; in general, these approaches are criticized for failure to reintegrate people into competitive community employment
  – Sheltered workshops
    - Public nonprofit organizations that are certified by the U.S. Department of Labor to employ persons with reduced earning capacity in jobs at subminimum wages
    - Serves persons with severe disabilities
    - Criticized because this approach rarely leads to competitive, integrated employment
  – Day programs
    - Utilized solely to provide supervised vocational activities during the day
    - For persons with severe disabilities, usually intellectual disability and mental illness
    - Not designed to transition to competitive employment or to allow community integration
  – Home-based programs
    - The person with a disability can perform a variety of jobs that can be performed at home (e.g., telemarketing and data entry)

Other programs

– Projects within an industry
  - A federally sponsored program in which employers design and provide training projects for specific job skills in cooperation with rehabilitation agencies
Transitional and supported employment

- Providing job placement, training, and support services necessary to help persons move into independent or supported employment
- Supported employment requires ongoing support after placement, including counseling, transportation, and housing
- Critical criteria for supported employment: interventions provided at job site; assistance is long term or permanent; programs serve only the severely disabled; real pay for real work; work is performed in an integrated setting
- Four models have been developed
  - Enclave model: small group of persons with disabilities work together at an integrated job site
  - Mobile work crew model: small group that travels from job to job offering contractual services
  - Small business model: creates a new small business that uses workers with and without disabilities
  - Job coach with individual placement model
- Individual Placement and Support (IPS) is a supported employment, client-centered approach that has the goal of gaining and maintaining competitive employment, with the additional intention of helping individuals by developing social contacts and enhancing participation in the community
- Independent living centers can provide a core of non-vocational services such as housing, independent living skills, advocacy, and peer counseling

Researchers have identified a need for the development of a comprehensive conceptual framework for delivery of adequate vocational therapy by physical therapists (PTs). Several researchers have proposed using the International Classification of Functioning, Disability and Health (ICF) by the World Health Organization (WHO)

- One essential element is a full understanding of the individual’s health condition and how it affects his or her functioning and work disability
- Therapists can make use of the ICF in three ways
  - Using the categories from the ICF core set for vocational rehabilitation as domain items or a checklist to structure the assessment and evaluation of patients. Two sets exist: a comprehensive core set that includes 90 categories and a brief core set that includes 13 categories
  - Brief core set includes:
    - Acquiring skills
    - Handling stress and other psychological demands
    - Complex interpersonal interactions
    - Acquiring, keeping, and terminating a job
    - Remunerative employment
    - Non-remunerative employment
    - Immediate family
    - Persons in positions of authority
    - Health services, systems, and policies
    - Labor and employment services, systems, and policies
    - Energy and drive functions
    - Higher-level cognitive functions
    - Exercise tolerance functions
  - Researchers in the Netherlands also developed a core set (VR-Pain Core Set) with the Initiative on Methods, Measurement and Pain Assessment (IMMPACT) to use for clinical and research purposes for patients with subacute and chronic musculoskeletal pain. The researchers warn that adaptations might be necessary before using the set outside of the Netherlands
  - Using standardized measurement instruments that are patient-reported, as well as objective measures (e.g., lifting)
  - Developing and implementing new measurement instruments based on the ICF (e.g., Work Rehabilitation Questionnaire [WORQ])

Contraindications/Precautions to Vocational Rehabilitation

- Any overall contraindications and precautions will be specific to the patient’s diagnosis/diagnoses
- There are several disincentives to returning to gainful employment for persons with disabilities
• Concerns by the person that he or she will lose disability benefits
• Stereotypes about persons with disabilities (e.g., they are unable to work)
• Employers’ attitudes and ignorance about the capabilities of persons with disabilities
• Physicians labeling persons with disabilities as permanently disabled and restricting their activities

Examination

› Contraindications/precautions to examination
  • Examination will vary based on underlying diagnosis and whether it is being performed by an occupational therapist (OT) or PT
  • It is advised to read the Clinical Review on the specific underlying diagnosis as well

› History
  • History of present illness/injury for which the procedure is needed
    – Mechanism of injury or etiology of illness: What is the patient’s diagnosis? When the illness/injury diagnosed? If applicable, how did the injury occur? Inquire about the course of the illness/injury up to this point. Did the patient undergo a Functional Capacity Evaluation (FCE)?
      - For more information on the Functional Capacity Evaluation, see Clinical Review...Functional Capacity Evaluation.

