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The Galaxen model—a concept for rehabilitation and prevention in the construction industry

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The Galaxen model—a concept for rehabilitation and prevention in the construction industry

by Berndt Stenlund, MD [1]

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The Galaxen model was developed during the late 1980s to provide rehabilitation and prevention activities in the construction industry. It handles around 1200 workers with long-term sick leave or partial disabilities annually, some 10% of whom annually leave Galaxen for an ordinary job without a wage subsidy. The model includes a decision by a rehabilitation board of representatives from the employers, the trade union, and the regional employment office, a rehabilitation plan, allotment of a case manager, wage subsidies from the State to the company, a search for a suitable job in relation to the partial disability. It also includes a preventive program with emphasis on practical ergonomics. The Galaxen model has proved to be a suitable means of rehabilitating construction workers and returning them to the workforce. The model was developed within the Swedish social security system but could well be adjusted to other contexts.

Key terms construction industry; construction pilots; partial disability; prevention; rehabilitation; sick leave; unemployment; wage subsidies.

Since the early 1900s, a change in focus has taken place in the field of rehabilitation. At the beginning of the 20th century, the belief was firmly held that curing a disorder would more or less automatically restore a person's ability to work. Then, in the middle of the century, possibly as a result of the Second World War, training became an important part of rehabilitation. By the end of the century, several studies dealing with new rehabilitation methods had been made, some of them dealing with the question of identifying the most important factors related to the inability to work (1). Multidisciplinary approaches were used to rehabilitate persons on long-term sick leave, and, although the results were discouraging to begin with, they were better in a longer perspective. The reverse side of multidisciplinary rehabilitation work is that it is time-consuming and therefore costly. There has also been an interest in cognitive behavior treatment schemes (2–3). Some scientists have found positive results with respect to the ability to go back to work after this kind of treatment in many groups, particularly those consisting of women with diffuse musculoskeletal disorders (4). In 1994 Loisel published the first studies on the Sheerbroke model (5). He looked into several activities and rehabilitation schemes that had been used in different studies and tested them on groups of persons with long-term sick leave. He demonstrated that, with one exception, most activities will help around 20% of participants return to work. The outstanding exception was that, if a change in the work content was made to suit individual needs, 80% of the participants returned to work (6). He came to the conclusion that adjusting the work content was a crucial point for the ability to work.

These findings are supported by the results that have been achieved in the Galaxen model. This model includes finding suitable jobs for partially disabled persons. In the 1980s many construction workers in Sweden lost their jobs because of long-term sick leave mainly caused by musculoskeletal disorders. The State offered them new, but less strenuous, jobs in the construction industry in projects specially started for this purpose. The construction industry came to discuss these matters with State authorities and pointed out that these projects interfered with the construction trade's natural market in Sweden. The subsequent discussion resulted in the construction industry promising to take care of these workers and to offer them suitable jobs provided that the State compensated the companies by subsidizing wages for partially disabled workers. The biggest construction companies and the association of the construction industry thus started a rehabilitation company, the Galaxen.

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The aim of Galaxen is to take actions that will enable people on long-term sick leave or long-time unemployment to return to work (figure 1). The aim is also to take actions that will prevent people in the construction industry from being exposed to health hazards. The aim of this article is to explain how the Galaxen model was developed and to reveal the first results of its two parts: the rehabilitation program and the primary prevention program.

Methods

The rehabilitation program

The rehabilitation program offers people new jobs that are suitable to their partial disability. The construction workers have either been unemployed for a period from 4 weeks up to 4 years and have a partial disability or have been on long-time sick leave (4 weeks up to 2 years) and have not been able to return to their original workplace. These people are referred to the construction industry's regional rehabilitation board. The boards are made up of representatives from the trade union, the employer's organization, and the regional employment office. There, a rehabilitation plan is worked out together with the construction workers. One of several possible steps is to refer them to Galaxen, where they will be given long-term employment and be immediately outsourced to a new job within the limits of their partial disability. The new job is chosen by Galaxen from the suitable jobs available in the region. The jobs are listed by Galaxen after contact with several construction companies that have announced an interest in a Galaxen worker for a special job. In connection with the employment, the worker is allotted a case manager, who ensures that the worker and the company to which the worker has been outsourced fully understand the worker's capacities. If the new job is too physically strenuous, adjustments is discussed with the company, or a new job is offered by Galaxen after discussion with the rehabilitation board. The State offers companies which accept the outsourced workers a wage subsidy corresponding to 35% of the workers' normal wages. The wages granted to the workers conform to collective agreements and will give them a better income than unemployment or sick-leave benefits. There is an addition to the collective agreements that states a shorter term of notice, to make it less risky for the construction company to employ a Galaxen worker. The addition also facilitates the finding of suitable work. Wage subsidies are annually reduced and cease after a maximum of 4 years. The goal is to return workers to full-time employment without subsidies.

