

**04 - ERGONOMIC ANALYSIS IN SECTORS OF AN AEROBIC ACADEMY: INTERFERENCE AND LIMITATIONS**

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**1. INTRODUCTION**

Relations between the modernization of technology and practices that facilitate human welfare refer to the analysis of lack of initiatives linked to physical inactivity and lack of movement, resulting in physical activities and sports dynamics. Along with this, you can identify a high level of stress due to speed the flow of information present in the routine of the population.

The search for gyms and spaces of aerobic activity has increased significantly in recent years, taking into account the aesthetic aspects and the concern for the health and maintenance of an orderly routine (Tahara; SCHWARTZ; SILVA, 2003). The academic literature has discussed large-scale positive aspects of maintaining health through the use of gyms and aerobic classes inserted in these spaces, just as the need for adequate nutrition and supplementation for the welfare of the composition of its practitioners. However, it is noteworthy that the literature still find gaps with regard to the welfare and routine practices of professionals working in these areas for health and Quality of Life - QoL (ANDRADE, et al, 2013; BOTH; BIRTH; BORGATTO, 2008). It is therefore necessary to carry out analysis of ergonomic aspects that can influence the operation and maintenance of these sites, taking into account that, in the face of possible difficulties, end customers - practitioners or students - can feel disadvantaged in health aspects and quality services.

According to Abraham and Pinho (2002), the analysis of ergonomic aspects in the workplace provides a comprehensive insight into the processes that organizations are inserted, with the relationship cognitive, social, physical, as well as the needs found in processes that are not seen in the first instance by local workers, suggesting modifications.

It is possible to understand the need for analysis of ergonomic aspects in the gyms on biological factors such as stress, muscle fatigue, weekly intense pace (BENEDETTI; OURIQUES, 2007), as well as environmental aspects: constant ambient brightness, high level of noise and use of the vocal cords for the application of lessons (GRACIOLLI et al, 2002). You can still check static jobs, which, due to the repetition or stoppage positions, are likely to make a detrimental aspect to work.

This research aims to evaluate the ergonomic environment of employees that make up the framework of the Academy of aerobic located in Ponta Grossa (Parana / Brazil), proposing corrective measures that help in performing tasks and routines in accordance with regulatory standards relevant health and ergonomics. This assessment is justified by the absence of specific programs to regulate the activities that make up the staff of this type of establishment, keeping subjective analysis criteria and sometimes without a concrete or prudent denomination (ROBLE; RODRIGUES; LIMA, 2015).

**2. METHODOLOGY**

The gym has examined its activities in the fitness market for 18 years and focus on aerobic activity and calorie burn. The company has also worked with strength and fitness, allowing the use of anaerobic equipment, but in 2016, holds the space for aerobic activities. The academy has three teachers, responsible for providing aerobic classes, a secretary, represented by the owner of the establishment woman in the morning and evening period, and another desk just for the night shift. One of the teachers is the owner of the property since its foundation.

For the analysis of research ergonomic factors were checked two sectors - administrative and aerobic and physical condition - with a collaborator representing each sector, and can collect information on a semi-structured interview prior. Thus, the work is to analyze the differences of the establishment in order to suggest possible improvements and environmental adjustments to then set analysis on the use of tools in support of the ergonomic aspects such as Ergolândia 5.0 software - trial version - and observation on site during operating hours.

**3. RESULTS AND DISCUSSION**

The analysis of ergonomic factors harmful to employees before its start with previous interviews, made it possible to directly observe the environmental and postural aspects urgent to be improved, focusing on the primary needs of the employees of the sectors indicated:

- Administrative Sector, represented by the secretary and wife owner: responsible for selling packages, reception, treasury and financial organization. This contributor is 26 years old, works in function for more than two years, in business hours. In the interview, collaborative reported having type I diabetes, as well as discomfort and mild to moderate pain in the back, legs and neck.

- Aerobic and physical condition sector, represented by the owner and teacher with more classes and methods in the enterprise: responsible for implementing the modalities Jump Fit, Step, Pilates, Power Abdominal Fitness located, Functional Circuit and Spinning and aid reception, treasury and financial management of the establishment. The respondent is 44 years old and works in the function before you even open your own business. Reported yet have health problems, but is smoking for seven years and admits to irritation and insomnia in the past two years, due to personal and financial problems, back pain, legs, ankles and knees. It also claims to feel more discomfort and fatigue to apply the Jump Fit mode. The interviewee times are arranged according to weekly schedule (Figure 1). However, the developer also has extra time to the organization of space and financial transactions.