    Topic ID number T903516

    – Course of treatment
      - Medical management: Inquire about all medical interventions for the specified diagnosis patient has received up to this point
      - Medications for current illness/injury: Determine what medications clinician has prescribed; are they being taken as prescribed? Does the patient feel medications prescribed for symptom control are adequately controlling symptoms?
      - Diagnostic tests completed: Will vary based on underlying diagnosis; patient might undergo an FCE to assess his or her ability to perform specific work-related tasks (e.g., lifting)
      - Home remedies/alternative therapies: Document any use of home remedies (e.g., ice or heating pack) or alternative therapies (e.g., acupuncture) and whether or not they help
      - Previous therapy: Document whether patient has had occupational or physical therapy for this or other conditions and what specific treatments were helpful or not helpful. Has the patient undergone vocational rehabilitation in the past? Was it successful?

    – Aggravating/easing factors (and length of time each item is performed before the symptoms come on or are eased): Inquire specifically about factors that affect potential employment/return to work (RTW)

    – Body chart: Use body chart to document location and nature of symptoms where relevant

    – Nature of symptoms: Document nature of symptoms; specifically inquire about symptoms that arise during work-related activities (constant vs. intermittent, sharp, dull, aching, burning, numbness, tingling)

    – Rating of symptoms: Use a visual analog scale (VAS) or 0–10 scale to assess symptoms at their best, at their worst, and at the moment. Utilize nonverbal scales as appropriate (specifically address if pain is present now and how much)
      - McGill Pain Questionnaire measures the sensory, affective, and evaluative dimensions of pain
      - Pain Catastrophizing Scale measures catastrophizing of pain (how a patient reacts to pain [e.g., does patient magnify his or her pain?])

    – Pattern of symptoms: Document changes in symptoms throughout the day and night, if any (AM, mid-day, PM, night); also document changes in symptoms due to weather or other external variables

    – Sleep disturbance: Document number of wakings/night as related to the condition. Does this affect the patient’s ability to work effectively? Does patient have sleep apnea? Does patient use continuous positive airway pressure (CPAP) at night?

    – Other symptoms: Document other symptoms patient might be experiencing that could exacerbate the condition and/or symptoms that could be indicative of a need to refer to physician (dizziness, shortness of breath, bowel/bladder/sexual dysfunction)

    – Respiratory status: Does the patient require supplemental oxygen? If so, does he or she have oxygen he or she can travel with? Reason for oxygen, concentration, etc. Is there a history of respiratory problems? Limitations in activity level due to respiratory reasons? Any chronic cough, wheeze, smoking history, asthma, etc.?

    – Psychosocial status: Inquire about any psychosocial issues
      - Beck Depression Inventory to assess the severity of depression
- Brief Psychiatric Rating Scale (BPRS)\(^{39}\)
- Hospital Anxiety and Depression Scale (HADS)\(^{39}\)

- **Barriers to learning**
  - Are there any barriers to learning? Yes\_/No\_  
  - If Yes, describe

- **Medical history**
  - **Previous history of same/similar diagnosis**
  - Inquire about previous episodes of similar pain and/or dysfunction (e.g., back/neck pain, ankle sprain)
  - **Comorbid diagnoses**: Ask patient about other problems, including diabetes, cancer, heart disease, complications of pregnancy, psychiatric disorders, orthopedic disorders, etc.
  - Secondary health conditions are associated with worse employment outcomes \(^{49}\)
  - There is also evidence that suggests that the relationship between employment and secondary conditions is bidirectional and that employment is a protective factor against many health conditions (e.g., depression, sleep problems, pain, fatigue)\(^{49}\)
  - **Medications previously prescribed**: Obtain a comprehensive list of medications prescribed and/or being taken (including over-the-counter drugs)

- **Other symptoms**: Ask patient about other symptoms he/she might be experiencing