Data collection

The results concerning the rehabilitation were not properly collected and categorized for the first 12 years. Data were collected in local databases, and national figures had to be put together and calculated manually. In 2000 a computerized web-based administrative system was installed that opened up possibilities to give statistically calculated results. The new nationwide program keeps track of all persons employed by Galaxen and various variables concerning their employment. The number of

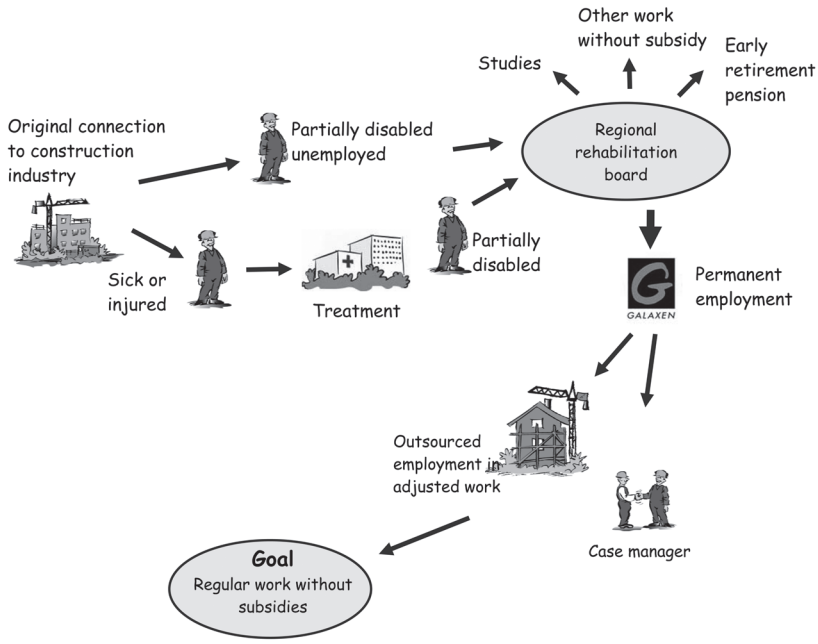

Figure 1. Process of the rehabilitation plan in the Galaxen model.

employed varies from day to day, and the other variables are collected from the employed person and from medical records that are presented to the rehabilitation board. To lower the risk of error, the information is checked with the person before it is registered.

Of the administrative staff of 60 persons, 33 work as case managers, most of them part-time. These case managers find suitable jobs for around 1500 partially disabled construction workers and visit them at least four times a year. They are thus responsible for around 45 persons each. The rest of the personnel work with economy, data collection, and the administration of the wage subsidies.

Primary prevention

The primary prevention program has several goals. The first is to start using construction pilots, and the second is to improve the individual's way of working through preventive actions. There is some evidence that the way a person works is an important factor that will determine whether he or she is at risk of work-related diseases (7). There are many different ways of using the same equipment in most situations in the construction industry. It is therefore important to find the best way to work, and introducing new equipment offers an opportunity to instruct the user about a good way to use it. Therefore the objective is to introduce best practice for the demonstrated equipment. The third goal is to ensure that every company in the construction industry is able to provide equipment that will ensure optimal work techniques, and the fourth is to contact all vocational pupils in the construction trade at least twice during their training. The objective is to inform them of better ways to work and about good ergonomic equipment and good safety features. The fifth goal is to pay visits to all machine depots in the country every year to give them information about practical ergonomics, and the sixth is to provide theoretical and practical information about prevention in the construction industry to all university students taking courses in construction engineering. This activity includes introducing material, methods, and equipment that can be recommended as best practice. There are also discussions with the students about how the engineering of a building can include ergonomic aspects for construction workers. The final goal is to systematically test new equipment in practice.