	SEGUNDA	TERÇA	QUARTA	QUINTA	SEXTA	
7:20	PILATES	ZUMBA	STEP		JUMP FIT	■ Professor 1 – Proprietário ■ Professor 2 ■ Professor 3
8:20	POWER ABDOMINAL	PILATES	JUMP FIT	PILATES	CIRCUITO FUNCIONAL	
15:00	POWER ABDOMINAL	JUMP FIT	CIRCUITO FUNCIONAL	JUMP FIT	STEP	
16:00		ZUMBA		PILATES		
18:30	GINÁSTICA LOCALIZADA	STEP	STEP	GINÁSTICA LOCALIZADA	JUMP FIT	
19:30	JUMP	RITMOS	SPINNING	ZUMBA	PILATES	
20:30	SPINNING	POWER ABDOMINAL	JUMP FIT	CIRCUITO FUNCIONAL		

Figure 1 - Weekly Schedule classes and identification of teachers

Source: Survey data (2016).

Given the characteristics of the respondents as well as the above elements according to each sector, it was possible to carry out analysis of the aspects of ergonomics and possible improvements of jobs.

3.1 Administrative Sector

It was found that back pain and legs were frequent, according to the testimony of the receptionist. This is evident on the provision in the counter and the reception seats are allocated. Figure 2 shows that provision, where, along with the use of specific software, it was possible to check for interferences in the welfare of this collaborator.



Figure 2 - Layout seat and bench for use at the desk next to OWAS analysis by Ergolândia software 5.0 trial version Source: Survey data (2016).

According to the application of OWAS method, corrections are needed in the near future, requiring interventions in the workplace. Moreover, because the collaborator have a type I diabetes frame, these actions should be made available as an urgent change because they represent greater risks to health, requiring increased vigilance and monitoring (MALTA et al, 2016).

Some possible interventions and suggestions: adjusting the counter layout so that the receptionist can better accommodate your legs and avoid twisting of the trunk and other movements that require rotation; the acquisition of an ergonomically favorable chair to reduce back pain.

It is apparent that the reduction in height and accommodation of the legs can bring better performance and use of space used, and to enable the service aspects related to chronic diseases found - type I diabetes, acting in a direct way in monitoring the welfare of the collaborator.

3.2 Aerobic and physical condition sector

After the questionnaire and identification of the weekly schedule (Figure 1), there was the need to identify the energy level - calorie burning - each mode, to then associate the caloric daily and weekly spending.

	SEGUNDA	TERÇA	QUARTA	QUINTA	SEXTA	TOTAL SEMANA
KCAL MEDIA	1.230	2.190	3.870	2.710	3.020	15.020

Figure 3 - Energy expenditure average daily and weekly by the respondent Source: Survey data (2016).

According to the interviews, excessive exercise and application of lessons during the week, added to personal problems, makes the interviewee feel pain, physical stress and mental problems constant. Moreover, with all classes shown in Figure 1, to be an interactive space where activities require higher performance and student motivation, sounds, music and noise during lessons can be harmful, given that are frequent during all day in the establishment.

They were also made suggestions to the sector in order to assist the process: reducing the workload, decreasing the number of classes and taking greater control of energy expenditure; hiring a new professional to share the workload of classes and therefore have more control of the available time for rest and other routine activities.

It was also proposed adjustments to the layout and arrangement of the physical space of the property, paying attention to the modification and expansion of sites. In this matter we looked to the accommodation of students and flow, given that the provision of equipment and materials for use is reduced - may cause accidents or hinder mobility. Another suggestion was to reduce the noise by practitioners of anaerobic modes, given that the high volumes interfere with the hearing of local practitioners, lack of insulation.

4. FINAL CONSIDERATIONS

By analyzing the factors that make up the QOL and well-being of gyms and aerobic spaces, it is possible to grasp the levels of satisfaction and body modification of the students and clients of the establishments. In this way, you end up forgetting the importance of the health of employees of these sites - whether teachers and / or employees who make up the management framework - checking that, often, are subject to ineffective or harmful ergonomics. These factors linked to the concepts brought by literature (BOTH; BIRTH; Borgatto, 2008), reflect dissatisfaction or depreciation of these professionals, the need for greater support and verification of real needs for the well-being and improvements in QoL at work and in scope social.

The research was intended to analyze the ergonomic aspects in two sectors of a fitness facility, checking the administrative sector and the cardiovascular sector. Both, as demonstrated by the research, need urgent modifications in order to improve the QOL of its employees.

For future researches, we suggest the in-depth analysis of this establishment, it is possible to identify new needs that can be found according to the modification or extension of the establishment. Along with this, also draw the attention of the points raised above, representing the fulfillment of ergonomic aspects satisfactory to its employees.

