The History of Work in Physical Dysfunction

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Work has been at the core of occupational therapy for the last seven and a half decades. The tenets of work, which include providing a way of making a living and giving meaning to one’s existence, have remained consistent throughout occupational therapists’ use of work in the treatment of physical disabilities during three eras: World Wars I and II, the era of industrial therapy, and the work-hardening era. Although technological advances and economics have changed the scope of work, it is evident that the work-hardening programs of today have their roots in the work cure of the early 1900s.

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Work as a treatment modality has been a vital part of occupational therapy since the inception of the profession in the early 1900s. Work hardening, a phrase used since the 1970s, is simply new terminology for long-established concepts in the occupational therapy profession. In the past decade, work-hardening programs have proliferated across the country as therapists have rediscovered the benefits of work as a form of treatment in the late 1970s. Despite recent technological advances, physical disability work programs of the 1990s are distinctly similar to those of the early 1900s. This historical review focuses on work programs in physical disability.

The work-hardening programs of today are rooted in the Moral Treatment movement of the late 1800s, when the patient who was “mentally and muscularly flabby” engaged in a “period of training or hardening up” (Rusell, 1931, p. 169) in order to restore occupational capacity. Occupational therapy, an offspring of the Moral Treatment movement, came into being when recreation, employment, and self-care were used to treat mental illness. Moral Treatment was “organized group living in which the integration and continuity of work, play and social activities produce a meaningful total life experience in which growth of individual capacity to enjoy life has maximum opportunity” (Bockoven, 1963, p. 76). The therapist treated patients “as though they were mentally well” and used “kindness and forbearance” and “firmness and persistence” to impress upon the patients “the idea that a change to more acceptable behavior was expected” (Bockoven, 1963, p. 76). In the pure sense of Moral Treatment, work was used for its restorative functions, and the financial costs or benefits to the institution were incidental to the primary focus of the treatment (Bond, 1925). “While the labor of our patients represents a definite saving in dollars and cents, we regard that as nothing when the beneficial effect on the mental and physical condition of the individual patient is taken into consideration. Benefit to the patient must be the first consideration, and first-class work the second” (Upham, 1917, p. 412). Certain occupations were prescribed for specific diagnoses. For example, specific types of interactions and activities were suggested for dementia praecox; manic depressive psychosis (Fagley, 1931; Reid, 1914); schizophrenia; “disturbed” patients (Hewett, 1946); and alcoholism and drug addiction (Reid, 1914). Occupations were prescribed to “inoculate the patients with the bacillus of work” (Barton, 1917, p. 399), to increase self-esteem (Davis, 1945), and to meet unconscious needs (Medd, 1934).

Occupational and recreational programs in mental health declined in state and civic hospitals during World War I (1914–1918) (Smith, 1938). However, the training of reconstruction aides for the war wounded may have been a major impetus in the development of physical disability occupational therapy during this time period. In...
1918, 116 aides were quickly trained and sent abroad, where they developed rehabilitative programs for injured soldiers (Myers, 1948). This ushered in the use of work in the treatment of physical dysfunction and an era of rapid expansion of the profession. Work in the area of physical dysfunction is traced during three eras: World Wars I and II, the era of industrial therapy, and the work-hardening era.

**Definition of Work in Physical Dysfunction**

During the early years of occupational therapy for physical dysfunction, work was viewed as being diversional—as in the making of decorative items (Myers, 1948) and having “time-killing characteristics” (Upham, 1917, p. 409); purposeful—as in creating specified products in an industrial workshop and receiving piecework remuneration (Crain, 1929); and therapeutic—as in using certain hand tools and machinery to increase muscle strength and joint range of motion (Harrison, 1945). One of the fathers of occupational therapy, George Barton, having contracted tuberculosis, knew personally of the benefits of work and stated that it was used “to divert the mind, exercise some part of the anatomy, or to relieve the monotony and boredom of illness” (as cited by Harvey-Krefting, 1985, p. 503). Work was viewed in the real-world sense in that patients punched a clock, gradually increased the hours of their workday, engaged in industrial projects, and were paid for their services (Jones, 1945).

