# THE EFFECT OF DESK STRETCHES ON THE LEVEL OF LOW BACK PAIN ON HAND-ROLLED CIGARETTE WORKERS IN THE WAREHOUSE DIVISION IN PR. MARGANTARA JAYA

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## ABSTRACT

Hand-rolled cigarette workers have work demands in sitting positions while working and doing repetitive movements without paying attention to body alignment for a long period, which becomes a factor in the emergence of LBP in the workers. The study was aimed to prove the effects of the desk stretches on the LBP level on hand-rolled cigarette workers. The research design used was quasi experimental with the pretest-posttest nonequivalent control group design method. There were 36 respondents selected through a purposive sampling technique, divided into 2 groups of 18 people for a treatment group and 18 people for a control group. The variable measured in this study was the difference in LBP levels before and after the intervention. The research data were tested using the Wilcoxon statistical test and the Mann Whitney statistical test with significance α=0.05. The results of the Wilcoxon statistical test showed that there were no changes in LBP levels in the pretest-posttest of the control group with a $p_v$ value of 1000 ($p_v > 0.05$), while the results of the Wilcoxon statistical test showed that there was a change in LBP levels in the pretest-posttest in the treatment group with a $p_v$ value of 0.000 ($p_v < 0.05$). The results of the Mann Whitney statistical test showed there was an effect of the desk stretches intervention in LBP levels in the posttest of the control group and the treatment group with a p-value of 0.017 ($p_v < 0.05$). The desk stretches is very effective to be applied to hand-rolled cigarette workers with LBP complaints. By doing desk stretches, back muscles are more flexible and it increases oxygen circulation to cells. Besides, desk stretches can be used as a reference for implementing safety and security at work, especially related to body alignment at work. Therefore, desk stretches can be used as a solution to reduce LBP complaints to workers in a continuous sitting position.

***Keywords:*** LBP, Relaxation, Stretches, Hand-rolled workers, Cigarettes.

## INTRODUCTION

People who works in a position that is always the same and repetitive and stiff body posture and bend his body parts continuously, especially in a sitting position for long time periods should consider their body alighment. If the condition is allowed to continue, it can cause problems in the body condition of the worker, including the appearance of pain complaints (Suhardi, 2008). one of the Pain Complaints that are often experienced by workers is low back pain (LBP).

Based on the The Globat Burden of Disease Study 2010, from a total of 291 types of disease studied, LBP was the largest contributor to disability globally as measured by years lived with

disability (YLD) and ranked 6th from total overall burden as measured by the disability adjusted life year (DALY) (GBDB, 2010 in Hoy, 2014).

In certain regions, both developed and developing countries, the population that experiences LBP as much as 60-80% occurs in people aged 40-80 years old (Almoallim et al 2014, in Rizkillah, 2019). Low back pain can reduce a person's work productivity, 50-80% of workers worldwide have experienced LBP which makes someone often go to the doctor (E. Tanderi, T. Kusuma, and M. Hendrianingtyas, 2017). A preliminary study conducted on 10 people with an age range of 40-50 years old, at the Margantara Jaya Cigarette Company, 6 out of 10 people said they were suffering from moderate pain and 4 of them suffered from mild pain.

LBP can cause pain in the area between the lower ribs and above the leg, discomfort in the waist or back, when working with a sitting posture and with the same and / or repetitive movements (Purnamasari, Gunarso, Lujito, 2010). If the problem of low back pain is not treated immediately, the pain can spread to the leg area and become a chronic pain; that is pain that always appears more than 6 months (Sadeli HA & Tjahjono, 2001), a more serious impact can cause injury to the sufferer. (Bull & Ardhad, 2007).

Muscle stretching is a way to give flexibility to muscles that experience stiffness, so as to provide a sense of relax. One way to maintain muscle endurance at work is to do exercises on muscles that are always used. (Bambang Trisnowiyanto, 2017). Based on physiology and fatigue when working in the same position, thus affecting the performance of muscles, stretching is very helpful for workers in relaxing stiff muscles. Tight work times and less supportive workplaces become obstacles in stretching muscles. Need a way of stretching movements that are easy to apply and use the media that is around the workplace. Work productivity is expected to increase and reduce pain, stiffness and increase oxygen supply to the muscles by streaching.

