

# Comprehensive Health Care Program for Performing Artists: account of the experience developed in an University service in Minas Gerais\*

## Programa de Atenção Integral à Saúde do Artista de Performance: relato da experiência desenvolvida em um serviço universitário em Minas Gerais

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**ABSTRACT:** This is an experience report whose aim was to present the Comprehensive Health Care Program for Performing Artists of the Specialized Service in Occupational Health at the Hospital das Clínicas of the Federal University of Minas Gerais and report the actions developed by the interdisciplinary team. Actions comprise occupational clinical evaluation, including analysis of the activity with musical instruments; technical visits to workplaces, individual assistance or group activities and, educational and preventive actions, such as the preparation of a leaflet and workshops about musician's health. From December 2009 to May 2015, 122 musicians were assisted, most of them instrumentalists, male, with a mean age of 32 years. Reevaluations and reports of workers assisted showed that program objectives have been met, especially regarding the self-management of coping strategies of illness risks at work. To give scientific support to the results, a protocol systematizing group activities, which is under evaluation, was prepared. It is hoped that the experience of the SEST regarding musician's health can assist other professionals and services to organize themselves to cope with this group's demands.

**KEYWORDS:** Occupational health; Music; Occupational health/control & prevention; Comprehensive health care; Occupational exposure/adverse effects; Occupational health services.

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**RESUMO:** Trata-se de um relato de experiência cujo objetivo foi apresentar o Programa de Atenção Integral à Saúde do Artista de Performance do Serviço Especializado em Saúde do Trabalhador do Hospital das Clínicas da Universidade Federal de Minas Gerais e relatar as ações desenvolvidas pela equipe interdisciplinar. As ações compreendem avaliação clínico-ocupacional, incluindo análise da atividade com o instrumento musical; visitas técnicas aos locais de trabalho, assistência individual ou atividades em grupo e, ações educativas e preventivas, como a elaboração de um folheto informativo e workshops sobre a saúde do músico. De dezembro de 2009 a maio de 2015 foram atendidos 122 músicos, sendo a maioria instrumentistas, do sexo masculino, com média de idade de 32 anos. As reavaliações e os relatos dos trabalhadores assistidos demonstraram que os objetivos do programa vêm sendo alcançados, principalmente no que diz respeito ao autogerenciamento das estratégias de enfrentamento dos riscos de adoecimento no trabalho. Para dar sustentação científica aos resultados, foi elaborado um protocolo sistematizando as atividades em grupo, que se encontra em fase de avaliação. Espera-se que a experiência do SEST com relação a saúde do músico possa auxiliar outros profissionais e serviços a se organizar frente as demandas deste coletivo.

**DESCRIPTORES:** Saúde do trabalhador; Música; Doenças ocupacionais/prevenção & controle; Assistência integral à saúde; Exposição ocupacional/efeitos adversos; Serviços de saúde do trabalhador.

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## INTRODUCTION

The musician's work in Brazil, despite the growth of this occupational group, has maintained characteristics that show instability and intermittence, proven by the reduced number of professionals with formal work contract and high number of freelancers. The public sector, more specifically the teaching in higher education and working in orchestras, has been the main alternative of formal work for music professionals. However, even in public institutions, it is common to hire these workers as temporary service providers, a situation that has occurred since 1990, as a result of the reorganization of orchestras for political, economic and artistic reasons<sup>1</sup>.

The vulnerability situation of music professionals is quite unique, considering that it is mostly highly qualified workers with precarious work contracts, which causes a serious loss of work-related rights intermediated by actions and policies of the State<sup>1</sup>.

In a social context in which the instrumental reason prevails, we observe the valorization of *homo economicus* leading to acceleration of the production process and, consequently, to worker distress<sup>2</sup>. Both aspects act as risk factors for the occurrence of musculoskeletal disorders, which, when related to labor activity, have the work and production organization, design of tools and equipment and the physical environment as potential determinants<sup>3</sup>.

