

Ergonomics in remote work*Ergonomía en el trabajo remoto**A ergonomia no trabalho remoto***Tricia Bogossian¹**

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Executive Editor: Kátia dos Santos Armada de Oliveira**Submission:** 05-28-2022**Approval:** 08-19-2022**Abstract**

The present study seeks to reflect on ergonomics with remote work, highlighting some of the main characteristics related to the use of ergonomics in work routines. Its general objective is to characterize and analyze the occupational activity from the worker's ergonomic point of view. The specific objectives are: to identify and describe the importance and procedures that must be adopted in ergonomics; analyze and identify adverse conditions and good practices at work from the perspective of health and safety at work and describe how ergonomics can be inserted in remote work. For greater stability of the contents presented, a reflection study was carried out from a literature review, based on works published over the last 20 years to consolidate how ergonomics can be something fundamental within the work environment.

Descriptors: Ergonomics; Work; Remote; Occupational Health; Collective Health.**Resumén**

El presente estudio busca reflexionar sobre la ergonomía con el trabajo a distancia, destacando algunas de las principales características relacionadas con el uso de la ergonomía en las rutinas de trabajo. Su objetivo general es caracterizar y analizar la actividad laboral desde el punto de vista ergonómico del trabajador. Los objetivos específicos son: identificar y describir la importancia y los procedimientos que se deben adoptar en ergonomía; analizar e identificar condiciones adversas y buenas prácticas en el trabajo desde la perspectiva de la seguridad y salud en el trabajo y describir cómo la ergonomía puede insertarse junto con el trabajo remoto. Para mayor estabilidad de los contenidos presentados, se realizó un estudio de reflexión a partir de una revisión bibliográfica, a partir de trabajos publicados durante los últimos 20 años, con el fin de consolidar cómo la ergonomía puede ser algo fundamental dentro del ambiente laboral.

Descriptoros: Ergonomía; Trabajo; Remoto; Salud del Trabajador; Salud Pública.**Resumo**

O estudo apresentado busca refletir sobre a ergonomia junto ao trabalho remoto, destacando algumas das principais características relacionadas à utilização da ergonomia junto às rotinas do trabalho. O mesmo tem por objetivo geral caracterizar e analisar a atividade ocupacional do ponto de vista ergonômico do trabalhador. Já os objetivos específicos são: identificar e descrever a importância e os procedimentos que devem ser adotados na ergonomia; analisar e identificar as condições adversas e as boas práticas no trabalho sob a ótica da saúde e segurança do trabalho e descrever como a ergonomia pode ser inserida junto ao trabalho remoto. Para uma maior estabilidade dos conteúdos apresentados, realizou-se um estudo de reflexão a partir de uma revisão de literatura, com base em obras publicadas ao longo dos últimos 20 anos, a fim de consolidar como a ergonomia pode ser algo fundamental dentro do ambiente de trabalho.

Descritores: Ergonomia; Trabalho; Remoto; Saúde do Trabalhador; Saúde Coletiva.

Introduction

Ergonomics is the science that studies the efficiency of people in their workplace, in addition to planning what could be done to make them more productive. In simple terms, an ergonomic study is conducted to determine if an employee is working at his full capacity under the working conditions offered to him. If the study concludes that productivity would increase and the employee would benefit from a change in supplies, such as a chair, table, mouse, monitor, gym, etc.; necessary changes must be carried out to ensure that the employee does not suffer any harm and is able to achieve maximum productivity¹.

The general objective of this work is to characterize and analyze the occupational activity from the worker's ergonomic point of view. The specific objectives are: to identify and describe the importance and procedures that must be adopted in ergonomics; analyze and identify adverse conditions and good practices at work from the perspective of health and safety at work and describe how ergonomics can be inserted in remote work.

The psychodynamics of work and ergonomics speak and defend complementary ideas, important for the study of the work context. Ergonomics contributes to the bias towards adapting work to man. In this way, it favors the transformation and recovery of workers' health. Psychodynamics, in turn, contributes through the study of mediation strategies for the re-signification of suffering at work^{1,2}.