Desk Streches movement techniques (relaxation stretching in a chair) can be used as an effort to stretch muscles that can be done at work and use existing media, to help reduce lower back pain in workers. Based on the problem above, the researcher is interested in conducting research to prove the effect of Desk Streches (relaxation stretching chair) on the level of LBP on cigarette hand-rolled employees.

## METHODE

The research design used was quasi experimental with the pretest-posttest nonequivalent control group design method. There were 36 respondents selected through a purposive sampling technique, divided into 2 groups of 18 people for a treatment group and 18 people for a control group. The variable measured in this study was the difference in LBP levels before and after the intervention using *Numeric Ratting Scale* (NRS).

## RESULT

The data used in this study include the characteristics of respondents consisting of Frequency distribution based on: age, education, duration of suffering from low back pain, length of work, rolling production per day, and other illnesses suffered by respondents. Low back pain, length of work, rolling production per day, and other illnesses suffered by respondents.

Table 1. Frequency distribution of characteristics respondent in the treatment and control groups.

| Variable | Treatment Groups | | Control Groups | |
|---|---|---|---|---|
| | F | (%) | F | (%) |
| **Sex** | | | | |
| Male | 0 | 0 | 0 | 0 |
| Female | 18 | 100 | 18 | 100 |
| **Age** | | | | |
| 17-25 y.o | 0 | 0 | 0 | 0 |
| 26-35 y.o | 0 | 0 | 0 | 0 |
| 36-45 y.o | 3 | 16,7 | 4 | 22,2 |
| 46-55 y.o | 9 | 50 | 9 | 50 |
| 56-65 y.o | 6 | 33,3 | 5 | 27,8 |
| >65 y.o | 0 | 0 | 0 | 0 |
| **Education Level** | | | | |
| Not Educated | 2 | 11,1 | 1 | 5,6 |
| Elimentary | 9 | 50 | 13 | 72,2 |
| Junior highschool | 4 | 22,2 | 4 | 22,2 |
| Senior highschool | 3 | 16,7 | 0 | 0 |
| **Duration of Suffering** LBP | | | | |
| 1-12 months | 4 | 22,2 | 6 | 33,3 |
| 1-3 years | 11 | 61,1 | 9 | 50 |
| >3 years | 3 | 16,7 | 3 | 16,7 |
| **Length of work** | | | | |
| 1-12 months | 7 | 38,9 | 1 | 5,6 |
| 1-3 years | 2 | 11,1 | 2 | 11,1 |
| >3 years | 9 | 50 | 15 | 83,3 |
| **Han-rolling/day** | | | | |
| 100-500 sticks | 1 | 5,6 | 2 | 11,1 |
| 500-1000 sticks | 8 | 44,4 | 10 | 55,6 |
| 1000-2000 sticks | 3 | 16,7 | 4 | 22,2 |
| 2000-3000 sticks | 6 | 33,3 | 2 | 11,1 |
| **Other Illness** | | | | |
| Gout | 4 | 22,2 | 6 | 33,3 |
| Cholesterol Disease | 2 | 11,1 | 2 | 11,1 |
| Hypertensi | 2 | 11,1 | 1 | 5,6 |
| Others | 10 | 55,6 | 9 | 50 |

Table 2. Frequency distribution of LBP levels on control groups observation

| LBP Levels | Control Group | | | |
|---|---|---|---|---|
| | Pre Test | | Post Test | |
| | *F* | *%* | *F* | % |
| No Pain | - | - | - | - |
| Mild | 12 | 66,7 | 12 | 66,7 |
| Moderate | 6 | 33,3 | 6 | 33,3 |
| TOTAL | 18 | 100 | 18 | 100 |
| ***Wilcoxon test*** p *value*= 1.000, α = 0,05 | | | | |

Based on table 2, *Wilcoxon statistical test* showed that sig p *value* = 1.000 > α = 0,005, it's mean there was no significant difference in the levels of lower back pain in the pre and post tests.