In the specific case of musicians' health, the literature on this subject highlights the high prevalence of musculoskeletal disorders, since the 1980s, as well as changes in sleep and distress associated with situations of stress and anxiety<sup>4-8</sup>. Studies show that these disorders have reached, in this decade, about 59% of American instrumentalist musicians, in a sample consisting of 250 participants, among them teachers, students, professionals and amateur artists. In the study, the inadequacy of the furniture and lighting has been blamed for the increase in muscle tension and pain in neck and back<sup>4</sup>. The anxiety related to performance quality showed significant association with musculoskeletal complaints in this population<sup>9,10</sup>.

In addition to specific conditions of musical activity, the search for better financial remuneration takes the musician to have a higher workload and work in different environments, which increases and diversifies the risk exposure. Besides being scarce, preventive and health protection measures are only adopted, most often after illness. The development of strategies not

always appropriate to cope with risks contributes to the maintenance of the symptoms or appearance of other harms to health<sup>11</sup>.

From a review of studies published between 1980 and 1996, Zaza<sup>12</sup> found that the prevalence of musculoskeletal disorders related to musical practice ranged between 39% and 87% in adult musicians and 34% to 62% among secondary music students. Despite the variability, the significant prevalence found is worth highlighting.

A study conducted in Australia in 2012 pointed out that 84% of the musicians, in a sample with 377 participants, reported experiences of pain or injury that interfered in musical performance and in their participation in the orchestra, at some point of their career. Half of the participants reported pain symptoms pain or injury during the research and 39% associated their complaints to work. The overload of the practice and the high requirement of musical performance were related to the occurrence of injuries and pain by 75% of the musicians<sup>13</sup>.

Studies that assessed the frequency of illness among classical and popular musicians showed that both are affected by musculoskeletal disorders. Arnason et al.<sup>14</sup> found a higher prevalence among students of classical music when compared with students of popular music. The authors argued that this difference can be explained by the specific demands of the instruments and the posture adopted while playing.

When the comparison was between musicians of the same category (orchestra musicians), despite the higher prevalence among brass and string instrumentalists, the frequency of complaints/symptoms showed no significant difference between the families, namely, string, brass and woodwind instruments<sup>5</sup>.

A study conducted with 243 musicians of six British symphony orchestras identified that 86% of professionals had musculoskeletal pain, in the year previous to the study, and among these, 41% had disabling pain<sup>15</sup>.

In Brazil, studies with musicians also alerted to the illness of orchestra musicians in the country. The research developed by Andrade and Fonseca<sup>16</sup> involved 419 musicians from different states and found the occurrence of physical discomfort in 88% of the participants. The predominant symptoms were pain and fatigue, reported by 65% and 45% of musicians, respectively, followed by numbness and involuntary muscular contraction. The physical discomfort was related to musical practice for 67% of the participants, resulting in the disruption of the activity in 30% of cases<sup>16</sup>.

A study conducted with 241 musicians of six major symphony orchestras from the city of São Paulo pointed out that 63% of participants suffered from sleep disorders and 88% from psychological stress. The frequency of pain was high, affecting 65%, and half of them reported moderate or severe impact of pain on artistic performance. In addition, 55% reported pain in three or more parts of the body and about 73% symptomatology for more than one year<sup>17</sup>.

In this study, the factors cited as pain triggers were excessive workload (32%), poor posture (27%) and emotional stress (26%). For these musicians, the factors most associated with stress were the high demand of themselves (73%), fear of failure (50%), anxiety (50%), and stress (45%). All these factors showed significant correlation with the onset of pain in the analyzed sample. In addition, the musicians reported experiencing interpersonal difficulties and concerns about the work environment, as well as lack of motivation and autonomy to carry out tasks<sup>17</sup>.

More than half of the 33 violinists of the orchestras of Belo Horizonte (51%) reported having health problems (muscle fatigue, cramping or tingling being the main pain complaints). The most affected parts of the body were cervical and lumbar spine and upper limbs. Only 35% of violinists adopted preventive measures such as stretching<sup>18</sup>.

Oliveira and Vezzà<sup>6</sup> found complaints of musculoskeletal pain in 93% of the 69 musicians of an orchestra of São Paulo's ABCD region and 84% of the sample associated these complaints with the musical activity. The most affected regions were neck, wrist, hands, fingers and lumbar spine.

