

# Low back pain among bodybuilding professors of the West zone of the city of Rio de Janeiro

*Lombalgia em professores de musculação da zona oeste da cidade do Rio de Janeiro*

Jurandir Baptista da Silva<sup>1</sup>, Rodrigo Gomes de Souza Vale<sup>1</sup>, Flavio da Silva<sup>2</sup>, Adeilson Chagas<sup>2</sup>, Giovanne Moraes<sup>2</sup>, Vicente P. Lima<sup>2</sup>

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## ABSTRACT

**BACKGROUND AND OBJECTIVES:** Low back pain is one of the most common musculoskeletal symptoms in industrialized societies, according to the World Health Organization. This study aimed at investigating the prevalence of low back pain among bodybuilding professors of fitness centers of the city of Rio de Janeiro and at observing correlations between age, working time, working hours and low back pain intensity.

**METHODS:** The adapted questionnaire of the Quebec Pain Disability Scale was applied to 50 physical education professors of both genders (age=31.86±6.86 years) working with bodybuilding in fitness centers, with minimum weekly working hours of 12h, and at least three years acting in the area. This was a survey-type descriptive cross-sectional study.

**RESULTS:** From 50 interviewed professors, 62% have stated not feeling any type of lumbar discomfort, while just 38% have stated feeling some type of pain. From these, 20% have stated feeling daily pain, 6% weekly and 12% have reported monthly pain. About pain intensity in its worst moment, 14% have stated it is mild, 20% moderate and just 6% have reported severe pain. There has been positive and significant correlation ( $p<0.05$ ) between age and working time and between working time and low back pain intensity.

**CONCLUSION:** Low back pain prevalence was not high among interviewed professionals. Results show that older individuals working for a longer time are those with more severe low back pain.

**Keywords:** Age, Low back pain, Prevalence, Professor, Work.

## RESUMO

**JUSTIFICATIVA E OBJETIVOS:** A dor lombar é um dos sintomas musculoesqueléticos mais comuns nas sociedades industrializadas, de acordo a Organização Mundial de Saúde. O objetivo do estudo foi investigar a prevalência de dor lombar em professores que atuam na atividade de musculação em academias de ginástica no município do Rio de Janeiro e verificar as correlações entre idade, tempo de trabalho, horas de trabalho e intensidade da dor lombar.

**MÉTODOS:** Foi aplicado o Questionário adaptado do Quebec *Pain Disability Scale* em 50 professores de Educação Física de ambos os gêneros (idade=31,86±6,86 anos) que trabalham na musculação em academias de ginástica, com jornada semanal mínima de 12h de trabalho, e ao menos três anos de atuação prática na área. O trabalho foi caracterizado como um estudo descritivo, de corte transversal do tipo *Survey*.

**RESULTADOS:** Dos 50 professores entrevistados, 62% alegaram não sentir qualquer tipo de desconforto na região lombar, enquanto apenas 38% afirmaram sentir algum tipo de dor. Desses, 20% alegaram que a manifestação da dor é diária, 6% semanal e 12% relataram que as dores são mensais. Sobre a intensidade da dor em seu pior momento, 14% afirmaram ser suave, 20% moderada e apenas 6% relataram dores intensas. Observou-se correlação positiva e significativa ( $p<0,05$ ) entre a idade e tempo de trabalho e entre tempo de trabalho e intensidade da dor lombar.

**CONCLUSÃO:** A prevalência de dor lombar não foi alta nos profissionais pesquisados da amostra. Os resultados apontam que os indivíduos com mais idade e que possuem mais tempo de trabalho são os que apresentam dor lombar em níveis mais elevados.

**Descritores:** Dor lombar, Idade, Prevalência, Professor, Trabalho.

## INTRODUCTION

Low back pain is one of the most common musculoskeletal symptoms in industrialized societies<sup>1</sup>. According to the World Health Organization (WHO), approximately 80% of adults shall suffer at least one acute back pain crisis during life, being that 90% of them shall have more than one low back pain (LBP) episode<sup>2</sup>. So, LBP should be seen as a public health problem because such morbidity primarily affects economically active populations and may be highly disabling, in addition to major impact on quality of life (QL), being one of the most common reasons for total or partial disability<sup>3</sup>.

1. Universidade do Estado do Rio de Janeiro, Rio de Janeiro, RJ, Brasil.  
2. Universidade Castelo Branco, Grupo de Pesquisa em Biodinâmica do Exercício, Saúde e Performance, Rio de Janeiro, RJ, Brasil.

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**Correspondence to:**  
Jurandir Baptista da Silva  
Estrada Caetano Monteiro, 391 A - Bloco 1/201 – Badu  
24230-570 Niterói, RJ, Brasil.  
E-mail: profjurandirsilva@hotmail.com

LBP may have as causes some congenital, degenerative, inflammatory, infectious, tumor or mechanical-postural conditions. Mechanical-postural low back pain, also called unspecific low back pain, represents a large part of spinal pains referred by people<sup>4</sup>.