Table 3. Frequency distribution of LBP levels on treatment groups.

| LBP Levels | Treatment Groups | | | |
|---|---|---|---|---|
| | Pre test | | Post test | |
| | *F* | % | *f* | % |
| No Pain | - | - | 2 | 11,1 |
| Mild | 6 | 33,3 | 15 | 83,3 |
| Moderate | 12 | 66,7 | 1 | 5,6 |
| TOTAL | 18 | 100 | 18 | 100 |
| **Uji *Wilcoxon*** p *value*= 0.000 α=0,05 | | | | |

Based on table 3, Wilcoxon statistical tests result showed that sig p *value* = 0.000 < α = 0,05, that is mean there was significant difference in the level of LBP in the pre and post test.

Tabel 4. Distribution of LBP Levels on Control Groups and Treatment Groups pre and post test.

| LBP Levels | Control Groups | | Treatment Groups | |
|---|---|---|---|---|
| | Post test | | Post test | |
| | *F* | % | *F* | % |
| No Pain | - | - | 2 | 11,1 |
| Mild | 12 | 66,7 | 15 | 83,3 |
| Moderate | 6 | 33,3 | 1 | 5,6 |
| TOTAL | 18 | 100 | 18 | 100 |
| ***Mann Whitney*** test p *value* = 0,017 α=0,05 | | | | |

Based on table 4, *Mann Whitney* statistical test obtained sig p *value* = 0.17 ≤ α (0.05), that's mean there was significant difference of LBP levels on treatment group and control group post test.

## DISCUSS

Lower back pain suffered by cigarette hand-rolled workers is caused by body positions that tend to be static during work. The working time spent by rolling cigarette workers every day is 9 hours, with a rest period of 1 hour and no time to do stretch while working. Overall respondents of this study is female, while female muscle strength was only two-thirds of male muscle strength, so male muscle power is higher than women (Tarwaka, 2011). Time of using static muscles has an influence on the threshold of low back pain in female workers because female muscle strength is lower than male muscle strength, so women are prone to experience low back pain.

Complaints of LBP can occur due to errors in sitting posture and duration of sitting time, without realizing employees doing sitting activities in the same position, a long time duration and repetitive movement activities are one of the triggers for skeletal muscle disorders (complaints of LBP). (Santoso, 2013). Based on physiology, static muscles can cause blockages in the blood flow, so that accumulation of lactic acid can occur and cause muscle fatigue. In addition, the sitting position of the muscle workload becomes uneven in some parts of the body. (Eddy, Suroto, Wijasena, 2019). Muscles that work and contract repeatedly and last longer resulting in a condition known as muscle fatigue, muscles that feel tired will show a lack of strength, lack of coordination between muscles and even the appearance of complaints of pain in the muscles. (Suma'mur, 2009).

Stretching at work, where the condition of the rolling cigarette worker is in the chair, can help increase muscle flexibility. This technique can be done

without interrupting work time, other than the implementation only on the spot, the time for stretching only takes approximately 5 minutes. During the study, respondents were given interventions during breaks, so as not to interfere with productivity while working, for 14 days treatment.

Stretching exercises can increase the flexibility of tense muscles, this exercise can also improve blood circulation and increase oxygenation to cells. **(**Wiwit, Gamya & Sri, 2015**).** After being given this therapy, if stretching exercises are done regularly then the best thing that can be obtained by the respondent is the change in pain complaints that get better, or the level of lower back pain decreases. indirectly, if the pain suffered by respondents decreases, it will have an impact on increased work productivity.

## CONCLUSSION

Desk Strech interventions have a significant effect on the level of low back pain in the treatment group compared to the control group in the warehouse-rolled cigarette employees at the Margantara Jaya cigarette company.

## SUGGEST

For hand-rolled cigarette worker or people who work in many sitting positions, try to do Desk Stretches regularly during working hours, to reduce the sensation of pain, and pay attention to the sitting position well to avoid lower back problems.

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