In an ideal workshop the men would feel that they were going to work, and they would be in the atmosphere of work all the time. There would be competition among the various patients over the improvement in their charts; there would be competition over their occupation, and there would be a little compensation for good work done. The doctor would know where to find his patient and the insurance company would feel that the very best was being done for the man to get him well in the quickest possible time. (Goodman, 1922, p. 203)

Today’s similar version of work, now known as work hardening, has been defined as follows:

A work hardening program conducted by occupational therapists is an individualized, work-oriented activity process that involves a client in simulated or actual work tasks. These tasks are structured and graded progressively to increase psychological, physical, and emotional tolerance and improve endurance, general productivity, and work feasibility. The eventual goal of work hardening services is to improve the client’s occupational performance skills to allow effective functioning in homedown, sheltered, modified, or competitive work. (American Occupational Therapy Association [AOTA], 1986, p. 841)

Clearly, the concept of work in occupational therapy has remained substantially consistent through the years. A review of the impact of the past events in this century, however, will present a clearer picture of the profession and more fully explain the maturation of this concept.

**Influences of War and Chronic Illness**

The treatment of war-injured, tuberculosis, and polio patients, which involved lengthy recuperation, required that occupational therapists use techniques to improve muscle strength and thereby facilitate physical restoration. In the wake of medical advances, persons with chronic illness required intensive treatment, whereas before they would not have survived. The stock market crash (1927) and the Great Depression (1930–1939) also affected the profession. Women were attracted to the field of occupational therapy to earn a living as an alternative to getting married or going to college (Spackman, 1968). Industrial or curative workshops were established during the 1920s and 1930s to provide a protective setting for disabled persons, who were encouraged to improve and practice work skills.

**World War I (1914–1918)**

During World War I, an occupational therapist wrote of her experience while serving in Europe (Myers, 1948). She reflected that the men were interested in making furniture for their barracks, which were barren except for bunks. The soldiers also constructed decorative items such as candlesticks and bookends. Materials were scarce, used quickly, and salvaged from recyclable items. Not surprisingly, the work of the soldiers attracted buyers from the medical and military personnel. Myers noted: “Work is far more curative when there is incentive behind it; when it is done for the money it will bring, or as a gift for a loved one, or as a souvenir, or the pride and pleasure of accomplishment” (p. 212).

The Veterans Bureau Hospitals, established in 1922, treated the multitude of wounded soldiers and offered occupational therapy for therapeutic, economic, and diversional reasons. A typical chief of occupational therapy during this period earned $2,500 annually, had a department with 5,000 square feet of space, and had a staff:patient ratio of 1:44 (Carr, 1925). Outdoor and masculine activities were emphasized in treatment. In these early years, occupational therapists had backgrounds in nursing, teaching, and crafts and were required to take 6-week to 12-week courses. These courses included “psychology of the handicapped, fatigue and the work cure, personal hygiene, anatomy, kinesiology, ethics, and hospital administration” and a variety of crafts, such as “woodworking, weaving, cardwork, beadwork, basketry and ceramics” (Hopkins & Smith, 1988, p. 23). It soon became evident that specific application of occupations (referring to how a person spends time and energy) for physical restoration required greater knowledge of anatomy than had previously been determined. In the 1920s, occupational therapy curricula were expanded to include occupation; in-depth anatomy; physiology; hospital ethics (Carr, 1925); analysis of motions; and adaptation of tools (Spackman, 1968).

Dr. Herbert Hall (as cited by Spackman, 1968), a founder of the profession, in a letter to a committee working to start a school of occupational therapy at the
close of World War I, stated these governmental goals:

The government plan divides the rehabilitation of the crippled soldiers into three parts, which may merge into each other. First the bedside occupations such as weaving, woodworking, etc. The effect of these is purely medical and not commercial. The next step is the curative workshop where the patient has the opportunity to use tools in the machine shop. This stage is intended to restore the functions of the nerves and muscles. The patient can make splints and orthopedic apparatus. This stage is not intended to be vocational, the aim still being medical. The third stage is reached when the workshop has accomplished its purpose. The soldier then comes under the Bureau of Vocational Education where the individual is studied with the view of giving him training in technical schools, from this the man is placed in a trade or profession. (pp. 68–69)

The establishment of occupational therapy in federal hospitals gave impetus to the development of similar programs in state and civil institutions (Pratt, 1922). In 1920, the Vocational Rehabilitation Act (Public Law 66–236) provided for rehabilitation of persons with physical disabilities (Mitchell, Rourk, & Schwarz, 1989). The Federal Industrial Rehabilitation Act of 1923 required occupational therapy intervention in general hospitals dealing with industrial accidents or illness (Rerek, 1971).

Chronic Illness

Although medical advances in the 1900s eradicated the epidemic illnesses of typhoid and smallpox, tuberculosis remained a problem, and chronic diseases such as heart disease and diabetes increased (Woodside, 1971). Lengthy recuperation periods were needed for polio, pneumonia, and tuberculosis. Crafts in occupational therapy were viewed in some places as the use of appropriate and legitimate work projects. The purpose of the use of crafts was to give meaning to life and encourage intrinsic motivation.