Among causes of occupational low back pain, individual factors such as gender, age, height, obesity, muscle strength related to professional demands, lumbar region muscles resistance, smoking and organizational factors such as vigorous or heavy movements, spinal flexion and torsion, vibration of the whole body and physically tiresome activities have been stressed. This condition is consequence of imbalance between functional load and functional capacity, where effort required by working and daily life activities is greater than the execution potential for such activities<sup>5</sup>.

Physical Education professionals have mechanical-postural low back pain related to their profession and muscle contractures caused by this condition interfere with the performance of daily activities, causing from movement limitation and medical leave to temporary disability depending on disease intensity<sup>6</sup>.

Studies have observed the incidence of LBP in several professions<sup>7,8</sup>; however, information in the literature about this condition among Physical Education professionals is still not well explained. In this sense, it is important to identify LBP and its probable causes in these professors to improve their daily lives both at work and leisure time. In addition, this type of approach has the best cost-benefit ratio for the company and its employees, because the problem is detected early, helping the prevention of musculoskeletal disorders<sup>9</sup>. So, as a function of possible profession-related spinal disorders and the implications of this disease on lives of physical education professionals, this study aimed at investigating the prevalence of LBP among bodybuilding professors in the city of Rio de Janeiro, and at checking correlations between age, working time, working hours and LBP intensity.

## METHODS

This is a descriptive, cross-sectional Survey-type study. Study was made up of 50 Physical Education professors of both genders, with  $31.86 \pm 6.86$  years of age, being 32 (64%) males and 18 (36%) females. Subjects acted in bodybuilding activities in gyms, with minimal weekly journey of 12h, and at least three years of practical action, including their training period. Excluded from the sample were individuals who at data collection time had injury or disease which could develop low back pain.

Visits were carried out in 23 gyms of the city of Rio de Janeiro, in the districts of Realengo, Campo Grande, Mesquita and Magalhães Bastos. Professors present at the time and matching inclusion criteria were interviewed and have signed the Free and Informed Consent Term (FICT) to participate in studies involving human beings, according to guidelines of Resolution 466/2012, of the National Health Council and the Declaration of Helsinki<sup>10</sup>.

A self-applicable epidemiological questionnaire adapted from the Quebec Pain Disability Scale questionnaire was used to check the prevalence of LBP, giving emphasis to questions about LBP, age, frequency of physical activities, working hours and psychosocial factors. This tool has been applied to health area professionals and is aimed at getting some data to allow the development of a health education program<sup>11</sup>.

## Statistical analysis

Data were processed by the statistical program SPSS 20 for Windows and are presented descriptively with mean, standard deviation and frequency of questionnaire answers. Spearman correlation test was used to analyze possible associations between studied variables, considering significant  $p < 0.05$ .

This study is part of the low back pain and physical activity research line of the BIODESP research (Biodinâmica do Exercício, Saúde e Performance) submitted to the Research Ethics Committee, Universidade Federal do Estado do Rio de Janeiro, and approved by opinion 724.611.

## RESULTS

Professional activity characteristics of the sample are shown in table 1. Most sample worked more than 8h per day and acted on the profession for 4 to 7 years. Most professors have reported having pauses when they remain sitting during the day.

**Table 1.** Description of activity

Activities	n	%
For how long do you work as professor? (years)		
Less than 2	0	0
Between 2 and 4	18	36
Between 5 and 7	20	40
More than 7	12	24
How many hours do you work per day?		
>8	9	18
8 – 12	39	78
<12	2	4
Are there pauses in your work?		
Yes	48	96
No	2	4
How many?		
1	13	26
2	30	60
3	1	2
More than 3	4	8
In which position do you remain during these pauses?		
Sitting	43	86
Standing still	2	4
Walking	3	6

Table 2 shows sample psychosocial relationships. Most participants were happy with their work, have considered their mood as normal and have stated having a good relationship at work. Most part of respondents have also leisure activities, have many friends and have physical activities included in their routine. However, they feel physically and mentally tired at the end of the working day.

**Table 2.** Psychosocial questions

	n	%
Are you happy with your work?		
Yes	43	86
No	7	14
Do you have a good working environment relationship?		
Yes	49	98
No	1	2
Do you have many friends outside the working environment?		
None	0	0
Few	10	20
Enough	21	42
Many	19	38
How many times a week do you practice leisure activities?		
None	9	18
Once	9	18
Twice	20	40
3 times or more	12	24
Which of the options below better characterize your mood?		
Normal	40	80
Anxious	7	14
Frequent sadness	0	0
Easily irritated	3	6
Do you regularly practice physical activity?		
Yes	47	94
No	3	6
How many times a week?		
Once	3	6
Twice	18	36
3 times or more	26	52
Physically, how do you feel after work?		
Well	4	8
Tired	31	62
Somewhat tired	11	22
Very tired	4	8
Mentally, how do you feel after work?		
Well	8	16
Tired	27	54
Somewhat tired	10	20
Very tired	5	10

Table 3 shows LBP-related results. It was observed that less than half the sample has reported low back pain, and when present it was predominantly daily. Notwithstanding the low prevalence, pain was reported by part of the sample as being present in the last few days and was enough to move professors away from work.