Methodology

Para obter uma maior estabilidade quanto aos conteúdos apresentados, a reflexão foi realizada com base em uma revisão de literatura, destacando os principais conceitos e analisando os autores renomados na área de saúde ocupacional. Foi baseada em trabalhos publicados nos últimos 20 anos, compreendendo e medindo alguns dos aspectos mais relevantes da ergonomia.

O presente estudo foi realizado no período entre fevereiro e maio de 2022.

O estudo apresenta sua relevância a partir do momento em que a nova pandemia de coronavírus trouxe uma reinvenção geral de todas as formas de trabalhar, estudar, viver. Mesmo com a curva epidemiológica reduzida, ou seja, o fim do ápice das ondas, as mudanças nos processos de trabalho e educação permaneceram. Muito se falou sobre a saúde mental dos trabalhadores durante a pandemia, porém, a ergonomia é um dos aspectos a serem avaliados para garantir a segurança e a qualidade do trabalho, o estudo e a vida daqueles envolvidos³.

Results and Discussion

Worker's health in the face of the new coronavirus

O direito à saúde é um direito fundamental que visa garantir a vida. Este é um direito social, que corresponde às práticas provisionais obrigatórias sob a perspectiva do Estado, de cuidado e observância do cidadão^{4,5}.

No Brasil, o cuidado universal em saúde é provido pelo Sistema Único de Saúde (SUS), instituído pela Lei No.

8080/1990, para cumprir com as disposições do Art. 196 da Constituição Federal de 1988, que prevê que a saúde, além de ser um direito para todos, é também um dever do Estado^{6,7}.

Por expressamente fazer da saúde um direito social, a Constituição considerou esses direitos como "benefícios positivos fornecidos pelo Estado diretamente ou indiretamente, estabelecidos em normas constitucionais, que oferecem melhores condições de vida para os mais vulneráveis, tendendo a equalizar situações sociais"^{8:286-287}.

O CRFB/88 prevê que é dever do Estado garantir o direito à saúde por meio de políticas sociais e econômicas com o objetivo de reduzir o risco de doenças e outros danos. Por isso, o acesso universal aos serviços de saúde deve ser dado em uma base igualitária, colocando em prática as ações e fornecendo os serviços necessários para a proteção, promoção e recuperação da saúde do usuário⁷.

Após apresentar brevemente essas noções sobre o direito à saúde, a nova pandemia de coronavírus é contextualizada antes de avançar para a análise do aumento dos fatores de risco para a saúde dos trabalhadores.

Sabe-se que em 11 de março de 2020, quando a Organização Mundial da Saúde (OMS) anunciou a pandemia global causada pelo novo coronavírus (SARS-CoV-2), um período histórico sem precedentes foi vivenciado. A doença se espalhou rapidamente em todos os países, independentemente de seu poder econômico, causando caos na saúde pública e perda de vidas; desprotegendo os trabalhadores formais e jogando os informais em miséria.

Deve-se ressaltar que o surto do novo coronavírus, que começou na China em dezembro de 2019, chegou ao Brasil no início do ano e se tornou o primeiro caso em março, cuja infecção resultou de uma viagem ao exterior. No entanto, o segundo caso, um trabalhador doméstico, contraiu a doença durante o exercício de seu trabalho, o que implica que o ambiente e as condições de trabalho se tornaram o foco da disseminação da doença. Isso traz enormes desafios para segmentos de mercado que desenvolvem serviços essenciais e continuam a operar pessoalmente. Para serviços essenciais, de acordo com o Art. 3, § 1º do Decreto No. 10.282/20, significa "aqueles essenciais para atender às necessidades urgentes da comunidade, portanto, considerados aqueles que, se não atendidos, podem colocar em risco a sobrevivência, a saúde ou a segurança da população"⁹.

O maior desafio ao enfrentar a pandemia foi a manutenção das atividades essenciais e a proteção da saúde do trabalhador, exigindo esforços concentrados do empregador e do empregado, assim como do Estado, com o objetivo de definir, implementar e supervisionar medidas de segurança. Certamente, a sociedade ou a indústria não estavam preparadas para o colapso econômico e social resultante da pandemia. Nem mesmo a legislação trabalhista estava preparada para lidar com esta nova realidade socioeconômica.