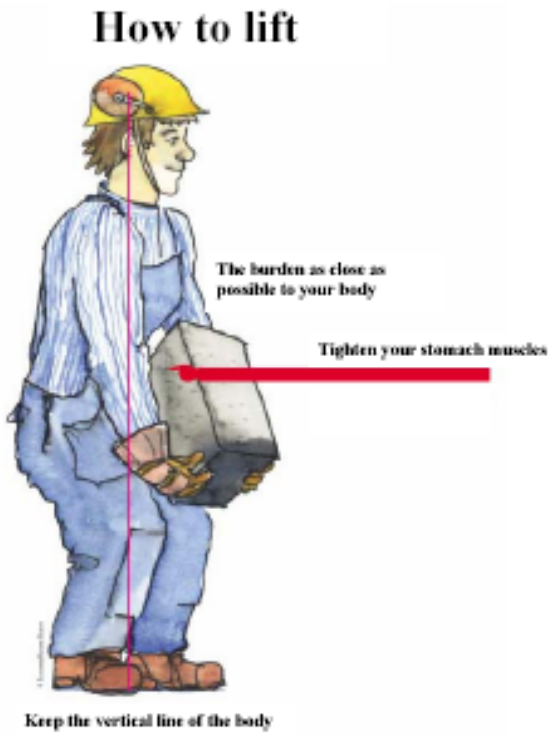

Figure 2. An example of information material used by the construction pilots.

In the primary prevention program 12 Galaxen employees work as informants in the construction industry. They are partially disabled construction workers who have been trained in practical ergonomics and are familiar with good ergonomic tools and safety equipment. The equipment is demonstrated to construction workers and pupils in vocational schools. These informants are known as construction pilots, and they also provide information about basic practical ergonomics to their groups. The information is given in the form of themes such as safety equipment to prevent falls, noise, and vibration and demonstrations of tools that, for example, have lower noise or vibration levels. Information like this is also given to rental firms or machine depots owned by large construction companies. The aim is to persuade buyers to take ergonomic considerations into account when tools and equipment are purchased. The construction pilots have also begun to form planning groups at worksites. The groups consist of the local manager, the safety officers, the foremen, and the construction pilot. They meet regularly to discuss what equipment is needed and what methods will be used in the following period.

The information material for the pilots has been designed as wall charts that have very little written information but invites a discussion of work techniques and equipment. This material is discussed in conjunction with a discussion of selected equipment suitable for the chosen theme. An example of a wall chart is given in figure 2.

Every month, the construction pilots report every single meeting they have had during the last month to the head office. The report includes which thematic information they have been giving, which company or school they have visited, who was contacted to arrange the meeting, how the demonstration was appreciated, how many persons attended the meeting, and what trade their information was addressing.

Results

The Galaxen rehabilitation model

In table 1 the rehabilitation outcome from 2002 is shown. There were 1483 persons employed by Galaxen in Sweden at the end of the year. During the year, 517 persons were employed, 150 of them had been unemployed, and the other 267 had been on long-time sick leave. For all of the 517 persons, the Galaxen Company found new jobs that suited the partial disability of the person in question. During 2002, there were 404 people who left Galaxen employment, and 100 of them went into ordinary jobs without wage subsidies. Ten left Galaxen for additional training, and 23 retired since they had reached the age of 65 years. A total of 48 were given early retirement because of illness. In 103 cases, Galaxen employment ceased because there was a lack of suitable jobs. For 120 people there were miscellaneous reasons, for example, personal reasons, bankruptcy of the company, death, sickness, and the like. The rest, 562 persons, were employed earlier than 2002 and had ongoing Galaxen employment.

In a longer perspective, the outcome of the rehabilitation model is shown for 5 years in table 2. In 1998, there were 1143 persons employed by Galaxen, and, in 2002, the number was 1483. During these 5 years, the newcomers numbered 1323, of which 679 persons had been unemployed and 638 had been on sick leave. A total of 1720 people left Galaxen during the 5 years, and 481 of them were able continue their new job on a full-time basis without wage subsidies. Altogether 71 people retired at 65 years of age during the 5 years, and 272 persons were granted early retirement because of illness. Earlier, there had been insufficient data collection, and, therefore, it is only known that 896 persons left Galaxen for miscellaneous reasons, and unemployment and additional education accounted for some of the reasons.