- **Social/occupational history**
  - **Patient's goals**: Document what the patient hopes to accomplish with vocational rehabilitation and in general. Patients must expect to achieve an employment outcome as a result of receiving vocational rehabilitation services to be eligible
  - The ICF brief core set for vocational rehabilitation can be used to determine what categories the patient feels are the most problematic and what needs to be addressed in vocational rehabilitation\(^{38}\)
  - **Vocation/avocation and associated repetitive behaviors, if any**: Did the patient work pre-morbidly? What was the job and what did it require? Does he or she expect or wish to return to that job? Does the patient drive? Does the patient wish to return to any activities that he or she currently cannot participate in?
  - **Functional limitations/assistance with ADLs/adaptive equipment**: Inquire about any functional limitations or assistance with ADLs that the patient requires due to his or her disability and inquire about any adaptive equipment he or she has in place. Is it in good condition?
  - **Living environment**: Inquire about the patient’s living environment. Does it have stairs? How many floors are in the home? With whom does patient live (caregivers, etc.)? Identify if there are barriers to independence in the home; are any modifications necessary? Will family/caregivers be able to assist with RTW (e.g., transportation)? A home assessment might be necessary and appropriate depending on the diagnosis (e.g., SCI)

- **Relevant tests and measures** (While tests and measures are listed in alphabetical order, sequencing should be appropriate to patient medical condition, functional status, and setting)
  - **Anthropometric characteristics**: Measure height and weight and calculate body mass index (BMI)
  - **Arousal, attention, cognition** (including memory, problem solving): Examples of tests administered by vocational rehabilitation counselors
    - Wechsler Adult Intelligence Scale–Revised
    - General Aptitude Test Battery
    - Differential Aptitude Test
    - Wide Range Achievement Test
    - Halstead-Reitan Neuropsychological Battery
    - Luria-Nebraska Neuropsychological Battery
  - **Assistive and adaptive devices**: Assess devices for appropriate fit and use. Might include devices for ADLs, self-care, bathing, toileting, transfers, and ambulation (e.g., orthotic devices), and also for pressure relief
  - **Balance**: Assess balance in sit and stand, statically and dynamically, as indicated and appropriate. Use standardized testing (e.g., Berg Balance Scale); consider level of balance required by the job
  - **Cardiorespiratory function and endurance**: Assess vitals as indicated; test patient’s endurance as indicated and depending on what is required by his or her job (e.g., 6-minute walk for distance test [6MWT] with Borg Rate of Perceived Exertion (Borg RPE) scale)
  - **Cranial/peripheral nerve integrity**: Assess integrity of cranial and peripheral nerves as indicated and appropriate
• **Ergonomics/body mechanics**: Perform a comprehensive assessment of the patient’s body mechanics when performing job duties. Perform a comprehensive ergonomic assessment of the patient’s work station
  – For more information on ergonomics assessment, see Clinical Reviews...Ergonomics Assessment and Intervention; Topic ID Number: T708456

• **Functional mobility** (including transfers, etc.): Assess patient’s ability to transfer and perform functional mobility; the FIM or the Timed Up and Go (TUG) test can be used for objective measurement. Functional mobility has been identified as an important factor for enabling work participation among adults with physical disabilities. An FCE might evaluate such tasks as stair climbing, stepladder climbing, crouching, kneeling, crawling, bending from waist, etc.

• **Gait/locomotion**: Perform comprehensive gait assessment and determine if patient has sufficient safety (the Dynamic Gait Index can be used) and can ambulate a sufficient distance to perform job duties; assess wheelchair mobility if indicated, including ability to negotiate ramps, curbs, etc. Assess comfortable and fast gait speed (e.g., using 10-meter walk test)

• **Joint integrity and mobility**: Assess as indicated and appropriate based on underlying diagnosis

• **Motor function** (motor control/tone/learning): Assess tone, motor control, and coordination as indicated for patients with neurological involvement
  – Modified Ashworth Scale
  – Jepsen-Taylor Hand Function Test
  – Nine-Hole Peg Test (NHPT)

• **Muscle strength**: Perform comprehensive strength testing taking into consideration what will be required by the job, use functional strength testing as indicated (e.g., indicated when patient has abnormal tone or coordination, or patient is unable to follow instructions). An example of a standardized functional strength test is the 5 times sit to stand test (5TSTST)
  – Lifting specified weight from floor to waist or overhead is often included in assessment for vocational rehabilitation

• **Observation/inspection/palpation** (including skin assessment): Inspect skin if the patient uses braces, orthotics, or splints, is bedbound, or has impaired mobility. Observe for faulty mechanics during specific movements or activities that might be contributing to pain and/or dysfunction. Inspect for swelling as indicated. Inspect feet of patients with diabetes