Neste contexto, a Organização Internacional do Trabalho (OIT) recomendou o diálogo social entre governos, empregadores e trabalhadores, com o objetivo de revisar seus acordos e alcançar um nível aceitável de solução para a pandemia, com a preservação do maior patrimônio que é a vida humana. Por sua vez, o Sindicato regulamentou o trabalho formal



relations through Provisional Measures; while entities and institutions have dictated protocols and recommendations to professionals, aimed at adopting preventive measures.

On the other hand, precarious work situations are reported every day, especially in the health area, in which professionals have direct contact and perform very high-risk procedures on patients. In this sense, trade unions and the Public Prosecutor's Office have received complaints for non-compliance with protective measures, neglected by employers. And in the Brazilian scenario, green and yellow have turned brown, and the biggest pandemic seems to be the political crisis, given the neglect of authorities and the head of the Executive Branch, to the thousands of deaths of victims of COVID-19. The actions taken by government officials, not infrequently, the result of political divergences, added to attempts to manipulate COVID-19 numbers (infected and deaths), reports of overbilling and misappropriation of public funds, demonstrate this neglect; while the population pays with its own life for the lack of ethical commitment of those who have the duty to guarantee their rights^{3,10}.

Meanwhile, several branches of activity that include the so-called essential services, including the retail sector, have managed to adopt measures to maintain the distance between the worker and the public they serve, minimizing the risks of contamination. In contrast, the health segment whose professionals are more vulnerable due to the high risk of infection, protective measures tend to compose a list of recommendations that are not always met. Among the factors pointed out by the Federal Council of Nursing (COFEN), which contribute to the infection of thousands of professionals, are the lack of PPE, the failure to immediately leave those professionals belonging to the risk group and the lack of adequate training. This shows the degree of professional appreciation, as well as the disrespect for the right to life, safety and health of those who fight to save the lives of thousands of Brazilians¹¹.

But the problems do not stop there. It's not just health professionals who suffer the catastrophic effects of the pandemic. A large number of workers have been injured. Thus, from January to May 2020, according to data from the Superior Labor Court (TST), the Labor Court – including all Brazilian labor courts and courts – received almost 8 million lawsuits. In addition, due to social isolation, many companies closed their doors and fired employees. For this reason, 22.9% of the total number of lawsuits in the Labor Court are to collect severance payments owed by employers¹².

Not even the USA, the greatest economic power in the world, was immune to the effects of COVID-19. According to the Department of Labor of this country, from 24 to 30.05.2020, 1.9 million people filed for unemployment insurance. Since the end of March, more than 42 million Americans have lost their jobs¹³.

The picture, in general, is not encouraging and the impacts of the crisis on the labor market are historical. But, if nothing really will be like before, at least two points need to be urgently placed as priorities: the reevaluation of employment protection policies and the improvement of social protection systems.

Increased risk factors for workers' health

Of all activities considered essential, those related to health expose workers to greater risks than the rest of the population. In normal work situations, in addition to physical, chemical and biological risks, they are more exposed to psychosocial risks, understood as those resulting from “deficiencies in the conception, organization and management of work, as well as the social context of problematic work [...]”^{14:70}.

Thus, most of these risks are related to interactions between work content and precarious working conditions, poor management and communication practices, lack of support for carrying out tasks, making rational decisions with scarce resources, aggression from patients' relatives, among many others.

In this context, risks of accidents with biological fluids, high levels of stress and anxiety can lead to temporary or permanent physical or mental disabilities. A study carried out before the pandemic “shows that mental and behavioral disorders appear as the fifth most common occurrence in nursing workers”^{15:680}. With the pandemic crisis, the tendency is to increase the number of occurrences.

A recent survey carried out by the Associação Paulista de Medicina (APM) in May of this year, shows that “86.6% of the physicians interviewed have the perception that their colleagues are apprehensive, depressed, dissatisfied and angry”¹⁶.

Undoubtedly, in the pandemic period, especially health professionals who are on the front lines of the fight against COVID-19, have increased risk factors given the conditions and labor relations, most of the time precarious. In addition to the risks of contracting the disease, there are factors resulting from the pandemic that have an impact on workers' health, such as long and exhausting working hours, fatigue and high levels of stress; lack of rest, inadequate sleep and use of psychoactive drugs; lack of PPE and failure to use standard measures; risk denial, as a way of dealing with fear and anxiety in direct contact with patients on a large scale; discrimination and psychological violence^{17,18}.