Occupational therapists conducted work programs for patients recuperating from tuberculosis in sanatoriums. Work programs were housed in workshops near the sanatorium or in industrial sanatoriums. The benefits of occupational therapy were described by Crane (1919):

> It brings the patient in contact with a person (the instructor) whose interests are those of the outside world, and it thereby makes a break in the treadmill of invalidism. It makes the patient a creator, a doer, and not a parasite. It assists in improving discipline in difficult cases, and is a preventive against some of the mischief which idle hands may find. (p. 64)

Activities such as pottery, weaving, basketry, and woodcarving were typically used for therapeutic and remunerative purposes in the sanatorium. Working 10 hr per week, a patient could defray all instruction and transportation costs to the workshop and was allowed to keep any compensation for work exceeding 10 hr. Patients were permitted to reside in the industrial sanatoriums if they demonstrated good morale while in the typical sanatorium. Low-cost co-op living was provided, and patients were paid for any work performed (Crane, 1919).

**Industrial and Curative Workshops**

In the mid-1930s, industrial workshops thrived. The patient population consisted primarily of workers who sustained injuries at work. The incidence of serious accidents escalated with the use of power machinery and the advent of mechanized jobs. These industrial accident cases were referred to the curative workshops in increasing numbers. Other diagnoses represented in this patient population were orthopedic, arthritis, and postoperative cases as well as cardiac disease and tuberculosis (Wise, 1930). Patients spent at least 2 hr at a time in therapy. A typical charge for treatment was $2.50 daily, with a sliding scale available. The workshops tended to be in large open rooms and housed a variety of permanent equipment, including “woodwork benches, tables, bicycles, treadle saws, printing press, typewriter, electric lathe, jigsaw, drill press and power sewing machine” (Spackman, 1951, p. 215).

Thomas Kidner, a founder and ardent supporter of occupational therapy, emphasized the importance of finding appropriate instructors for preindustrial shops. He stated that the dual nature of work consisted of therapeutic and commercial parts. It was essential that the instructor be knowledgeable in the history of occupation and have a commercial viewpoint. His solution was to train occupational therapists to combine commercialism and production with therapy. He cited Eleanor Clarke Slagle as a perfect example of this combination, because she was trained as an occupational therapist and, on her own, furthered her knowledge base by working in a woodworking shop, a laundry, and willow basket and garment factories (Kidner, 1925). Another author in the early 1920s (Goodman, 1922) stated,

> [If] the curative workshops are going to stand on this high level we must have instructors trained efficiently to supply the needs of the doctors, insurance companies, and the men. Besides knowing the crafts they must have a good knowledge of kinesiology, anatomy, physical exercises, and above all, a thorough grounding in practical psychology. Personality is half the battle. Be the worker ever so clever and efficient in her work, if she has not the right kind of tact in dealing with her patients, she had better resign, for she is in the wrong place. (p. 202)

A difference in the instruction of men and women in occupations was noted in the curative workshop. Kidner (1925) stated that women should work in textiles and needlecrafts and men in woodworking:

> Textiles and needlecrafts are the age-long occupation of women and appeals alike to their innate homemaker instinct, and to the creative desire common to all human beings, which is a concomitant of our being furnished with hands. . . . Men love to construct and do things. (p. 192)

Woodworking was an activity commonly used in a variety of workshops. This activity was predominantly masculine in nature and was seen as productive, meaningful work. Because most patients were men (85%) and a large portion were manual laborers such as stevedores,
designed a therapeutic program that would catch the small pieces of furniture. Expendable materials were in
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tment during this international conflict
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One particular workshop housed two shops under one roof in an industrial part of New York. One shop was
directed by an occupational therapist and its purpose was
to harden the person through engagement in physical and mental tasks in order to prepare for entry into the work force. Patients' products were sold in a gift shop. The second shop was directed by an experienced fore­man, its purpose being to provide actual contract work for the person who was almost ready for employment.
Contracts were made with nearby industries. These con­tracts provided funds for the facility and remuneration for piecework done by the men. A majority of the patients at this facility had cardiac problems, and the length of treatment was anywhere from 2 weeks to 5½ months (Grain, 1929). Patients were referred to the workshop from social agencies, outpatient hospitals, private physicians, and insurance carriers.
Though the cost of health care has risen dramatically over the decades, insurance has traditionally covered medical treatment. The notion of compensation for workers has been in effect for years (Goodman, 1922):
If the injury does not allow a return to their former position, the case is settled and a definite sum is paid according to the injury . . . . The insurance companies are willing to do all they can and will go to any expense that the doctor says is necessary in order to get the man well as quickly as possible, or restore as much move­ment as the injury will allow. Then, settle the case. It pays them to do this. (pp. 193–194, 197)

In another industrial workshop located in Philadelphia during this time period, a majority of the patients returned to their former employers, either to their previous jobs or to a lighter one within the same company (Spackman, 1951).