• **Palpation**: For trigger points and muscle spasm in patients with pain and musculoskeletal dysfunction

• **Perception** (e.g., visual field, spatial relations): Assess visual attention and tracking; the Trail Marking Test can be used. Depending on the disability might include visual field assessment, assessment for neglect. Obtain results of tests by other disciplines where available

• **Posture**: Perform comprehensive posture assessment and determine if abnormalities are contributing to pain and/or dysfunction

• **Range of motion**: Assess ROM and flexibility

• **Reflex testing**: Assess as indicated

• **Self-care/activities of daily living** (objective testing): Assess ability to perform self-care and ADLs, as the ability to perform these activities (either independently or with assistance) will allow patient to be more successful in returning to work (e.g., bathing, eating, grooming). The Barthel Index can be used for objective measurement

• **Sensory testing**: Assess light touch and proprioception as indicated

• **Special tests specific to vocational rehabilitation**: Please see Clinical Review on Functional Capacity Evaluations referenced above for more detail on this topic. Other special tests that might be included in assessment of patients for whom vocational rehabilitation is indicated include:
  – WORQ: used to assess progress of patients in vocational rehabilitation
  – Canadian National Institute for the Blind (CNIB) Tool to Assess Preparedness for Employment (TAPE)
  – Short-Form Health Survey (SF-36)
  – WHO Quality of Life (WHO-QOL)measure
  – Pain Disability Index
  – Fear-Avoidance Beliefs Questionnaire (FABQ)
  – Positive and Negative Syndrome Scale (PANSS)
  – Global Assessment of Functioning (GAF) Scale
  – Oswestry Low Back Pain Disability Questionnaire
  – Disabilities of the Arm, Shoulder and Hand (DASH) Outcome Measure
  – Lower Extremity Functional Scale (LEFS)
Assessment/Plan of Care

Contraindications/precautions
- Patients with a diagnosis for which this procedure is used might be at risk for falls; follow facility protocols for fall prevention. Ensure that patient and family/caregivers are aware of the potential for falls and educated about fall-prevention strategies. Discharge criteria should include independence with fall-prevention strategies
  - Monitor vital signs
  - Continued unsafe body mechanics during vocational training should be addressed
- Strictly adhere to any restrictions set by the physician (e.g., lifting, weight-bearing)

Diagnosis/need for procedure: To assist in the process of successful RTW

Prognosis
- Researchers in Norway found that determinants for lack of work-participation and early disability pensions among young adults in vocational rehabilitation included poor social relations (being alone), teenage parenthood, and weak connection to working life (e.g., low education level and not being employed)(51)
- Authors of a systematic review conducted in 2011 found that younger stroke patients with aphasia are less likely to RTW (28.4%) than those without aphasia (44.7%)(32)
- Authors of a systematic review published in 2011 found the rate of employment after vocational rehabilitation following a stroke (6 studies; 462 participants) ranged from 12% to 49%(33)
- Researchers in the United States developed and validated a predictive model of RTW status for injured employees utilizing data from 15,372 workers’ compensation claims. Failure to RTW was predicted by(34)
  - attorney involvement
  - higher level of permanent impairment
  - shorter job tenure
  - lower pre-injury average weekly wage
  - injury affecting the head and neck or the back
  - lower level of education attainment

Referral to other disciplines
- Physician
- Speech therapy
- Social work
- Nurse
- Psychologist, psychiatrist
- Support groups(26)
- Human resources, union representative
- Employment advisors, career counselors
- Case manager

Treatment summary
- Mental illness
  - In a quasi-randomized controlled trial conducted in Denmark, researchers found that a multidisciplinary, coordinated, and tailored approach did not improve timeliness of RTW over a conventional case-management approach for patients with mental health problems(3)
  - Authors of a systematic review published in 2011 found that for adults with serious mental illness, strong evidence exists for the effectiveness of supported employment using the IPS approach, and that outcomes are even stronger when combined with cognitive or social skill training;(7) however, a systematic review in the United Kingdom in 2011 that only included studies done within the United Kingdom found the overall quality of evidence to be fair(8)
  - Researchers who conducted a randomized controlled trial in Sweden found improved quality of life scores in patients with mental illness who underwent the IPS approach versus traditional vocational rehabilitation(2)
  - Authors of a meta-analysis published in 2011 found that the IPS approach produces better outcomes for persons with severe mental illness than alternative vocational programs(10)
• **TBI**
  - Authors of a systematic review published in 2012 found there is evidence to support a wide range of vocational rehabilitation models for use with TBI patients, but there is a need for more controlled studies\(^{(13)}\).