Despite the high prevalence of complaints and symptoms that suggest the illness of these professionals, Kaneko et al.<sup>17</sup> stressed that 73% of the musicians denied having health problems, demonstrating naturalization of pain. This fact makes it difficult to recognize the need and importance of adopting preventive measures and seeking treatment.

The studies cited showed high prevalence of musculoskeletal disorders and indicated possible correlations with aspects of work among professional musicians and students in different countries. Faced with this reality, we observe the importance of actions aiming at the diagnosis, treatment, health education and prevention of illness among these workers hoping to promote changes in the relationship between work and health in this field. In this perspective, this work consists of an experience account that aims to present the Comprehensive Health Care Program for Performing

Artists of the Specialized Service in Occupational Health at the Hospital das Clínicas of the Federal University of Minas Gerais (SEST/HC/UFGM) and the actions developed by the interdisciplinary team.

## **COMPREHENSIVE HEALTH CARE PROGRAM FOR PERFORMING ARTISTS**

Because of the high rate of illness among musicians shown by the literature and confirmed by the clinic, the SEST-HC/UFGM implemented the Comprehensive Health Care Program for Performing Artists, through the Brazilian Unified Health System (SUS), in 2009.

The program aims to develop health actions for artists workers, such as dancers, actors and musicians, including individual and collective welfare activities, disease prevention, health promotion and occupational health surveillance. So far, the actions and activities developed in the program were directed to music professionals' health. Such actions include assessments of the individual and the performance of the musical activity in the workplace. The viewpoint of the different professionals who make up the team, focused on individuals and their work, supports the decisions of what actions will be implemented in each case.

Since it is a pre-scheduled appointment to assist in the analysis of the activity and survey of possible associations between complaints and the way to play the instrument, the musician is requested, when possible, to bring his/her instrument on the assessment day.

The access to the program is by free demand and, in some cases, the musicians are forwarded by colleagues already assisted by the SEST, teachers, professionals working in a private specialized service in Musician's Health (Comprehensive Health Care Center for Musicians - ExerSer) and a brochure to publicize the activities offered is currently available.

### **How did the proposal of the Comprehensive Health Care Program for Performing Artists arise?**

In 1999, the ExerSer started its activities in the city of Belo Horizonte, Minas Gerais, Brazil, with a project in which the musician was assisted by an interdisciplinary team consisting of a doctor who is also a musician, a physical therapist and two occupational therapists.

The team performance at that time was focused on assistance, but professionals have always sought to understand the issues related to the musician's work. In this sense, between 2005 and 2007, a research aiming to

identify the orchestra musician's perception on the health-work-disease relationship was carried out<sup>19</sup>.

The data found in this study, as well as the information available in the world literature, pointed out to the need to create an integral care program to the health of these workers through SUS, and the place chosen was the SEST-HC/UFGM. This service was created in 1983 and since then develops actions aimed at the assistance, training of human resources and research, helping workers with work-related complaints. The expertise of the professionals, the structure and organization of the SEST favored the implementation of the musician's health care proposal.

### **How does the program work?**

As previously mentioned, all the musicians who access the program are evaluated judiciously by an interdisciplinary team. To identify complaints and occupational connection, an initial assessment is conducted with the participation of clinical, occupational and resident physicians, occupational therapists, occupational therapy interns, psychologists, speech therapist and musician. This assessment includes gathering information about the procedure and the factors related to the environment and organization of the musician's work. During practice with the instrument, the way of using the body (postural adjustments) and the presence or not of continuous muscle tension (isometric contraction/instrument support or excessive force to carry out tasks) are observed.

Although this assessment is still mainly focused on the worker and sometimes occurs in simulated activity, i.e., the musician takes his/her instrument to SEST, this procedure has produced relevant data, helping in the understanding of possible associations of the musical activity with the complaints made. However, whenever possible, the team conducts technical visits in different places of study or work of these professionals, such as orchestras and music schools.