World War II (1939–1945)
Industrial workshops were prominent prior to World War II, and work continued to be an essential part of treat­ment during this international conflict. As during World War I, occupational therapists were in demand for treat­ing soldiers. Harrison (1945) stated that therapists typi­cally determined what the army man did as a civilian and inquired about his hobbies. Then the therapist creatively designed a therapeutic program that would catch the patient's interest as well as benefit his particular condition. Men interested in motors would have the opportunity to overhaul a truck motor, for example. Likewise, carpenters would be encouraged to construct cabinets or small pieces of furniture. Expendable materials were in
(high demand and waste was not tolerated. In the 1940s, the term prevocational was used to identify and prepare patients in those skills needed to be successful in industry. Therapists used crafts as well as work tasks to engage patients in these preparatory skills.
A typical hospital program in the 1940s consisted of the following: The patient was issued a reconditioning record listing all activities in the shop. Daily attendance was stamped on the record. Work therapy principles were carefully discussed with all the workers. An orientation to the shop was discussed and included rules and regulations, pay, food, and performance expectations. It was emphasized that work was performed for specified reasons and not just to assist the hospital employees. Full cooperation and participation of the patients were required. Patients were reoriented weekly so that they understood exactly what was expected of them (Rudolph, 1945). In some hospitals, patients were paid for their work in the form of war bonds sent to their home address; hospital policy prohibited compensating a patient for his work before he was transferred or discharged from the hospital (Jones, 1945).
Therapists visited a variety of industries to gain first-hand knowledge of work and materials and to analyze jobs to determine their requisite physical and mental abilities. Gardening, construction, laundry, and office jobs were analyzed task-by-task to determine physical requisites such as walking, standing, and stooping, and mental requisites such as concentration and attention to detail (Rudolph, 1945). The patients often displayed the problem of "compensationitis" (i.e., not wanting to get well). In the army, the enlisted man often did not want to recover until the war ended (Rudolph, 1945).
The end of World War II brought an increased demand for rehabilitation services. A priority of therapy was to get soldiers in the best shape possible for their return to a productive civilian life. World War II paved the way for advanced technology and new opportunities in the late 1940s and early 1950s. The United States had changed from a product-producing nation to a service-providing nation. More emphasis was now placed on education as a job prerequisite. Occupational therapists considered other goals for their patients besides employment, such as finding activities meaningful to the individual; exploring ways for the individual to demonstrate competence; and having influence over the environment (Johnson, 1974). These forces altered the meaning of work. Most therapists explored nonwork techniques (e.g., range of motion exercises, splinting) in the treatment of persons with polio, burns, and spinal cord injury. However, some occupational therapists continued to use work as their primary form of treatment.
Hospital tasks were still being performed by inpa­tients in the 1950s. Tasks were classified according to physical and psychological requirements, the social and work environment, possible industrial hazards, supervi-

The American Journal of Occupational Therapy
The era of industrial therapy spanned World War II, the vocational programs geared for the person who did not equip the factory, with "noise, dust and dirt, in moderation." It was suggested that occupational therapists reestablished the profession of vocational rehabilitation (Marshall, 1985). Results from the evaluation yielded production features such as neatness and safety; work habits; and intellectual and attitudinal factors (Wegg, 1960). Employees, including occupational therapists, industrial arts teachers, and rehabilitation counselors, would assist in maintaining the hospital lawn.

During the 1950s, however, a change in the philosophy of work occurred. Work prescriptions were ordered by the physician but dragooning was not tolerated (Forrer, 1955). Dragooning referred to the coercion of patients to perform routine housekeeping tasks for no therapeutic reason, but solely for the benefit of the hospital. Another change noted was in the area of remuneration (Forrer, 1955): it was felt that to pay patients for being treated was therapeutically unsound. This was a difficult problem to meet because some members of the hospital personnel clung to the idea that patients should be paid for working even if their work has been prescribed as a therapeutic measure. (p. 155)

**Industrial Therapy**

The era of industrial therapy spanned World War II, the late 1950s, and the early 1960s. Many occupational therapists believed that work evaluation per se was not a part of occupational therapy but a part of the newly established profession of vocational rehabilitation (Marshall, 1985). Role blurring became an issue because many disciplines were involved in the vocational arena (Mosey, 1971). In the literature of this period, therapists explored the meaning of the profession and expressed a desire for change. It was suggested that occupational therapists related better to the behavioral science model than to the medical model at this time (Diasio, 1971).