In September 2003 there were 1580 workers employed in Sweden by Galaxen. Of this total, 65% suffered from musculoskeletal disorders that caused a partial disability. The other grounds for their disability are shown in table 3.

An economic calculation showed that society benefits by more than USD 20 000 per year for each person employed by Galaxen rather than being unemployed or on sick leave (table 4). Galaxen has an average of 1400 employees in Sweden, and society thus gains around USD 30 million annually for all those employed by Galaxen in Sweden.

Primary prevention

During 2002, 12 pilots made 2361 visits and provided information on practical ergonomics and modern equipment to 43 311 people (table 5). In addition they worked with the following four themes: practical ergonomics, vibration, safety precautions to prevent falls, and personal safety equipment. They introduced and tested around 100 new tools during the year. Information for vocational school pupils was also emphasized, and more than 20 000 pupils received information about practical

Table 1. Rehabilitation outcome during in 2002.

	N	
Newcomers during 2002	517	
From unemployment		250
From sick leave		267
Persons who left Galaxen employment during the year	404	
For an ordinary job		100
For studies		10
On an ordinary pension		23
On disability pension		48
For unemployment, lack of suitable work		103
For miscellaneous reasons		120
Persons employed before 2002 and still in Galaxen	562	
Persons employed on December 31	1483	

Table 2. The rehabilitation outcome in 1998–2002.

	Number	
Employed at the end of 1997	1143	
Employed at the end of 2002	1483	
Employed during the last 5 years	1323	
From unemployment		679
From sick leave		638
Left Galaxen employment 1998–2002	1720	
For an ordinary job		481
On an ordinary pension		71
On disability pension		272
For miscellaneous reasons including unemployment and studies		896

Table 3. Medical grounds for partial disability for the Galaxen workers (September 2003).

Medical disability grounds	N	%
Atherosclerotic disease	46	3
Lung disease	17	1
Heart disease	34	2
Hearing loss	21	1
Eye disease	14	1
Musculoskeletal impairments	177	11
Low-back pain	403	26
Arm disorders	140	9
Knee or foot disorders	199	13
Neck or shoulder disorders	268	17
Other somatic diseases (ie, skin disorders)	144	9
Psychological disorders	50	3
Social medicine disorders (ie, abuse)	54	3
Miscellaneous	13	1
Total	1580	100

Table 4. Economic calculation for the wage subsidy in national economic terms. (USD = United States dollars)

	USD
Average State wage subsidy per person	–13 500
Taxes paid per person	9 000
Pay role tax paid by the company	11 600
Annual economic benefit for society per person	7 100
Sick or unemployment benefits not payed by society for employee on sick leave or unemployed	–22 000
Taxes refunded by the State	7 000
Net cost for society	–15 000
Total anual benefit for society per person	22 100

Table 5. Number of information visits and number of informed persons executed by the construction pilots.

Companies and organizations	Visits (N)	People informed (N)
Big companies	487	4895
Small to medium size companies	497	4497
Exhibitions	321	6322
Schools and universities	385	23540
Employment office	42	928
Trade union gatherings	115	2145
Manufacturers	514	984
Total	2361	43311

ergonomics and safety equipment. Another important part of the work was to offer people information in construction industry exhibitions. Furthermore, most of the depots for construction machinery were visited throughout the country for the purpose of providing information on suitable equipment that can be purchased for renting to their customers. This way suitable equipment is available to the construction companies when they rent machines or other equipment from a machine depot. The depots were also informed of practical ergonomics so that depot workers would be able to include these aspects in their discussions of material and equipment with their customers. In table 5, the visits to machine depots have been included in the visits to small and medium size companies, since they act either on the free market or are subsidiary companies to the five biggest construction companies in Sweden.

Discussion

Rehabilitation

The results for the Galaxen model have been very positive. Altogether 25% of those who leave Galaxen during a year, or 10% of all those employed by Galaxen, for a job without wage subsidies. The Galaxen administration annually finds work for around 500 partially disabled workers in companies in the construction industry, an industry in which most worktasks are considered to be very heavy. The psychosocial gain for these persons is one of the important results. In a previous investigation in Sweden, we found that 81% of those employed by Galaxen had increased the quality of their lives when the situations before and after employment were compared (7). The economic gain for society is not inconsiderable. One of the negative sides of the Galaxen model is the risk of being restricted to this special form for work and not being able to find a job without a wage subsidy after the maximum 4 years. In a few individual cases, the lack of other employment led to a prolongation of Galaxen employment for several years. Another difficulty is the occasional lack of suitable jobs, especially in some parts of the country. In 2002, no jobs were found for 103 persons. They were employed by Galaxen but left for unemployment since there was a lack of suitable jobs. For some of them, work in the construction industry was too hard, and it was also hard to find other suitable jobs in their region.

