

## IMPACT OF A WORKPLACE EXERCISE PROGRAM ON LOW BACK PAIN IN HOSPITAL EMPLOYEES

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### ABSTRACT

**Introduction:** Health related non participation in work impacts individuals, industries, and society. It's results are reflected in the expense of benefits, substitutes, and reduced profitability. Research exhibits that musculoskeletal disorders (MSDs) are the most generally perceived health complain announced by hospital employees. Low back discomfort was not simply seen as the most broadly perceived practical inability around the globe, yet moreover assessed to have impacted 90% of all inclusive community. **Methods:** The motivations behind this examination were to assess the impact of five weeks exercise program on short term sick leave ( $\leq 20$  days) due back pain. Here to decide if changes in absenteeism were identified with changes in cardiovascular wellness. Subjects were arbitrarily selected to an activity group (n =34) and a control group (n =33). **Result:** In the activity group, the quantity of appearance of back pain and the quantity of sick leave days due to back pain in the intervention time frame diminished by over half. This was also established in visual analogue scale (VAS). An organized workplace fitness program appears effective in lessening days off due to back discomfort. This exercise program also helpful to reduce episodes of back pain.

**Keywords:** musculoskeletal disorders; low back; hospital employees; ergonomic; health

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### 1. Introduction

Musculoskeletal disorders (MSDs) are an imperative reason of work related ill appearance as well as of guaranteed ailment nonattendance representing one of every eight of all declarations issued with the normal length of spell being 10 weeks (Black, 2008). Work related low back discomfort is the biggest single medical issue identified with work and non-attendance at most basic reason for inadequacy among workers matured under 45; it principally influences youthful grown-ups and is in charge of around one fourth of all instances of untimely invalidity (Marras, 2000 and Iguti, 2003). Since work related lower back discomfort influences the financially dynamic piece of the populace, is identified with work insufficiency, makes enduring patients, includes costs

because of lost efficiency, days off work, medicinal and lawful costs and standardized savings and protection installments for individually, it ought broke down as a therapeutic issue as well as a social and monetary issue (Weiner and Goumeoens, 2006). There is a deficiency of writing with respect to WMSDs including ergonomic evaluation of workers presentation to risk factors for the advancement of WMSDs in Bangladesh point of view. Just a predetermined number of studies detailed musculoskeletal disorders and occupation related ergonomic risk factors (Ahmed et al., 2007 and Sarder et al., 2006).

Health and Safety Executive (1998) assessing that 1 million individuals are influenced by work inability every year with an expected 11.6 million

working days lost with a normal length of spell of nonappearance being 20 days. Back torment is a noteworthy medical issue in the industrialized nations, harrowing about 80% of the populace eventually amid their lives. In 1983, in Sweden, which at that point had a populace of 8.5 million individuals, 24% of wiped out leave days were because of pain in the back, neck, and shoulders. In 1988, 54,000 individuals took early retirement in Sweden, 10,500 because of back torment (Ydreborg, 2007). All inclusive in 2012, it is evaluated that 2.3 million workers died for reasons ascribed to work; in excess of 2 million of those passed away were from diseases (Takala et al., 2014).

Occupation related low back pain (LBP) is a standout amongst the most well-known health conditions revealed by the working populace around the world (Rojas, Stark and Tembo, 1990; Omokhodion and Sanya, 2003; Burdorf and Jansen, 2005; Sanya and Ogwumike, 2005). LBP has been observed to be the significant reason for work non-attendance and word related inability costs among workers (Goetzel et al., 2003; Steward et al., 2003). However, health care workers were found to have a higher predominance of LBP contrasted with other industrial occupants (Jensen, 1987; Malone, 2000).

In 1986, the expense of sick leave and early retirement as a result of back pain added up to 5.1 billion Swedish crowns (around \$777 million in US money). In Sweden, 3% to 4% of the populace experiences chronic back torment prompting work insufficiency (Waddel, 1987). Numerous patients have been on sick leave excessively some time before rehabilitation. Hence, techniques, for example, work preparing is considered here. In the event of postponement in beginning restoration can cause back pain sufferers to lose trust in their capacity to do exercises, for example, walking, standing, sitting, lifting, and carrying (Nachemson, 1983). Because recently it requires a long investment to become familiar with a powerful work system and to do a preparation program to accomplish suitable quality, coordination, and adaptability. There is proof that physical exercise is valuable for both anticipation and treatment of back torment. Cady et al (1997) found among firemen that the most physically fit people had less and less exorbitant back wounds than the least physically fit people.

Among the measures for controlling these disorders, work-place exercise programs have frequently been connected so as to build muscle

quality and improve adaptability and cardiovascular molding (Burton et al., 2006). Possibly, such changes would improve the workers wellbeing, capacity for work and personal satisfaction. In any case, the impacts of the working environment exercises in relation help with discomfort are disputable. A past review think about demonstrated restricted proof for the valuable impacts of activity to control shoulder and neck pain in workers (Verhagen et al., 2007), while for low back manifestations, there is both constrained and solid proof of adequacy (Williams, 2007).

Solid proof was found to help the adequacy of physical exercise in controlling neck torment among workers who performed sedentary tasks in workplaces or authoritative situations, while moderate proof was found for low back relief from discomfort among medicinal services and industrial workers who performed substantial physical assignments. These positive outcomes were accounted for when the training times were longer than 10 weeks, the exercises were performed against some sort of resistance type and the sessions were supervised (Helenice et al., 2009).

### **3. Results**

#### **3.1 Age, BMI, cardiovascular fitness and VAS:**

The activity group and the control group were analyzed to ascertain the proportionality. As shown in Table 1 there were no significant result was found for the factors age, BMI, cardiovascular fitness and VAS for the control category. Furthermore, for the exercise category cardiovascular fitness and VAS (visual analogue scale) showed significant result but age and BMI appeared as non significant. The categories were comparable concerning sex dispersion (for example ladies made 25% out of each category). In this investigation 34 members were in the activity category and 33 in the control category.