In this sense, the preservation of workers' physical and mental health depends on factors beyond their control, which tend to increase stress and worsen clinical conditions, causing illness and absence from work^{17,18}.

Protective measures and their effectiveness

As scientific data and concrete cases show, the new coronavirus proliferates very quickly, causing a high number of deaths and leading the health systems of several countries, such as Brazil, to collapse. Aware of this global scenario and concerned about the health and safety of workers, international organizations have been taking a stand to issue measures and recommendations aimed at reducing the risks of contamination and protecting workers.

In this wake, Occupational Safety and Health (OSHA) made a great contribution by classifying risks according to the occupation of workers into four categories, namely: a) very high exposure risk group, in which professionals work with a high contact potential in confirmed or suspected cases of coronavirus, collecting specimens, performing



medical procedures, laboratory tests or autopsy; b) high risk of exposure, referring to support professionals who work in contact with confirmed or suspected COVID-19 patients, transporting patients, preparing bodies for cremation or burial; c) medium exposure risk group in which the work requires close contact (less than two meters) with people who may be infected, such as those who work in retail trade, cleaning staff; and low risk group that includes employees who do not require contact with suspected cases¹⁹.

In general, this classification has been based on recommendations to companies and unions, in a succinct way, but which are decisive for controlling the proliferation of the new coronavirus. Joint Technical Note 02, of March 13, 2020 – PGT/CODEMAT/CONAP of the Public Ministry of Labor -, brought recommendations for security measures to be adopted by companies from different sectors, among which stand out:

“PROVIDE washbasins with water and soap and sanitizers (70% alcohol or others suitable for the activity); ADOPT measures that imply changes in the work routine, for example, a flexible working hours policy [...] ESTABLISH a flexible working hours policy for workers to care for sick family members or those in a situation of vulnerability to infection by the coronavirus and for them to comply quarantine and other guidelines from health services [...] FOLLOW the contingency plans recommended by local authorities in cases of epidemics, such as: allowing absence from work, organizing the work process to increase the distance between people and reduce the required workforce, allow remote work; ADOPT other measures recommended by local authorities, in order to protect vulnerable groups and mitigate community transmission; WARN the managers of service provision contracts, when outsourced services are provided, regarding the responsibility of the contracted company to adopt all the necessary means to raise awareness and prevent its workers about the risks of contagion of the new coronavirus (SARS-COV-2) and the obligation to notify the contracting company when a worker is diagnosed with the disease (COVID-19)”²⁰.

It can therefore be said that the MPT has adopted an active role in disclosing guidelines to the company and workers and in overseeing the implementation of measures, in order to obtain greater effectiveness in the control of preventive actions. In addition to propositional measures, the MPT has dealt with complaints from workers against companies that fail to comply with decrees by municipal and state authorities aimed at containing the spread of the pandemic²⁰.

The National Association of Occupational Medicine (ANAMT) released on March 16, 2020, the ANAMT Recommendation No. 1/2020 containing guidelines for occupational physicians, in order to strictly follow safety measures and prepare guidelines accordingly with sanitary norms that must be adopted by the companies. Among the recommendations, the following stand out:

“[...] the clinical screening service for workers who, during the service, have flu-like symptoms; providing the necessary assistance at the primary care level, so as not to overload the health system; establish, together with managers, guidelines for cases with flu symptoms; remove the worker who has symptoms of COVID-19; to suspend its activities in the event that there are no adequate safety conditions for the care of workers with flu-like symptoms; stay up to date on the recommendations of health

In turn, the National Health Council, through Technical Opinion No. 128/2020, which provides for the physical and psychological protection of health professionals in the face of the new coronavirus pandemic, brought several protective measures to combat the coronavirus, of which it is worth highlighting: adequate training in the management and treatment of infected people; effective practices to combat the spread of the virus; use PPE suitable for the risks to which workers are exposed; measures for identifying and managing risks in employee exposure; guarantee of diagnostic and therapeutic support services, among others²².

