

Facts Regarding Worker Lower Back Pain

— Investigation into Psychological and Social Causes of Lower Back Pain in the Workplace —

Field name "Muscular and skeletal disorders stemming from physically overburdening the body"

In order to clarify the cause of lower back pain in the workplace, we carried out an investigation using questionnaires that covered not only physical causes such as work posture, but also depression, stress, interpersonal relationships at work, and social causes. We obtained responses from 9,307 people. The analysis results clarified the points below ^{1, 2, 3}.

The severity of lower back pain in the previous month was categorized as indicated below.

1. No lower back pain (Grade 1) 49%
2. There was lower back pain, but it did not hinder work (Grade 2) 45%
3. Although lower back pain was a hindrance to work, no work leave was taken (Grade 3) 5%
4. Work leave was taken due to lower back pain (Grade 4) less than 1%

Although half of the responders had lower back pain, those with lower back pain to the extent that it was a hindrance was 6% (Fig. 20).

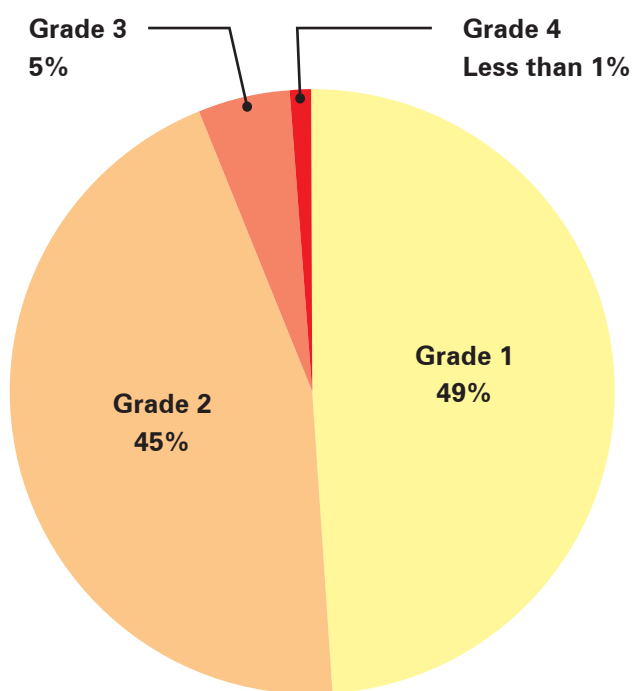


Fig. 20. Severity of lower back pain in the previous month

When we investigated the causes of the relationship between lower back pain and work, we clarified that work posture is significantly correlated to working long hours in that posture for those engaged in manual labor, those that work in unnatural positions such as being bent over, those that work standing up, and vehicle operators in that order (Table 5).

Table 5. Relationship Between Work Posture and Lower Back Pain

	Odds ratio	95% Confidence interval
• Manual labor	1.63	1.47-1.81
• Unnatural posture	1.26	1.22-1.31
• Work standing up	1.14	1.10-1.17
• Vehicle operator	1.09	1.02-1.16
• Desk work	0.76	0.68-0.85

For work behavior, there is a significant correlation between actions such as lifting, lowering, twisting, bending over, shifting side to side, pushing, pulling, carrying things or walking and working long hours (Table 6).

Table 6. Relationship Between Work Behavior and Lower Back Pain

	Odds ratio	95% Confidence interval
• Lifting and lowering	1.78	1.61-1.96
• Twisting at waist	1.77	1.59-1.97
• Bending forward	1.76	1.60-1.94
• Shifting (side to side)	1.72	1.55-1.90
• Pushing	1.70	1.53-1.90
• Pulling	1.62	1.45-1.81
• Carrying	1.60	1.44-1.78
• Walking	1.47	1.33-1.62

In the work environment, there is a significant correlation between conditions such as heat and humidity, a narrow and tight workspace, unstable footing, low illumination, an environment with uneven footing or many obstacles, cold, noisy, or shaking and vibration and working long hours (Table 7).



For the psychological and social causes, we found that there is a significant correlation between lower back pain and the causes of work stress such as a high level of complaints from patients regarding physical burden, a high level of stress from the working environment, a feeling that his/her own work is without purpose or meaning, a feeling of having a low level of aptitude for his / her own work, not having much control of work, a high level of stress from

interpersonal relationships at the workplace, and a heavy burden of psychological work (quality and quantity) (Table 8).

From the knowledge we obtained, in addition to the causes of lower back pain in the workplace such as work posture, work behavior, and the work environment that have been uncovered up to now, we found that psychological and social causes contribute to lower back pain.

Table 7. Relationship Between Work Environment and Lower Back Pain

	Odds ratio	95% Confidence interval
• Hot and humid	1.83	1.65-2.03
• Narrow and tight	1.73	1.55-1.93
• Unstable footing	1.58	1.40-1.78
• Dark	1.58	1.41-1.78
• Steps or obstacles	1.49	1.34-1.65
• Cold	1.48	1.31-1.60
• Noisy	1.48	1.36-1.61
• Shaking and vibration	1.46	1.31-1.62

Table 8. Relationship Between Psychological and Social Causes and Lower Back Pain

	Odds ratio	95% Confidence interval
• Subjective evaluation of the degree of physical burden	1.58	1.45-1.71
• Stress from work environment	1.58	1.45-1.72
• Work satisfaction	1.27	1.14-1.41
• Aptitude level for own work	1.23	1.10-1.37
• Degree of control of work	1.17	1.12-1.22
• Stress from personal relationships in workplace	1.14	1.09-1.19
• Burden of psychological work (Amount)	1.13	1.08-1.18
• Burden of psychological work (Quality)	1.13	1.07-1.18
• Degree to which you apply your skill	0.84	0.76-0.93

Odds Comparison

Odds are a value that expresses the probability that an event occurs. Odds are also used to express the probability that a horse will come in first place in horse racing.

An odds ratio is the ratio of the probability of one event (group) occurring to that of another event occurring. The odds ratio of one means that both events have the same probability of occurring and a value of greater (lesser) than one means that one event has a better chance of occurring than the other.

References:

- 1) Machida H.: Facts about worker lower back pain – psychological and social causes at the workplace as contributing factors. The Japan Labour Health and Welfare Organization, Clinical Research Center for Occupational Muscle Skeletal Disorders, 2007.
- 2) Machida H.: Facts about worker lower back pain – psychological and social causes at the workplace as contributing factors (Part 2). The Japan Labour Health and Welfare Organization, Clinical Research Center for Occupational Muscle Skeletal Disorders, 2008.
- 3) Machida H.: Research, development, and dissemination of a diagnosis method and effective preventative measures for cervicobrachial syndrome (including preventing reoccurrence) and occupational lower back pain, Research report. The Japan Labour Health and Welfare Organization, Clinical Research Center for Occupational Muscle Skeletal Disorders, 2008.

* Reference 2 can be viewed at <http://www.research12.jp/h13/index.html>, a site dedicated to the research and development, and dissemination projects related to the 13 fields of occupational injuries and illnesses.

* Reference 3 can be viewed at <http://www.research12.jp/h13/index2.html>, a site dedicated to the research and development, and dissemination projects related to the 13 fields of occupational injuries and illnesses.