Complementing the assessment with the musical instrument and the anamnesis, a physical examination consisting of standardized tests that include provocative tests for tendinitis, tenosynovitis and compressive syndromes<sup>3,20</sup>, susceptibility testing, muscle strength and joint range motion is conducted<sup>21,22</sup> and still, a questionnaire to assess pain intensity and its interference in the quality of life (Brief Pain Inventory) is applied<sup>23</sup>. In the anamnesis, using a script developed specifically for the program, information is collected to help establishing the

participants' clinical and occupational profile. During the assessments, by permission of the musician, there is the image registration (photo and shooting) for tracking cases and reassessments.

After the discussion of the results of the assessment, the team decides on the follow-up method of each musician, which includes group activities (health self-management group) and individual assistance when needed.

Individual assistance is indicated in cases in which the symptoms and complaints have already committed the labor activity and require specific interventions. According to demand, the treatment is in charge of the occupational therapist, psychologist, speech therapist or the worker is forwarded to another professional out of the team.

The group activities are carried out by the occupational therapy aiming to assist in the health self-management and its relationship with work, through the Musician's Health Self-Management Program. This program seeks to contribute to the development of the musician's perception of the risks of illness related to work and the development of coping strategies.

The proposal of the Musician's Health Self-Management Program includes symptomatic treatment, postural adjustment techniques when carrying out activities, readjustment of the performance technique and creation of environment that fosters the development of self-management strategies for tackling the risks of illness caused by work activity. For the technique readjustment, there is advice from professional musicians usually connected to music schools of the State University of Minas Gerais (UEMG) and UFGM.

The practice of group care was incorporated into the Program considering the demands brought by the musicians were similar. Over two years, the Self-Management Group has been enhanced with the participation of musicians and a structured roadmap with the themes and activities to be carried out at each meeting began to be used. A protocol systematizing evidence and group practices, which is under evaluation, was developed to give scientific support to the work results.

In this protocol, eight meetings having specific themes and occurring in the sequence are proposed: 1) Awareness of breathing pattern, progressive physiological and muscle relaxation; 2) Self-massaging and awareness of body tensions; 3) Gentle active exercises for warming up; 4) Stretching and awareness of body flexibility; 5 and 6) Postural awareness in activity and awareness of bodily tensions during the activity; 7) Performance anxiety and carrying out of sensory perception exercises, body

resource and Tapas Accupressure Technique (TAT); and 8) The process of collective work, social security issues and preparation of strategies for before and after the musical practice.

As the worker can realize the risks and know the coping strategies of these, it is possible that they will acquire greater control over the health-disease dichotomy and pass to have more subsidies to protect themselves from illness.

A strategy to motivate participants, increase adherence to practices learned and the continued use after discharge from the service, was the preparation of a self-massage, heating and stretching brochure.

It is important to note that, in this proposal, many workers have carried out the treatment and learned the self-management strategies without the need to move away from their work activities. Since most of the musicians helped also works as teachers, we have been able to spread among students the knowledge acquired during treatment and, in this way, the participants of the groups have acted as multipliers of the SEST's actions.

In addition to the individual assistance and group activities, collective actions are being carried out. These actions include workshops at musicians' study and work places and aim the awareness of the work and its relationship to health and illness.

In this regard, a workshop on Musician's Health in the Orchestra of the UFMG Music School, aiming at health education and prevention of illness related to musician's work, was carried out in 2015. This action occurred in five meetings and undergraduate music students and professional musicians were involved. In the same year, at the request of managers of the Minas Gerais Philharmonic Orchestra, a series of lectures was held in partnership with ExerSer.

### **How has the Program collaborated with teaching, research and extension?**

The Program has collaborated with the training of residents in Occupational Medicine and undergraduate students in Occupational Therapy enrolled in the subject "Clinic in Occupational Therapy in Adult and Elderly Health". This subject is characterized by the supervised teaching in services of the health and social protection fields, focusing the experience of students in real practice situations.

Researches are being developed from the experiences in the Program to assess the effectiveness of the group's protocol (UFMG Graduate Program in

Rehabilitation Sciences) and understand the relationships between musician's work and health (Master's Program in Psychology/Psychosocial Relations at the Catholic University, PUC-Minas).