With regard to mental health care, in addition to access to specialized services, the report provides for work management actions aimed at the overload produced by the pandemic:

“a) in terms of workload; b) in terms of the stigma and segregation that the disease produces in sick people and in those who provide care; c) in relation to the imaginaries that are mobilized by news about the progress of the pandemic and by false news disseminated by different sources; d) in relation to the interference that the pandemic produces in the family and social life of workers; e) in relation to the consequences of social distancing and isolation of workers, as well as the losses of close people and family members that will also happen to health workers; f) in relation to the uncertainties that the current moment produces in those who deal with clinical decisions mediated by knowledge that changes very quickly and by fake news that spread rumors and generate insecurity and interpersonal violence; among other aspects”²².

As for the organization of work, the Technical Opinion advises that mental health should be a constant, urgent and essential concern, following the WHO guidelines aimed at the health of workers, and the promotion of a healthy work environment. In this context, it is extremely important to monitor overload and work-related stress; adopt procedures for self-assessment of health and isolation when the employee is sick; and raise the level of trust among the team. The greater the confidence in the information conveyed and in individual and collective protection, the greater the safety climate for the development of work and the lesser the impact on physical and mental health^{17,18,22}.

Finally, it is worth highlighting Joint Ordinance No. 20, of the Ministry of Economy/Special Secretariat for Social Security and Labor, of June 18, 2020, which establishes a list of preventive measures, for controlling and reducing the risks of transmitting the new coronavirus. Among the measures are: prevention and early identification guidelines, as well as removals of workers with signs and symptoms of COVID-19; promotion of vaccination and laboratory testing; hand hygiene and respiratory etiquette; hygiene, ventilation and disinfection of environments; risk group workers; Personal protective equipment; cafeterias, locker rooms, transportation provided by the company and measures to resume activities²³.

There is an extensive list of recommendations and norms in force in the pandemic scenario, seeking to mitigate



the risks of contamination and safeguard the health of the employee. However, its effectiveness has to be questioned. In practice, there is a large gap between such recommendations and the factual reality of many work environments. Thus, it can be said that the effectiveness of the recommendations and protection measures are intrinsically related to the ethical issues that place the dignity of the human person at the center of the pandemic.

Telecommuting in the pandemic

Teleworking was endorsed by Law n.º 13.467/17, Art.75-B, recently partially modified by the already revoked Provisional Measure n.º 927/2020, proposed and published by the current President of the Republic, Mr. Jair Messias Bolsonaro, with the aim of making this form of work adjustment unilateral, previously only allowed through a bilateral agreement of will, either through a main employment contract or through a contractual amendment. However, this MP expired on July 19, 2020 because it was not voted in time by the Federal Senate²⁴.

Based on this, it can be said that teleworking was of enormous importance for the development, advancement and impulse of forms of work in Brazil, starting to provide greater legal certainty to guarantee the minimum fundamental rights within society, especially within of the labor sector, being predominantly used during the pandemic period due to COVID-19, increasing the occurrence of moral harassment, especially due to the violation of the right to disconnect.

This concern with the right to rest continued to expand with the new coronavirus pandemic, in which a significant number of people began to carry out their activities at home. Also, authors²⁵ point out that the right to disconnect is intrinsically related to the fundamental rights related to health, hygiene and safety at work, in addition to the right to have a limited working day, the right to rest, vacations, protection against diseases and accidents at work and the right to privacy and privacy.

The worker who fulfills exhausting working hours is more susceptible to being victimized by accidents at work. This is due to fatigue and occupational stress that arise as a result of excessive work. There is even talk of burnout syndrome, an illness arising from the absence of obstacles to the connection established between employees and the company, a hypothesis in which they are completely exhausted, without energy to carry out any activities properly^{11,18,26}.

The right to adequate rest, therefore, directly affects the health of the worker and the safety of the work environment, reducing the risks inherent to this and safeguarding an environment conducive to regulating the development of activities, without compromising the psychophysical health of the worker²⁷.

That said, the right to disconnect is also based on the right to mitigate work-related risks, through the adoption of health, hygiene and safety standards, since only with disconnection can workers recover from fatigue caused by work activities. Thus, both your health and your safety will be protected by reducing the chances of accidents at work.