• **Visual impairment**
  - Authors of a systematic review published in 2012 found there is evidence to support a wide range of vocational rehabilitation models for use with youths with visual impairment transitioning to employment\(^{(16)}\).
  - There were no studies of interventions that directly resulted in employment.
  - Researchers in Taiwan who conducted a retrospective study found that persons with visual impairments were more likely to have successful employment outcomes when they were provided with continued supportive vocational services following initial employment\(^{(21)}\).

• **Hearing difficulties**
  - Authors of a systematic review published in 2013 found there is evidence for the effectiveness of vocational rehabilitation for workers with hearing difficulties, but there is a need for further research to improve the strength of the evidence\(^{(22)}\).

• **Musculoskeletal conditions**
  - Researchers who conducted a study in the United Kingdom found that for persons with musculoskeletal conditions, there is considerable variation in the delivery of services and interventions, and the amount of contact made with employers; they feel there is an urgent need to address this issue\(^{(23)}\).
  - Researchers in the United States found that vocational services have a significant positive impact on employment outcomes for persons with arthritis, but that many persons with arthritis are not aware or do not utilize state vocational services\(^{(48)}\).
    - Based on a multivariate logistic regression analysis of data extracted from records of 4,218 individuals with chronic arthritis.
    - A need for collaboration between rehabilitation and other health professionals promoting the use of vocational rehabilitation services to improve employment outcomes was identified.
  - Researchers in Sweden found that women with long-term sick leave due to pain or non-psychotic mental illness can increase the possibility of returning to work or coming off of a health insurance program when utilizing a multidisciplinary assessment and individual rehabilitation intervention program.
    - The multidisciplinary team consists of a physician, a psychologist, a social worker, and an occupational therapist.
    - Each member of the multidisciplinary team met with individuals participating in the program for 1.5–2 hours to assess the participant’s situation with respect to the team member’s specialty. The team would meet together and discuss the patient’s situation and come up with an individualized rehabilitation plan.
    - The participant would then accept the rehabilitation plan as a whole, accepts parts of the plan, or reject the plan.

• **Autism or autism spectrum disorder (ASD)**
  - Authors of a systematic review published in 2012 found evidence for the effectiveness of vocational rehabilitation for young adults with autism, but there is little evidence available for specific treatment approaches\(^{(27)}\).
  - Researchers in the United States examined the service patterns and factors related to employment outcomes in individuals with ASD in the vocational rehabilitation (VR) system in various age groups and found that the majority of employed individuals were underemployed (e.g., in entry-level jobs for which they were over-qualified), with limited wages and working hours. Other results from this study were the following:\(^{(55)}\)
    - Individuals with ASD from all age groups benefited from VR.
    - Individuals with ASD who are ≤ 18 years old are at higher risk of being unemployed when compared to adults ≥ 26 years old.
    - Gender, race/ethnicity, and education level affected predicted employment outcomes in individuals < 26 years old but not as much for individuals ≥ 26 years old; whereas co-occurring psychiatric disabilities had an adverse effect on predicted employment in individuals ≥ 26 years of age.
    - Consistent across all ages, receiving cash or medical benefits had a negative effect on predicted employment, and counseling and guidance, job placement assistance, and on-the-job support predicted successful employment.
    - Individuals < 26 years old were provided with more training and personal assistance services whereas individuals ≥ 26 years old were provided with more job-related services in the VR program.
Researchers who conducted a study in Hong Kong found that structured workplace training aimed at improving social, communication, and emotional behaviors can be helpful for persons with autism and/or intellectual disability, but further studies are recommended (28).

**HIV/AIDS**

Authors of a systematic review published in 2012 found that very little research exists that comprehensively examines the outcomes associated with labor force participation for persons with HIV/AIDS and that there is a need to evaluate existing programs (30).

**SCI**

There is no standard for what type of vocational rehabilitation programs should be included or which services are most effective for persons with SCI who wish to RTW (52).