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## ERGONOMIC ANALYSIS IN SECTORS OF ANAEROBIC ACADEMY: INTERFERENCE AND LIMITATIONS

**Abstract:** In recent decades, the concern with the human body, linking the benefits of sports to human well-being has been growing worldwide. The gyms and physical condition has brought possible interventions to the pursuit of these aesthetic and salutary ideals. However, analysis of the life quality of teachers and components of these spaces has proven scarce in the literature, it is necessary to intervene with techniques and practices that benefit jobs, thinking on ergonomics and health of its employees. This research has as main purpose the ergonomic analysis and suggestion of possible interference in the two sectors processes of an aerobic gym, focusing on the aspects and ergonomic impacts of the studied stations. Given the above, it was possible to identify necessary changes and that can interfere with the performance of employees in the short and long term.

**Keywords:** Ergonomic Analysis, Quality of Life, Ergonomics in Aerobic Academies.

## ANALYSE ERGONOMIQUE DES SECTEURS DANS UN AÉROBIQUE GYMNASSE: INTERFERENCE ET LIMITATIONS

**Résumé:** Au cours des dernières décennies, la préoccupation avec le corps humain, reliant les bienfaits du sport pour le bien-être humain n'a cessé de croître dans le monde entier. Les gymnases et de remise en forme a apporté des interventions possibles pour la poursuite de ces idéaux esthétiques et salutaires. Cependant, l'analyse de la qualité des enseignants et des composantes de ces espaces la vie a prouvé rares dans la littérature, il est nécessaire d'intervenir avec des techniques et des pratiques qui profitent des emplois, la réflexion sur l'ergonomie et la santé de ses employés. Cette recherche a pour but principal l'analyse ergonomique et suggestion d'ingérence possible dans les deux secteurs les processus d'une salle de sport aérobie, en se concentrant sur les aspects et les impacts ergonomiques des stations étudiées. Compte tenu de ce qui précède, il a été possible d'identifier les changements nécessaires et qui peut interférer avec la performance des employés à court et à long terme.

**Mots-clés:** analyse ergonomique, la qualité de vie, l'ergonomie dans académies.

## ANÁLISIS ERGONÓMICA EN SECTORES DE UNA ACADEMIA AERÓBICA: INTERFERENCIAS Y LIMITACIONES

**Resumen:** En las últimas décadas, la preocupación por el cuerpo humano, la vinculación de los beneficios del deporte para el bienestar humano ha estado creciendo en todo el mundo. Los gimnasios de fitness y ha traído posibles intervenciones para la búsqueda de estos ideales estéticos y saludables. Sin embargo, el análisis de la calidad de vida de los maestros y los componentes de estos espacios ha demostrado ser escasos en la literatura, es necesario intervenir con técnicas y prácticas que benefician a puestos de trabajo, pensando en la ergonomía y la salud de sus empleados. Esta investigación tiene como finalidad principal el análisis ergonómico y la sugerencia de posibles interferencias en los dos procesos sectores de una gimnasia aeróbica, centrándose en los aspectos e impactos ergonómicos de las estaciones estudiadas. Teniendo en cuenta lo anterior, fue posible identificar los cambios necesarios y que puede interferir con el rendimiento de los empleados en el corto y largo plazo.

**Palabras clave:** Análisis Ergonómica, Calidad de Vida, La Ergonomía en Academias.

## ANÁLISE ERGONÓMICA EM SETORES DE ACADEMIA AERÓBICA: INTERFERÊNCIAS E LIMITAÇÕES

**Resumo:** Nas últimas décadas, a preocupação com o corpo humano, interligando os benefícios da prática esportiva ao bem-estar humano tem sido crescente em todo o mundo. As academias de ginástica e condicionamento físico vem trazendo possíveis intervenções para a busca desses ideais estéticos e salutares. Porém, a análise da Qualidade de Vida dos professores e componentes desses espaços tem se mostrado escasso pela literatura, sendo necessário intervir diante de técnicas e práticas que beneficiem os postos de trabalho, pensando na ergonomia e saúde de seus colaboradores. A presente pesquisa tem como intuito principal a análise ergonômica e sugestão de possíveis interferências nos processos de dois setores de uma academia aeróbica, tendo como foco os aspectos e impactos ergonômicos dos postos estudados. Diante do exposto, foi possível identificar mudanças necessárias e que podem interferir no desempenho dos colaboradores em curto e longo prazo.

**Palavras-chave:** Análise ergonômica, Qualidade de Vida, Ergonomia em Academias.