

Occupational Rehabilitation – A Real Opportunity for Reintegration and Return to Former Workplace after Trauma

Henry Kohler^{1*} and Leila Harhaus²

¹Department of Rehabilitation, BG Trauma Center, Ludwigshafen, Germany

²Department of Plastic Surgery of Heidelberg University, BG Trauma Center, Ludwigshafen, Germany

*Corresponding author: Henry Kohler, Rehabilitation Centre and Department of BG Rehabilitation and Therapy Management, BG Clinic Ludwigshafen, Ludwig Guttman Street, Ludwigshafen, 1367071, Germany, Tel: 49621681501401; Fax: 49621681501405; E-mail: henry.kohler@bgu-ludwigshafen.de

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Introduction

After completion of the acute treatment of traumatic injuries many patients still have difficulties returning to their former work. For those patients the German Social Accident Insurance has established a wide variety of inpatient and outpatient occupational rehabilitation programs which all aim to achieve the best possible occupational and social reintegration. One of these programs is a specialized occupational rehabilitation, which focuses on relearning of patients' individual occupational skills and requirements.

Different rehabilitation studies could show that such specialized occupational rehabilitation programs can be more effective than conventional somatic rehabilitation services, particularly in terms of reintegration and further more in terms of improvement of patients' quality of life. Moreover the time of absence from work can be reduced by those programs [1-3].

The central idea of the German Social Accident Insurance is expressed in their slogan "rehabilitation takes priority over pensions". It reflects their position to always give priority to the best medical care for the patients and to their occupational and social reintegration. As long as medical therapy and medical rehabilitation programs are considered to be successful, they will be supported (largely) regardless the emerging costs. Only when there are no more possibilities for improvement of the medical status of the patients the process will be switched from rehabilitation to assessment of a pension.

The German Social Accident Insurance is the statutory head organisation of all accident insurances for the industrial, agricultural and public sectors and cares for around 70 million people. These are mainly the following groups:

- Employees, apprentices or trainees in the industrial sector, including during temporary postings abroad
- Entrepreneurs and members of the liberal professions can take out voluntary insurance with one statutory accident insurance institution.
- Agricultural workers (self-employed, employed, or working in family business)
- Employees in public-sector
- Employees in railway, postal- and telecommunications services
- Children in nursery schools and after-school care centres
- Children in school and students
- Domestic helping people
- Persons providing assistance in emergency
- Blood and organ donors

- Voluntary helping people in institutions providing assistance in case of disasters or accidents (such as fire services, German Red Cross, etc.)

Owing to their responsibility for the occupational safety and health, employers alone are required to pay the fees.

The statutory accident insurance system is the oldest branch of Germany's social insurance system and was established by Otto von Bismarck in 1884. It was the result of the growing industrialization with its increasing social problems. The number of severe occupational accidents and occupational related sickness increased. In contrast there was no social system to take over the care of those people and poverty and destitution resulted. Thus there was a need to insure blue-collar and white-collar workers against sickness, old age and occupational accidents. Bismarck created a comprehensive body of social legislation with the columns health insurance, nursing care insurance, pension insurance and accident insurance [4].

The main task of the accident insurance institutions is to care for the best medical therapy in case of occupational accidents, accidents in educational establishments, commuting accidents, and occupational diseases and to compensate for the consequences of those injuries in case of remaining sequelae.

Occupational accidents are defined as those accidents suffered by an insured person during work related activities or whilst travelling activities on business. Occupational diseases are defined as chronic health sequelae resulting from the occupational activities without trauma, e.g. pulmonary diseases resulting from working with asbestos materials.

Should an occupational accident occur, a comprehensive process of care is started extending from acute treatment through to special rehabilitation programs. The objective is the best possible restoration of victims' health and the re-integration into occupational and social life. Therefore the statutory accident insurance institutions maintain nine specialized trauma hospitals, two institutions for occupational diseases, two accident treatment centers and specialized wards.

Next to highly specialized departments for traumatology in those centers, their facilities include further specialized departments for the treatment of:

- Paraplegia
- Severe craniocerebral injuries
- Burns
- Hand injuries
- Plastic surgery

All trauma hospitals provide large intensive-care units with comprehensive, modern equipment. They are able to provide care to several severely injured patients simultaneously. For fast transportation of the accident victims, ambulances and also rescue helicopters are on standby 24 hours a day. Highly qualified physicians and nurses, psychologists, occupational and work therapists, physiotherapists, mobility trainers and sports instructors are provided in the hospitals. The patients thus receive preliminary care and rehabilitation measures out of one hand and can be discharged in the best possible physical condition and prepared for their return to work [4].

One of these hospitals is the BG Trauma Center Ludwigshafen with 306 beds in the acute care department and 220 beds in the rehabilitation department. Due to the unity of surgical and acute medical expertise on the one hand and the expertise of rehabilitation on the other hand it is possible to supply medical care "out of one hand" provided by the German Social Accident Insurance System.