The data collected before 2000 should be interpreted with great caution since they were collected manually from figures that were annually delivered from local offices. The figures from the 5 years 1986 to 2000 should be considered in this respect. The number of workers in Galaxen were fewer then, but there seems to have been about the same number of persons that left Galaxen for a job without wage subsidies (481:5 = 96). This finding possibly indicates that the Galaxen model has been stable over time. There is a risk that data could still be incorrect due to misunderstandings or miscalculations. It has not yet been possible to do a reliability test on the input data, but we estimate that mistakes are few since the collected information is verified by the employee at the rehabilitation board meeting.

Rehabilitation has several different meanings in the literature. One of them is consistent with Galaxen's aims: actions taken to enable people on long-term sick leave to return to work. Galaxen also aims at prevention so that fewer construction-industry workers are injured at work. The Galaxen rehabilitation model has been developed in close collaboration with the social security system in Sweden and is therefore not easily introduced in a different context. Nevertheless, most countries have organizations designed to deal specifically with safety at work and social security. After a few adjustments, these countries could probably develop a similar model for rehabilitation. Some factors that have proved especially important in making the Galaxen model so successful can be pointed out. First, the fact that Galaxen was created in company form provided stable conditions for the development and maintenance of the model. Second, the addition to the collective

agreements that regulate employment in Galaxen have been of great importance, ensuring security for employees and employers. Third, the creation of regional rehabilitation boards has been of great importance for the work with the Galaxen model. Another factor that has been important is that every employee has a personal case manager who regularly visits the worksite. Adjustments can thus easily be discussed, and it is possible for the rehabilitation board to rectify less successful outsourcing.

Apart from the work by Loisel (5), no other studies have demonstrated the efficacy of a method for rehabilitation similar to the Galaxen model. There is an obvious need for comparison between different rehabilitation models in the future, and our model could be one of the methods included.

Prevention

The preventive work of Galaxen has been undergoing great development. The start (12 construction pilots who demonstrated good equipment) has turned into a series of different thematic actions for prevention in the construction industry. These construction pilots are informants who provide important and meaningful information on practical ergonomics. We believe that preventive work should be more systematic so that best practices would easily spread. Our way of accomplishing a more systematic influence is to give the information to purchasers in large construction companies and to machine depots, where many small or medium-size enterprises rent their equipment. This way, the users find suitable equipment and safety gear, gear that we have been providing information about, in their usual machine depots or company assortments.

One strong point of the construction pilots' work is that, since the pilots are themselves former construction workers, the information they impart to their fellow workers has a high degree of credibility. One weak point is that there is turnover among the construction pilots and a constant demand for education. The construction pilots are employed under the same conditions as all other workers employed by Galaxen. Therefore, the pilots must also find a full-time job without wage subsidies within 4 years. Moreover the lack of proof of economic or other obvious advantages of prevention creates a situation in which the information about prevention is often disputed. It is no longer possible to rely on the feeling that prevention is doing the good we think it does. We must instead find ways to calculate the economic gains of preventive actions so that industry will understand the advantages of such work. One such piece of work has been published, but unfortunately it is available only in Swedish (9).

Application of the model in other countries

If the model is applied in other countries, we recommend building it on the basis of an organization, possibly a company, that can carry out the ideas over time. We also recommend starting rehabilitation boards in which the union and employment organizations can decide together with the employment authorities about the suitable placement of the persons involved. In addition to collective agreements with a shorter term of notice, It is also essential to make placement less risky for the employer. We believe that there must also be some kind of economic subsidy to the company that employs a person with a partial disability to make this model attractive.

Concluding remarks

The Galaxen model has proved to be an interesting way of rehabilitating construction workers and returning them to suitable jobs. The model was developed within the Swedish social security system but could well be adjusted to other contexts.

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CONTENTS
(continued from back cover)