**Table 3.** Low back pain analysis

	n	%
Lumbar region pain or discomfort		
Yes	19	38
No	31	62
Accident/disease involving lumbar region		
Yes	3	6
No	47	94
Low back pain frequency		
I have no pain	31	62
Daily	10	20
Weekly	3	6
Monthly	6	12
Pain intensity at its worst moment		
None	30	60
Mild	7	14
Moderate	10	20
Severe	3	6
Pain before working as professor		
Yes	4	8
No	46	92
Change of activity/function due to low back pain		
Yes	6	12
No	44	88
Decreased activities in the last 12 months		
Yes	12	24
No	38	76
Impediment of activities in the last 12 months (days)		
0	35	70
1 to 7	12	24
8 to 15	3	6
More than 15 days	0	0
Presence of low back pain in the last 7 days		
Yes	12	24
No	38	76
Any current treatment		
Yes	4	8
No	46	92
Which?		
Physiotherapy	2	50
Drug	0	0
Both	2	50

Table 4 shows the correlation between variables age, working time (WT), working hours (WH) and low back pain intensity (LBPI) in subjects with LBP. There has been positive and significant correlation ( $p < 0.05$ ) of WT with age and LBP. This shows that older individuals and working for a longer time are those with higher levels of LBP.

**Table 4.** Correlation between variables age, working time, working hours and low back pain intensity in subjects with low back pain

		Age	WT	WH
WT	r	0.877*		
	p value	0.000		
WH	r	0.198	0.205	
	p value	0.416	0.401	
LBPI	r	0.389	0.479*	0.385
	p value	0.100	0.038	0.104

\*  $p < 0.05$ .

WT = working time; WH = working hours; LBPI = low back pain intensity.

## DISCUSSION

Based on the questionnaire it was observed that the prevalence of low back pain among bodybuilding professors of our sample was low, considering that pain was perceived by 38% of individuals.

Almeida et al.<sup>1</sup> have investigated the association of different factors, such as gender, age and lifestyle with chronic LBP in 2297 people in Salvador, Bahia. Authors have observed that low back pain is correlated to age and working time. This confirms our study, which indicates that successive working journeys may negatively influence QL.

Pinto et al.<sup>12</sup> have observed LBP in 260 males with mean age of  $27.6 \pm 6.8$  years, who practiced bodybuilding in gyms of Meier, district of Rio de Janeiro. Authors have found prevalence of 47.3% ( $n=123$ ). These results are similar to our study, which has observed that 38% of respondents have reported some type of LBP. However, in spite of bodybuilding professors being used to this type of exercise to maintain fitness or as leisure, studies are not totally correlated because our study has observed prevalence just in professors, and leisure exercises may influence pain results. Another important data show that in both studies, part of the sample has not lost a single working day due to this pain.

A different study<sup>13</sup> with training against resistance practitioners has observed that 57.1% of sample have reported LBP. Such results are different from our study, which has observed prevalence of 38%. These results may be explained by the fact that our study has observed LBP in bodybuilding professors, in whom the knowledge of ergonomics and biomechanics may influence their posture during work, minimizing spinal overload and consequently pain.

Siqueira, Cahú and Vieira<sup>14</sup> have used a similar methodology to evaluate LBP in 56 physiotherapists, also health professionals, and have found that 78.58% of these profession-

als had low back pain. These results are different from our study which has observed a lower prevalence of this type of pain. This might be justified by different ways of acting between both professions, since physiotherapy has a characteristic of intense body segments manipulation, which seldom is the case in the routine of bodybuilding professors.

Notwithstanding the low prevalence of pain (38%) observed at questionnaire application moment, it is important to stress that inadequately treated mechanical-postural low back pain may trigger a cascade of events. So, even with spontaneous pain relief, recurrence indices are huge and there might be pain potentiation, the acute moment of which may become chronic.

Our study has not evaluated other pain sites such as cervical spine, shoulders and knees, which could be affecting participants due to posture and working standing. This might be considered a limitation of the study due to different practices developed in bodybuilding rooms.

## CONCLUSION

Our study has explored the prevalence of LBP in physical education professors working with bodybuilding. Our results have shown low prevalence of low back pain in the sample, notwithstanding the stress imposed by the job, high exercise loads and long working hours, where different daily movements bring different spinal overloads (compression, shearing and bending). Further studies are suggested with a larger number of physical education professionals of different age groups and working times.

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