From the foregoing, it is observed that companies must implement preventive measures against moral harassment aimed not only at workers who carry out their work in person, but also those who perform telework and, in this context, it is recommended that ergonomics be applied.

Ergonomics and remote work

Unfortunately, in many workplaces, ergonomic analyzes are neglected, resulting in employees who develop long-term back pain, carpal tunnel syndrome, neck pain, vision problems, among other comorbidities, which lead to absence from work and early retirement. There are many benefits of working in an ergonomic environment, the main ones being: reducing costs, increasing productivity, increasing employee satisfaction and improving the quality of life at work¹.

The more ergonomic the work environment, the lower the absenteeism and number of claims a company faces. Providing employees with a comfortable workspace reduces the risk of occupational illnesses while still making the employee feel valued by the company.

The acceptable rate of absenteeism would be approximately 1.0%, however some work activities, such as the civil construction sector, absenteeism rates reach very high levels, around 3 to 4%. In companies whose employee absenteeism rate exceeds 5%, it is important to recognize that something is misaligned, with repercussions on costs due to the need to hire more labor, the costs of stopped machinery, orders placed on hold and dissatisfied customers²⁸.

The aim is, through research, to encourage reflection and the possible transformation of a work context that possibly makes you sick, considering that ergonomics is essential to minimize problems arising from professional activity due to ergonomic issues.

According to data released by Social Security, in the 1st quarter of 2016 approximately 24,000 leaves were recorded, which on average makes 269 workers on leave every day (one leave per minute) due to back problems²⁹.

The concept of ergonomics was introduced in 1948 due to the American space capsule project, when man tried to adapt any type of machine or environment to human characteristics..

"As a result of the discomfort experienced by the astronauts in the first prototype of the space capsule, there was a need to re-plan the time and means for the trip to space. Consequently, the anthropometric assessment began, based on the idea that the fundamental thing is not to adapt man to work, but on the contrary, to seek to adapt working conditions to the human being"^{30,30}.

The Associação Brasileira de Ergonomia (ABERGO) delimits ergonomics as the study of the relationship between people and technology, organizations and the environment to implement interventions and projects that aim to improve, in an integrated and not dissociated way, safety, comfort, the well-being and effectiveness of human activities².



According to a researcher¹, the term Ergonomics originates from the Greek words ergon (work) and nomos (rules, norms).

"This term was adopted in the main European countries, where the International Ergonomics Association (IEA) was founded, which currently represents associations from 40 countries, with a total of 19,000 members."^{31:1}.

By another researcher, ergonomics can be defined:

"[...] as an anthropocentric scientific approach that is based on interdisciplinary knowledge of the human sciences to, on the one hand, make products and technologies compatible with the characteristics of users and, on the other hand, humanize the sociotechnical context of work, adapting it to both the objectives of the subject and/or group, as well as the demands of the tasks"^{2:21}.

It is a scientific branch that studies the relationship between workers and the Context of Production of Goods and Services (CPBS). It aims at action and transformation, in addition to the point of view that work should be adapted to man and not man to work. It is seen, therefore, as a device for transforming the situation and restoring workers' health. And this happens through the analysis of concrete work situations, the visible, manifest, observable, and the search for individual and collective operative mediation strategies².

Ergonomics studies several aspects: body posture and movement (sitting, standing, pushing, pulling and lifting

weights), environmental factors (noise, vibration, light, climate, chemical agents), information (by the following staff. The information captured (visual, auditory and other senses), controls, relationships between dials and controls, as well as roles and tasks (appropriate tasks, interesting roles). The right combination of these factors allows us to design safe, healthy, comfortable and efficient environments at work and in daily life²⁸.

Conclusion

Work safety procedures and systems have become an essential component of the activities promoted in the business market, since they grant workers greater security within the business environment and make the activities promoted by them safer over time. Something that can still motivate workers to carry out their activities.

Through safety programs and equipment, companies seek to promote employee safety and prevent them from taking unnecessary risks, always checking which equipment can provide greater assistance to employees in terms of safety and efficiency of their activity..

Some scholars and researchers consider that legislation, programs and safety procedures are a response of the legislative power to the needs presented by workers, as well as a way to minimize the large numbers of accidents at work caused by the lack of safety instruments within productive or business routines.

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