Extension activities in the Program were initiated in 2015 through a partnership with the project Interdisciplinary Actions on Worker's Health of the UFMG Occupational Therapy Department. This partnership contributed to the preparation of a leaflet, as well as in the negotiation with the Orchestra of the Music School of the UFMG and in the carrying out of the above-mentioned workshop. These actions will be continued in 2016.

### **What are the results so far?**

In five years of operation, the Program has treated a total of 122 musicians (72% male and 28% female). The median age was 32 years. There is a great variability in the age of the participants, with a range of 62 years, minimum age 17 and maximum age 79 years. Among these, 25% are between 17 and 23 years old (Q1=23), 50% are up to 27 years old (Q2=27) and 25% are up to 42 years old (Q3=42), indicating that most musicians treated so far is of young workers.

Two of the musicians treated worked as conductors, 11 (9%) as singers and the others (89%) were instrumentalists, including those who played more than one musical instrument. The most common instruments were acoustic guitar (25), violin (11), percussion (10), double bass (9), piano (8), electric guitar (8) and cello (6).

The main symptoms presented by the musicians were spontaneous pain or activity (89%), fatigue, tiredness or feeling of heaviness (30%), involuntary movement (11%) and stiffness (7%), noting that most had more than one symptom. These data related to musicians treated in SEST coincide with the prevalence reported in the literature<sup>5,6,12,13,15,16</sup>.

During the analyzed period, we found that 75% of the musicians had some primary postural disorder and/or inadequacy in the instrumental performance technique, leading to symptoms such as pain, stiffness and muscle fatigue; 21% had a diagnosis of tendinitis or tenosynovitis or other diseases of the musculoskeletal system; 10% were diagnosed with focal dystonia and 2% fibromyalgia. The most common postural disorders were the anterior projection of the head, cervical muscle retraction, change in the degree of thoracic kyphosis and lumbar lordosis and unevenness (tilts) in the pelvic and shoulder girdles.

Forty-eight musicians participated in the workshop carried out with students and technicians of the UFMG

Music School Orchestra. Among these, 88% reported having felt any physical discomfort in the last 12 months prior to participation, especially, pain, muscle tension, fatigue, and involuntary muscular contraction, and 75% associated this discomfort to musical practice.

## CLOSING REMARKS AND FUTURE PERSPECTIVES

The risk factors for the appearance of musculoskeletal disorders have, as determining factors, the work and production organization, the design of tools and equipment, the physical environment, the inadequacy of the furniture, the excessive workload, the poor posture and emotional stress generated by the high demand of themselves, by the fear of failure and the interpersonal difficulties at work<sup>3,4,11,13,17</sup>. To reduce the risk factors more effectively would be necessary to act on all these determining factors in an integrated manner.

However, despite the understanding that the worker does not have full responsibility for their health condition at work, it is possible to help them in the awareness of the risk factors and in the development of strategies for the self-management of their health in relation to work, enabling the acquisition of skills in identifying what can be

changed and how to act on the impossibility of immediate change to minimize some of these determining factors.

However, despite the Musician's Health Self-Management Program has its activities directed to the individual worker, the Comprehensive Health Care Program for Performing Artists, of which they are part, has been consolidating partnership with coordinators of orchestras and conductors, teachers and music education institutions with the purpose of acting prevention, health promotion of these workers and in the understanding of work situations that favor the illness.

In addition to lectures and workshops held in Belo Horizonte and other cities, others showing the proposal of the Musician's Health Self-Management Program also were held at the invitation of some musician unions such as those of the States of Rio de Janeiro and Amazonas.

The reassessments and reports show that the proposal of the Comprehensive Health Care Program for Musicians has been achieved, especially regarding self-management of coping strategies of illness risks by work process.

It is expected that the ongoing researches may contribute to the evolution of the Program, encourage new studies, strengthen the actions implemented and, in addition to the collective actions started in 2015 and the partnerships that have been signed, build actions to understand and intervene in the work of musicians.