#### **3.2 Leave due to illness and occurrence of back pain:**

Table 2 represents leave due to illness and occurrence of back pain. 30% of the activity category took wiped out leave on account of back pain amid period 1, and 19% took wiped out leave amid period 2.

Twenty five percent of the control category took debilitated leave as a result of back torment in period 1, and 32% took wiped out leave amid period 2. Here presented 55% decline in days off inferable from back pain in the activity category and the 70% expansion in the control category.

Information displayed in Table 2, the differences in each group were inspected independently utilizing paired t tests. When differ in the quantity of days off due to back discomfort in exercise category, it showed reduced (t=1.5, df=66,

P< 0.05). It also showed a significant change in the quantity of scenes of back discomfort (t= 1.92, df=66, P<0.025). In table 2 control group showed a non significant result in either days off inferable from back discomfort (t= - 0.75, df=66, P=NS) or scenes of back discomfort (t= - 1.27, df= 66, P= NS) independently. Accordingly, it is said that days off due to back discomfort and scenes of back discomfort are appeared significantly reduced in the exercise group. Range of a set of data is the difference between the largest and the smallest value.

**Table 1:** Measure of Mean, Standard deviation, and t- test outcome of different variables.

Variable	Activity group (n=34)			t	df	p*	Control group (n=33)			t	df	p*
	X	SD	Range				X	SD	Range			
Age (y)												
Period 1	40.6	8.4	23.00-64.00	0.53	66	<0.50	41.5	9.2	24.00-62.00	0.73	66	<0.20
Period 2	40.6	8.4	23.00-64.00				41.5	9.2	24.00-62.00			
BMI(Body Mass Index)												
Period 1	24.65	3.21	19.61-31.10	0.65	66	<0.50	25.1	2.68	19.96-	0.65	66	<0.25
Period 2	23.75	4.5	18.37-29.50				24.2	4.80	18.90-			
Cardiovascular fitness												
Period 1	23.28	8.79	22.00-44.00	1.66	66	<0.05	30.4	12.3	23.00-45.00	0.86	66	<0.20
Period 2	22.62	5.32	21.00-42.50				28.4	7.56	22.54-44.30			
VAS (Visual analogue scale)												
Period 1	8.2	4.5	7.00-9.40	1.98	66	<0.02	8	3.8	7.5-8.5	0.78	66	<0.20
Period 2	7.5	3.6	5.00-8.50				8.25	4.7	7.5-9.00			

P\*= one tailed

**Table 2:** Measure of mean, standard deviation, and t- test result of days off due to sickness and episodes of back pain for activity and control group.

Variable	Activity group (n=34)			t	df	P*	Control group (n=33)			t	df	P*
	X	SD	Range				X	SD	Range			
Days off due to sickness and due to back discomfort												
Period 1	5.19	12.24	00-18.00	1.50	66	<0.05	2.52	5.88	0-18.00	0.68	66	<0.25
Period 2	2.13	7.12	00-12.00				4.23	9.32	0-19.00			
Occurrence of back discomfort												
Period 1	0.51	0.97	00-4.00	1.92	66	<0.025	0.3	0.62	0 -3.00	0.82	66	<0.20
Period 2	0.37	0.75	00-2.00				0.5	1.17	0-4.00			

P\*= one tailed

## 4. Discussion

The Rockport test or cardiovascular fitness test revealed significance value in exercise group but in control group it appeared no significance value. Control group showed a notable decrease in cardiovascular fitness. Study showed uniform aerobic exercise improves cardiovascular wellness by expanding ability to utilize oxygen (Blair, 2009). Here, visual analogue scale also showed significant decrease of pain intensity after the intervention in exercise group. At VAS 48% of the respondents revealed that they felt much better, 35% detailed that they felt good, 14% announced no change, and 5% announced that they felt more awful. Accordingly, 83% of the members described improvement in pain indication following involvement in the activity program. This examination has demonstrated that an activity program did for 5 weeks by individuals with back complain, decreased their number of wiped out leave days and their number of scenes of ailment inferable from back discomfort by over half thought about prior to intervention. Research showed strength exercises performed in the work environment, three times each week for 20 minutes can lessen musculoskeletal torment in shoulders, wrists, cervical, thoracic and lumbar spine (Rodrigues, 2014). Conversely, the control category measure of debilitated leave owing to back torment expanded amid a similar period. In the activity category, the cardiovascular wellness of the members stayed at an average to high state after the anticipated period. The control group's cardiovascular wellness diminished fundamentally. As pain experience is subjective by nature (Kern, 2013) 83% of the members in the activity type revealed subjective improvement in back torment. This finding is in concordance with the after effects of an examination that revealed an improvement in 78% of the members in a comparative exercise category (Kstrand, 1960). Here the activity protocol may have been persuasive to diminish wiped out leave period inferable from back torment. Our investigation exhibits that physical movement is helpful for lessening brief times of wiped out leave owing to back discomfort (<20 days). There is additionally proof that physical movement is valuable in the administration of sub intense and constant back torment, as appeared in the Volvo venture (Nachemson, 1983) and crafted by (Mayer et al, 1985). This examination exhibited that it is conceivable to decrease debilitated leave by half. Along these lines, it is likely that the quantity of patients creating chronic back discomfort can likewise be decreased.

## 5. Conclusion and recommendation

An organized workplace fitness program appears successful in diminishing days off due to back torment and experience of back torment. An interest in exercise programs for individuals with back torment could prompt significant advantages for the business, society, and people with back discomfort. Attention should be given on agronomical point of view.

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