The Program

An interdisciplinary study group of the BG Trauma Center Ludwigshafen developed a specialized rehabilitation program focusing on occupation oriented rehabilitation (TOR). TOR considers all prospects and concomitants which affect the results of rehabilitation [5,6]. This includes the restoration, adaptation and optimization of the individual capability profile of an accident victim towards the occupational requirement profile. The duration of such a TOR program normally takes between three and six weeks.

The rehabilitation department at the BG Trauma Center was rebuilt in 2013/2014. Now it provides simulations of almost all different kinds of workplace. Patients can be trained with selective specific occupational and therapeutical measures to restore the ability to work. The individual job profile of the patients determines the contents of rehabilitation. The following chart gives an overview of the service offered by the TOR (Table 1).

| Scope of functions | Activities | Infrastructure (exemplary) |
|---------------------------------------|---|--|
| Driver | boarding and deboarding driving tire fitting loading fixing | Truck Forklift BTE (Baltimore Therapeutic Equipment) -simulator |
| Engines | shaping drilling installation Flush mounting transportation commencement of work at building site welding | BTE-simulator Lathe Work scaffolding Rack Welding workplace |
| Motor vehicle, electrical engineering | working in overhead position and constrained posture Tire fitting Precision work | Demountable car Lifting ramp Workshop different tools |
| Office | writing office work phone calls working pressed for time File management | Personal computer workplace Different ergonomic office chairs and equipment |
| Building industry | wearing trailing working in constrained posture climbing bricking paving working with increased accident risk | Roof slope Lift truck plank wheelbarrow cement bags scaffold flagging Vibrating plate |
| Gardening, landscaping, forestry | Variable field of activity | chainsaw Diverse garden tools |

| | | |
|--|--|--|
| Care, Nursing | nursing with dummy documenting Use of adjuvant Patient-centered care | BTE-simulator Nursing adjuvants Dummy |
| Laboratory, chemistry | Laboratory work | Laboratory equipment Test tube pipette |
| Storage | Variable field of activity Use of ladder, lift truck, forklift or other means of transport | Racks weights ladder Lift truck Different means of transport forklift |
| Kitchen, gastronomy | wearing balancing cooking cutting | kitchen Different means of transport Working equipment |
| Sale, cash point | Standing, Sitting Encashing | Cash register BTE-simulator Fine motor equipment |
| Fire brigade, emergency rescue service | Lifting wearing patient-centered care reanimation Use of technical equipment Use of ladders | ambulance inhalation protection fire brigade equipment ambulance equipment |
| Security | safe bearing arms Self-defense | Cooperation with shooting gallery |

Table 1: Overview of the service offered by the TOR.

The choice of measures, exercises and training equipment is generally based on the individual problems and disorder of the patient and according to his job description. The patients are treated by a multidisciplinary team.

Immediately when an accident occurs victims are attended by rehabilitation advisers or case managers from the statutory accident insurance institutions support them throughout the whole treatment and rehabilitation process. Their task is to manage all measures in regard to the occupational and social re-integration from the beginning on. The focus always lies on retention of the former workplace; therefore they keep contact with the treatment team, the patient and patients' family as well as to patients' employee and working place. The rehabilitation advisers and case managers are part of the multidisciplinary TOR-team. They take care for the vocational adaptation and the associated training, for housing and vehicle benefits; they assist in searching for workplaces suitable for employees with disabilities and provide advice on social problems.

The two-day- assessments at admission to a TOR program provide exact results with respect to the positive and negative performance achievements of patients. This allows the rehabilitation advisers and

case managers to create the best combination for further measures for occupational assistance. As result of these program better opportunities of retaining previous workplace or finding a new workplace fitting the handicap are achieved.

Case study

A 46 years old motorbike mechanist suffered a high energy crash with his motorbike into a tractor. He was diagnosed with polytrauma. First aid treatment happened in the rescue helicopter. Inpatient therapy took nearly five months. The following body areas were injured and surgically treated: right hip joint, right upper leg, left upper arm, right lower arm, left knee (Figure 1).



Figure 1: Final X-rays after rehabilitation: fracture of the right acetabulum, fracture of the right distal femur, fracture of the distal right lower arm and left upper arm.

Due to the special requirements in context of his occupational activity (strength, fine motor skills and posture) a specialized rehabilitation was started immediately after completion of the acute therapy. After eight weeks of classical rehabilitation he was admitted to the 4 week occupational rehabilitation program at the Rehabilitation Department of the BG Unfallklinik Ludwigshafen. The special requirements of his working place were mimicked and he practiced working in constrained posture and precision work. The occupational reintegration after occupational rehabilitation was successful. The

motorbike mechanist was able to return to his former workplace eight months after his accident.

We evaluated the success rate of this program in terms of return to work rate. 76% of all patients were able to return to work.

Conclusion

Occupational rehabilitation programs like TOR provide a safe prognosis in terms of practicability of stable occupational reintegration. The results of this treatment expose better opportunities of preserving the previous workplace or finding a new workplace fitting to handicap. With occupational rehabilitation patients are able to work towards their job profile in a protected environment. The inclusion of a case manager from beginning on lead to an optimal and consolidated supervision of rehabilitation process. TOR thus is now established as one of the standard series of different rehabilitation processes.

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