The Labor Judicial Expert from Sergipe State, Brazil and Propositions of Use of Tools Ergonomic in the Sustenance of Causal Connections in Disturbances Bone-Muscle

Marcos André Santos Guedes[1(✉)], Maria Goretti Fernandes[2], and Marcelo Marcio Soares[3]

[1] Federal University of Sergipe, Av. Augusto Franco, Nº 3500 Cond. Morada das Mangueiras, Casa 94, bairro Ponto Novo, Aracaju, SE 49047-670, Brazil
marcosguedes@hotmail.com

[2] Dept. de Fisioterapia, Federal University of Sergipe, Cidade Univ. Prof. José Aloísio de Campos Av. Marechal Rondon, s/n, Jd. Rosa Elze São Cristóvão/SE, Aracaju, SE 49100-000, Brazil
fisiol00@yahoo.com.br

[3] Centro de Artes e Comunicação–Dept. de Design, Federal University of Pernambuco, Av. Prof. Moraes Rego, 1235-Cidade Universitária, Recife, PE 50670-901, Brazil
soaresmm@gmail.com

Abstract. The judgment in many of the labor lawsuits involving litigations provoked by musculoskeletal disorders is made through the production of expert evidence produced by judicial experts. Such evidence must naturally be clothed with the most compelling scientific methodologies. In this context, the objective of this study was to discuss the profile of the judicial expert in proceedings carried out in one of the sticks of work in Sergipe (Brazil) combined with the hypothesis of using ergonomic tools to enable the technical arguments of these expert professionals to be demonstrated, in order to demonstrate. That it is possible the use of ergonomic methodologies as a reinforcer of the conclusions of nexo-causal in lides caused by musculoskeletal constraints. In view of the analysis made in this study, it was concluded that it is entirely feasible to include in the labor judicial processes a multidisciplinary methodology of investigation of osteomuscular causal neurosis, shared with investigative tools of an ergonomic nature, and which predominates experts with training in the health area when in Specific processes of dealing with the causal nexus in musculoskeletal constraints.

Keywords: Labor judicial expert · Ergonomic tools · Nexo-causal osteomuscular

A. Marcus and W. Wang (Eds.): DUXU 2017, Part III, LNCS 10290, pp. 713–723, 2017.
DOI: 10.1007/978-3-319-58640-3_51

1 Introduction

Resolving judicial labor litigation supported by expert judicial evidence has been an increasingly common practice in Brazilian labor court courts. In fact, the technical-scientific knowledge that supports an expert methodology adds strength in the expert conclusions reached making them often so solid and forceful that there is no glimpses of the succumbing party and thus facilitating the conclusions expressed by the learned judge in the process.

At this juncture, the professional training of the expert body, when faced with labor disputes involving musculoskeletal diseases, requires a degree of specialization of permanent mastery of the use of tools and methods of ergonomic investigation, as well as reinforce the effects of the conclusions evidenced in the expert reports. The labor conflicts with disruption in occupational diseases of the musculoskeletal segment contribute to the Brazilian justice system the hope in the recognition of a causal nexus favorable to the worker. In fact, it has been observed that in such disorders legal behavior has been used more and more of the production of expert evidence from expert experts in the subject and in this the technical-scientific knowledge has contributed a guiding medium in judicial judicial decisions. Therefore, the professional training of the expert body in specialized areas such as Human Engineering assumes real contribution value in the support of the nexus-causal or nexus-concausal of expert evidence produced.

The Brazilian legal system, through Article 145 of the Code of Civil Procedure (CPC), evidences the need for expert evidence in the face of the complexity of the case and when the proof of the fact depends on technical-scientific knowledge. The selection of experts is linked to the discretion of the judge by professionals of university level, duly registered in the competent class body that must prove their specialty in the matter on which they should comment. Nascimento (2010) demonstrated how relevant it is to meet all the requirements in the legislation especially regarding the quality of the expert, in the areas of engineering, medicine, among others, to perform a certain skill. The Brazilian judicial expert must possess sufficient technical and scientific knowledge to the point of being able to clarify the causal link in expertise involving diseases and work activity. In this sense, it is urgent to signal the difference that technical-scientific knowledge can provide in solving problems through the study of human movement (kinesiological) and physical interventions in the combined movement (Biomechanics), in addition to environmental ergonomic science.

The word expertise is deposited in the morphological study of the Portuguese language as belonging to the class of feminine words being attributed five specific meanings: (1) Quality of the expert, (2) skill, dexterity, (3) inspection or technical and specialized examination, (4) Set of experts (or one) who does this survey, (5) knowledge, science (Aurélio, 2013).

The judicial expert should therefore have technical and scientific knowledge capable of clarifying the causal link in skills involving work activity. Causal nexus is defined as the referential element between conduct and outcome (Cavaliere Filho 2012). It is through him that we can conclude who caused the damage. For this, it is

necessary to study the human movement (kinesiological) and the physical interventions of the combined movement (biomechanics), besides the environmental ergonomics.

It has been demonstrated a great challenge, in countries with strong processes of industrialization, to identify the causal nexus of work-related pathologies (Carrara and Abreu 2012). It is also stated that these diseases have great legal implications in the life of patients, and their recognition is governed by norms and laws that must guarantee the health of the worker.

The identification of the pathological causal nexus presents enormous challenges, especially when dealing with musculoskeletal diseases, a multi-causal disease that requires a deep and extensive investigation of the worker and personal habits of the worker-claimant (Menegon et al. 2002).

The carrying out of judicial investigations to prove nexo-causal of musculoskeletal diseases assumes ample complexity, not for the difficulty of the matter by itself, but for the lack of specialized technical body to use of the investigative tools of the Human Engineering as another resource in support of the nexus -Bausal (Bernardes et al. 2010).