In the work arena, where few occupational therapists continued to practice, it was deemed essential that no white uniforms be worn during therapy. The usual environment was an outpatient setting similar to a well-equipped factory, with "noise, dust and dirt, in moderation" (Redkey, 1957, p. 22). Employees, including occupational therapists, industrial arts teachers, and rehabilitation counselors, were expected to demonstrate knowledge of industry and the job market. Work evaluation consisted of real situations and work samples and was viewed as a part of a "medical and vocational program with consideration of the former but emphasis on the latter" (Wegg, 1960, p. 65). Results from the evaluation yielded production features such as neatness and safety; work habits; and intellectual and attitudinal factors (Cromwell, 1959). Other types of programs included pre-vocational programs geared for the person who did not have a work history or had not worked for many years. Sheltered workshops were often a viable option for those unable to meet production standards, such as persons with mental retardation or emotional handicaps.

Work samples and work tasks were used to develop vocational evaluation procedures. The TOWER (Testing, Orientation and Work Evaluation in Rehabilitation) work samples (Marshall, 1985) were developed in New York State to assess the patient's aptitude and potential for either outside job placement or a sheltered workshop. Patients spent from 2 weeks to 6 months in a particular occupational area common to New York, such as optical mechanics, jewelry, or bookkeeping. Patients worked a minimum of 5 hr a day and increased their endurance until they were able to sustain an 8-hr day. Occupational therapists made modifications when necessary (e.g., change in work area height, splints, special tool handles) (Rosenberg & Wellerson, 1960). The TOWER work sample method was popular for a while but was not found to be cost-effective, as only large cities could afford the program. Administration of TOWER was also time-consuming (Hightower-Vandamm, 1981a). Other test kits that were developed during this period were based on classifications from the Dictionary of Occupational Titles (as cited by Wegg, 1960). Norms encompassing production and proficiency ratings were available for each kit (Wegg, 1960). These early work samples and kits led the way for the Jewish Evaluation Vocational System (JEVS) and VALPAR work samples (Hightower-Vandamm, 1981a) as well as for a variety of standardized vocational tests.

**Work Hardening**

Occupational therapists were less involved in work programs in the 1950s, 1960s, and early 1970s than ever before in the history of the profession. However, a resurgence in the interest of work appeared in the late 1970s due to the changes in workers' compensation legislation and the rising costs of vocational rehabilitation. Half of these programs were located in California (Matheson, Ogden, Violette, & Schultz, 1985). Many of the previously described principles of work are apparent in the work-hardening programs of today. Work is still viewed in the real-world sense and is used "to return the client to gainful employment or homemaking, to improve physical function, to reduce claims and exposure and maintain reserve levels, to provide the client with independence in the community, and to provide the client with restored earnings." (Hightower-Vandamm, 1981b, p. 633).

Although the principles of work are extant in the work-hardening programs of today, changes have occurred in several areas, such as program setting, population served, therapist's role, funding, and therapeutic equipment. The setting for most work-hardening programs today is the nonhospital environment. The popula-
tion served is generally that of manual laborers, a majority of them with back injuries and cumulative trauma disorders. More emphasis is placed on injury prevention, because today’s therapists serve as consultants to industry. Therapists are knowledgeable about the industries within their geographic areas and have a thorough understanding of job feasibility and employability for their patient population. In today’s litigious society, therapists are serving as expert witnesses. Work-hardening programs are proving to be cost-effective, because insurance carriers are referring patients to facilitate their return to work and case settlement. Closer relationships are thus being established between therapists and insurance carriers due to the present economic situation in which health care monies are more tightly controlled than in the past. Advances in technology have produced such equipment as work simulators and computer-driven devices that are commonly found in occupational therapy clinics and work-hardening centers to provide therapists with an objective means of monitoring and measuring range of motion, strength, and effort.

Conclusion

Over the last seven and a half decades, occupational therapists have used work tasks to rehabilitate persons with mental and physical impairments. War, chronic illness, and economics have all played a part in the development and expansion of the profession. The work-hardening programs of today have their roots in the early curative workshops of the 1920s. Many of the same principles of work in the 1920s are evident in today’s programs (e.g., facilitating useful skills that are remunerated, thus increasing physical tolerances). Although technology and terminology have changed, the same belief in the therapeutic value of work has remained consistent. Work in occupational therapy has a rich past that has laid the groundwork for our current involvement in work-hardening programs.

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