- A lack of controlled studies to provide information about the best vocational rehabilitation practices for persons with SCI has been noted.
- Researchers in the United States found that vocational services that actively engage veterans with SCI in job seeking and acquisition as well as provide on-the-job support are more likely to lead to employment than general vocational counseling that involves job preparation only (52).
- Based on a secondary analysis of data from a randomized controlled trial that involved 81 veteran participants with SCI.
- Time spent on vocational services was the same for those who did and did not obtain competitive employment; however, a greater variety of services was received by those who did obtain employment than those who did not.
- Certain activities were found to be more likely to be associated with positive outcomes, including job placement, employment supports, job coaching, and follow-up.
- More time in vocational counseling and more interviews occurred for those who did not obtain employment.

Researchers who conducted a study in New Zealand found that professionals involved in vocational rehabilitation for patients with SCI can help facilitate RTW through employment identity (i.e., what an employee is able to do versus what she or he thinks she or he is able to do) (31).

Researchers of a study conducted in Australia suggest that implementing an early vocational rehabilitation program with patients with SCI in the hospital setting is feasible and has good potential for improving labor force participation post injury (46).

- Based on a longitudinal cohort study that involved 100 adults admitted to spinal units. The inpatient vocational rehabilitation program was offered to all patients within 6 months of acquiring SCI.
- The rationale for the development of the program was to promote early positive patient expectations while incorporating clear and realistic RTW goals into the patients’ overall rehabilitation goals, which was seen to contrast with the traditional “medical rehabilitation” model that focuses on pathophysiological changes, physical functioning, and activity limitations.
- Future research is indicated to assess the program’s value against existing rates of employment reported in the literature.

**Stroke**

Authors of a systematic review published in 2011 found there was not adequate evidence to support or refute the use of vocational rehabilitation after stroke (33).

**MS**

Authors of a meta-analysis published in 2012 found that further research is needed to identify the efficacy of different models of vocational rehabilitation with patients with MS (34).

**Cystic fibrosis**

Authors of a systematic review published in 2012 found that there needs to be further research on cystic fibrosis and employment and the interplay between the two to improve vocational outcomes (36).

**Upper limb injuries**

Authors of a systematic review published in 2013 found no evidence to support or refute using vocational rehabilitation to enhance RTW in workers with traumatic upper limb injuries (40).

**Outcomes**

Researchers in the United States found improved outcomes for vocational rehabilitation when information was provided about how employment earnings would affect Social Security benefits, which enabled persons undergoing vocational rehabilitation who already were receiving these benefits to make a more informed decision (41).
<table>
<thead>
<tr>
<th>Problem</th>
<th>Goal</th>
<th>Intervention</th>
<th>Expected Progression</th>
<th>Home Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced capacity for employment</td>
<td>Successful (safe and timely) RTW</td>
<td><strong>Therapeutic strategies</strong>&lt;br&gt;Various models and approaches to vocational rehabilitation; all other interventions will be specific to the underlying diagnosis</td>
<td>Will be unique to the individual</td>
<td><strong>Family/caregiver education</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Appropriate referrals to supportive personnel</td>
<td></td>
<td>Health advice and promotion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Environmental modification</td>
<td></td>
<td>Support self-management of health conditions</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Functional training</strong>&lt;br&gt;Work hardening, work conditioning</td>
<td>Gradual progression of exercises incorporating functions and tasks required in specific job</td>
<td>Lifestyle modification</td>
</tr>
<tr>
<td>Decreased functional independence</td>
<td>Increased functional independence</td>
<td><strong>Prescription, application of devices and equipment</strong>&lt;br&gt;Provision of any equipment an individual might need to be employable, such as mobility aids, joint protection, or assistive technology (e.g., computer screen reading software for visually impaired or programmed electronic reminder for cognitively impaired)</td>
<td></td>
<td>Educate the client and educate the employer</td>
</tr>
<tr>
<td></td>
<td>Maximize function</td>
<td><strong>Prescription, application of devices and equipment</strong>&lt;br&gt;Provision of any equipment an individual might need to be employable, such as mobility aids, joint protection, or assistive technology (e.g., computer screen reading software for visually impaired or programmed electronic reminder for cognitively impaired)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimize/adjust the impact of the disability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety issues</td>
<td>Prevent future injury/illness</td>
<td><strong>Patient education</strong>&lt;br&gt;Workplace and ergonomic assessment and modifications as necessary, job specific training, posture and body mechanics training</td>
<td>Increase workload and difficulty of tasks as appropriate</td>
<td><strong>Family/employer education</strong></td>
</tr>
<tr>
<td>Potential for reinjury</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Psychosocial consequences of unemployment (e.g., depression) | Prevent negative psychosocial consequences of unemployment | Patient education | N/A | Family/caregiver education and support training