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## REFERENCES

1. Segnini L. O que permanece quando tudo muda? Precariedade e vulnerabilidade do trabalho na perspectiva sociológica. *Cad CRH*. 2011;24(1):71-88. Available from: <http://www.scielo.br/pdf/ccrh/v24nspe1/a06v24nspe1.pdf>.
2. Uchida S. Organização do trabalho: vivências de prazer e sofrimento. In: Mendes AM, LIMA SCC, Facas EP, organizadores. *Diálogos em psicodinâmica do trabalho*. Brasília: Paralelo 15; 2007. p.105-18.
3. Assunção AA, Vilela LVO. Lesões por esforços repetitivos: guia para profissionais de saúde. Piracicaba. São Paulo: Centro de Referência em Saúde do Trabalhador/CEREST; 2009. Available from: [http://bvsms.saude.gov.br/bvs/publicacoes/livro\\_ler\\_guiaprofissional\\_1.pdf](http://bvsms.saude.gov.br/bvs/publicacoes/livro_ler_guiaprofissional_1.pdf).
4. Caldron PH, Calabrese LH, Clough JD, Lederman RJ, Williams G, Leatherman J. A survey of musculoskeletal problems encountered in high-level musicians. *Med Probl Perform Art*. 1986;1(4):136-9. Available from: <https://www.sciandmed.com/mppa/journalviewer.aspx?issue=1150&article=1500&action=1>.
5. Trelha CS, Carvalho RP, Franco SS, Nakaosk Ti, BrozaTP, Fábio TL, Abelha TZ. *Arte e saúde: frequência de*

- sintomas musculoesqueléticos em músicos de orquestras sinfônicas da Universidade Estadual de Londrina. *Semina Ciên Biol Saúde (Londrina)*. 2004;25:65-72. DOI: <http://dx.doi.org/10.5433/1679-0367.2004v25n1p65>.
6. Oliveira CFC, Vezzà FMG. A saúde dos músicos: dor na prática profissional de músicos de orquestra no ABCD paulista. *Rev Bras Saúde Ocup*. 2010;35(121):33-40. DOI: <http://dx.doi.org/10.1590/S0303-76572010000100005>.
  7. Paarup HM, Baelum J, Holm JW, Mannich C, Wedderkopp N. Prevalence and consequences of musculoskeletal symptoms in symphony orchestra musicians vary by gender: a cross-sectional study. *BMC Musculoskeletal Disord*. 2011;12:223. DOI: 10.1186/1471-2474-12-223.
  8. Silva AG, Lã FM, Afreixo V. Pain prevalence in instrumental musicians: a systematic review. *Med Probl Perform Art*. 2015;30(1):8-19. Available from: [https://www.researchgate.net/publication/273147264\\_Pain\\_Prevalence\\_in\\_Instrumental\\_Musicians\\_A\\_Systematic\\_Review](https://www.researchgate.net/publication/273147264_Pain_Prevalence_in_Instrumental_Musicians_A_Systematic_Review).
  9. Scheneider E, Chesky K. Social support and performance anxiety of college music students. *Med Probl Perform Art*. 2011;26(3):157-63. Available from: [https://www.researchgate.net/publication/51706665\\_Social\\_Support\\_and\\_Performance\\_Anxiety\\_of\\_College\\_Music\\_Students](https://www.researchgate.net/publication/51706665_Social_Support_and_Performance_Anxiety_of_College_Music_Students).
  10. Van Fenema E, Julsing JE, Carlier IV, van Noorden MS, Giltay EJ, van Wee NJ, Zitman FG. Musicians seeking psychiatric help: a preliminary study of psychiatric characteristics. *Med Probl Perform Art*. 2013;28(1):9-18. Available from: [https://www.researchgate.net/publication/235796966\\_Musicians\\_seeking\\_psychiatric\\_help\\_A\\_preliminary\\_study\\_of\\_psychiatric\\_characteristics](https://www.researchgate.net/publication/235796966_Musicians_seeking_psychiatric_help_A_preliminary_study_of_psychiatric_characteristics).
  11. Lima RC, Pinheiro TM, Dias EC, de Andrade EQ. Development and prevention of work related disorders in a sample of Brazilian violinists. *Work*. 2015;51:273-80. DOI: 10.3233/WOR-141904.
  12. Zaza C. Playing-related musculoskeletal disorders in musicians: a systematic review of incidence and prevalence. *CMAJ*. 1998;158(8):1019-25. Available from: <http://www.cmaj.ca/content/158/8/1019.full.pdf>.
  13. Ackermann B, Driscoll T, Kenny DT. Musculoskeletal pain and injury in professional orchestral musicians in Australia. *Med Probl Perform Art*. 2012;27(4):181-7. Available from: [https://www.researchgate.net/publication/233941573\\_Musculoskeletal\\_Pain\\_and\\_Injury\\_in\\_Professional\\_Orchestral\\_Musicians\\_in\\_Australia](https://www.researchgate.net/publication/233941573_Musculoskeletal_Pain_and_Injury_in_Professional_Orchestral_Musicians_in_Australia).
  14. Arnason, K, Arnason, A, Briem, K. Playing-related musculoskeletal disorders among icelandic music students: differences between students playing classical vs rhythmic music. *Med Probl Perform Art*. 2014;29(2):74-9.
  15. Leaver R, Harris EC, Palmer KT. Musculoskeletal pain in elite professional musicians from British Symphony Orchestras. *Occup Med*. 2011;61:549-55. DOI: 10.1093/occmed/kqr129.
  16. Andrade EQ, Fonseca JGM. Artista-atleta: reflexões sobre a utilização do corpo na performance dos instrumentos de cordas. *Per Musi (BH)*. 2000;2:118-29. Available from: [http://www.musica.ufmg.br/permusi/port/numeros/02/num02\\_cap\\_07.pdf](http://www.musica.ufmg.br/permusi/port/numeros/02/num02_cap_07.pdf).
  17. Kaneko Y, Lianza S, Dawson WJ. Pain as an incapacitating factor in Symphony Orchestra Musicians in São Paulo, Brazil. *Med Probl Perform Art*. 2005;20(4):168-174. Available from: [https://www.researchgate.net/publication/285739318\\_Pain\\_as\\_an\\_incapacitating\\_factor\\_in\\_symphony\\_orchestra\\_musicians\\_in\\_Sao\\_Paulo\\_Brazil](https://www.researchgate.net/publication/285739318_Pain_as_an_incapacitating_factor_in_symphony_orchestra_musicians_in_Sao_Paulo_Brazil).
  18. Lima RC et al. Processo saúde-doença na avaliação da terapia ocupacional e dos saberes dos violinistas de orquestra de Belo Horizonte. *Rev Med Minas Gerais*. 2006;16(supl 2):118-22.
  19. Lima RC. Distúrbios funcionais neuromusculares relacionados ao trabalho: caracterização clínico-ocupacional e percepção de risco por violinistas de orquestra [Dissertação]. Belo Horizonte, MG: Programa de Pós-Graduação em Saúde Pública, Faculdade de Medicina, Universidade Federal de Minas Gerais; 2007. Available from: [http://www.bibliotecadigital.ufmg.br/dspace/bitstream/handle/1843/ECJS-7FVHBD/ronise\\_costa\\_lima.pdf?sequence=1](http://www.bibliotecadigital.ufmg.br/dspace/bitstream/handle/1843/ECJS-7FVHBD/ronise_costa_lima.pdf?sequence=1).
  20. Barros Filho TEP. Exame físico em ortopedia. 2a ed. São Paulo: Sarvier; 2005.
  21. Ferrigno ISV. Terapia da mão. São Paulo: Editora Santos; 2007.
  22. Sociedade Brasileira de Terapia da Mão e do Membro Superior. Recomendações para avaliação do membro superior. São Paulo; jun. 2003.
  23. Ferreira-Valente MA, Pais-Ribeiro JL, Jensen MP. Interferência da dor na vida diária: validação de uma versão Portuguesa da Escala de Interferência da dor do *Brief Pain Inventory*. In: V Congresso Internacional de Saúde, Cultura e Sociedade, Viseu, 10-11 jul. 2009. p.164-81.

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