<table>
<thead>
<tr>
<th>Desired Outcomes/Outcome Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>› Prepared to RTW</td>
</tr>
<tr>
<td>• WORQ</td>
</tr>
<tr>
<td>• CNIB-TAPE</td>
</tr>
<tr>
<td>› Successful RTW</td>
</tr>
<tr>
<td>• Employment (60 days of employment)</td>
</tr>
<tr>
<td>• Timeliness of RTW (e.g., length of time unemployed)</td>
</tr>
<tr>
<td>• Earnings</td>
</tr>
</tbody>
</table>
| – Researchers of a study conducted in the United States indicate that some interventions help persons with disabilities increase their earnings (53)
| - Of 5,674 recipients of their state’s services, 21% received both benefits counseling and vocational rehabilitation, 58% received vocational rehabilitation only, and 21% received benefits counseling only
| - Individuals who received benefits counseling and vocational rehabilitation had an increase in earning after intervention. In contrast, individuals who received only one of the services showed a consistent decline in average earnings |
| › Improved functional abilities    |
| • Pain Disability Index            |
| • FABQ                            |
| • PANSS                           |
| • GAF Scale                       |
| • Oswestry Low Back Pain Disability Questionnaire |
| • DASH Outcome Measure             |
| • LEFS                            |
| • Neck Disability Index            |
| › Improved quality of life         |
| • SF-36                           |
| • WHO-QOL measure                 |

<table>
<thead>
<tr>
<th>Maintenance or Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>› Authors of a systematic review published in 2012 found that two measures could help prevent work disability in workers with common mental health conditions (42)</td>
</tr>
<tr>
<td>• Facilitation of access to clinical treatment</td>
</tr>
<tr>
<td>• Workplace-based high-intensity psychological intervention</td>
</tr>
<tr>
<td>› Researchers in the United States found there are several strategies PTs can use to empower workers to help attain occupational goals and to prevent a return to disability (43)</td>
</tr>
<tr>
<td>• Encouraging workers to stay at work if at all possible</td>
</tr>
<tr>
<td>• Making recommendations for work based on the assessed work capacity of the patient</td>
</tr>
<tr>
<td>• Determining the patient’s level of confidence in remaining or returning to full duties and hours given his or her current level of pain and disability</td>
</tr>
<tr>
<td>› Secondary health conditions are associated with worse employment outcomes (49). Participation in health promotion programming might help persons with disabilities manage secondary health conditions (49); however, access to such programming often is limited for persons who are not employed (49)</td>
</tr>
</tbody>
</table>
Researchers in the United States investigated the use of an online-based health promotion program for vocational rehabilitation consumers to see if it reduced limitations from secondary health problems and improved health-promoting lifestyle behaviors, which could increase probability of employment.

Results indicated that online delivery of health promotion effectively promoted positive health behavior changes in persons with disabilities.

The need for health promotion programming outside the workplace was identified.

Young adults with disabilities who achieve work participation might need continuing professional coaching to address new problems as they arise with new roles and activities.

Examples include transportation to work, changed daily routines for self-care, more active leisure activity.

Patient Education

The United States Department of Education’s website directory of state vocational rehabilitation agencies:

- https://www2.ed.gov/about/contacts/state/index.html
- U.S. Department of Veterans Affairs website
  - https://www.benefits.va.gov/vocrehab/edu_voc_counseling.asp

Coding Matrix

References are rated using the following codes, listed in order of strength:

- M Published meta-analysis
- SR Published systematic or integrative literature review
- RCT Published research (randomized controlled trial)
- R Published research (not randomized controlled trial)
- C Case histories, case studies
- G Published guidelines
- RV Published review of the literature
- RU Published research utilization report
- QI Published quality improvement report
- L Legislation
- PGR Published government report
- PFR Published funded report

- PP Policies, procedures, protocols
- X Practice exemplars, stories, opinions
- GI General or background information/texts/reports
- U Unpublished research, reviews, poster presentations or other such materials
- CP Conference proceedings, abstracts, presentation

References