According to the Statistical Yearbook of Social Security - AEPS (2013), the year 2013 represented a new record among the largest participations in the concession of benefits already granted involving pathologies of the LER/DORT group: with 21.91% due to shoulder injuries (CID M75), dorsalgia (CID M54) with 6.36%, and 13.56% of the total involving pathologies such as synovitis and tenosynovitis (CID M65). This scenario induces the constant need for reflections either by the expressive number of cases in the granting of social security benefits or simply if the data could not be much greater if there were conjectures by ergonomic routes that could support the recognition of these diseases linked to work kinesiology.

According to de Azevedo (1999), when choosing an area as an auxiliary resource in causal nexus research, it is imperative to gather scientific and social relevance within a methodological framework defined by the researcher.

The Brazilian Law no. 11,430/06, regulated by Decree no. 6.042/07, imposes on companies the need to prove that an accident or sickness of their employee is not related to the nature of their function. The proposal to reverse the burden of proof almost always rests on the need to use scientific knowledge that can irrefutably remove or approximate liability through a causal link, especially with regard to the pathologies inherent to the LER/DORT group. It is therefore of practical importance in the application, development and improvement of current ergonomic methods so that they can issue expert reports of the best category and scientific basis, either at the request of the justice or the public authorities.

Judicial decisions take into account other factors of analysis and resolution of proceedings when faced with expert witness reports, that is, reports produced initially that lose their importance in clarifying the magistrate's doubts in such a way that the confirmation of the existence of a causal link must be Treated by multidisciplinary means of investigation (Guimarâes, 2012).

For Martins J.R. et al. (2011) it is necessary to change the methods of analysis in the case of judicial expertise for a new look of the ergonomic sciences based on the analysis of the activity developed. Stella (2010) stated that although activities with risks

raise in recognition of causal nexus with occupational diseases, yet judgments based on different criteria are not guarantees of success.

Tailoring competencies between judicial branches does not seem to be new. According to Marins (2004) the judiciary, since its inception, has relentlessly sought the evolution and adequacy of its services to the human needs of each era.

According to Yee (2009), it is considered as adaptive and/ or modern competence jurisdictions of justice advents such as the Brazilian Constitutional Amendment No. 45, dated 12/30/2004, where it was defined that the jurisdiction to prosecute and adjudicate actions of indemnity By accident of work would be transferred from the Common Justice to the Specialized Justice, that is to say, the Labor Justice. In this context specialized judgments require specialized fundamentals within the scenario investigated in a special way with the use of expert resources.

According to Vidal (1997), the applications that ergonomics can bring to society are innumerable in several planes, and for the organizational plan of the companies, a new area of action is created through the creation of an expert act involving the worker in his/ her working environment.

For Bernardes and Júnior (2011), the demand for professionals specialized in specialized areas of RSI/DORT cases is necessary. This behavior can be observed punctually through Technical Standard of the Unified Ministry of Labor and Social Security when the framework for assessing the disability of citizens and their consequent grant of financial benefit.

The judicial expert must possess technical and scientific knowledge capable of clarifying the causal link in expertise involving diseases and work activity. Identifying the causal nexus in different musculoskeletal conditions does not consist of a simple work, but represents a great challenge in the face of surreal importance for the maintenance of balances in a trial counter.

The investigative scope of this study sought to know the dominant professional profile of the Sergipe judicial experts working in one of the working branches of the Sergipe capital (Brazil), and whether this would be directly related to the hypothesis of absences in the use of elucidative ergonomic tools in nexus skills Causal osteomuscular.

2 Methodology

The research was classified as qualitative/ quantitative applied to the solution of the hypothesis of ergonomic tool use in ergonomic constraints attested by Judicial Skills. The research approach involved a survey in the electronic database of the 2nd Labor Court of the Regional Labor Court in Sergipe (Brazil) involving labor judicial processes in which the rights claim resulted in judicial expert actions of causal links involving musculoskeletal system pathologies.

The legal proceedings were analyzed according to the information contained in each one of them whose scope of interest involved the following parameters: Expert Medical Report, Technical Report produced by Technical Assistant, Manifestation on Expert Report, Expert Report on Lent, initial petition produced by the lawyer Of the

claimant, Scheduling of expertise, Technical Report on Environmental Working Conditions-LTCAT, Judgment.

Once the documents belonging to all judicial processes of interest have been collected, that is to say, they deal with the health of the worker; A sample composed only of processes involving judicial expertise in musculoskeletal injuries were analyzed.

The decision for this scope of research, thus presented, was made as a consequence of the chosen Labor Court to cover complaints from workers in the capital and from the geographically surrounding municipalities, and thus, to gather an incidence of companies with a major economic activity suggestive of the existence of Osteomuscular occupational pathologies.

3 Results and Discussion

The population population surveyed reached 246 different expert reports, of which only 28 of these reports had dealings involving occupational pathologies such as: Osteomuscular, Noise-Induced Auditory Loss - PAIR, psychiatric diseases, work accident, other issues with health repercussions, Psychological illnesses, etc.). In a special way, only 11 investigative processes of osteomuscular tract pathologies were identified, and thus they were submitted to a thorough analysis in order to gather potential in the implantation of ergonomic tools as an auxiliary resource in the definition of causal nexus of occupational diseases of the musculoskeletal segment.

Among all the judicial experts appointed to act in the judicial processes of musculoskeletal diseases, it was observed, through Fig. 1, that half (50%) had academic training in the medical field, and the remaining final one with training in physiotherapy, thus totaling 5 experts Total.

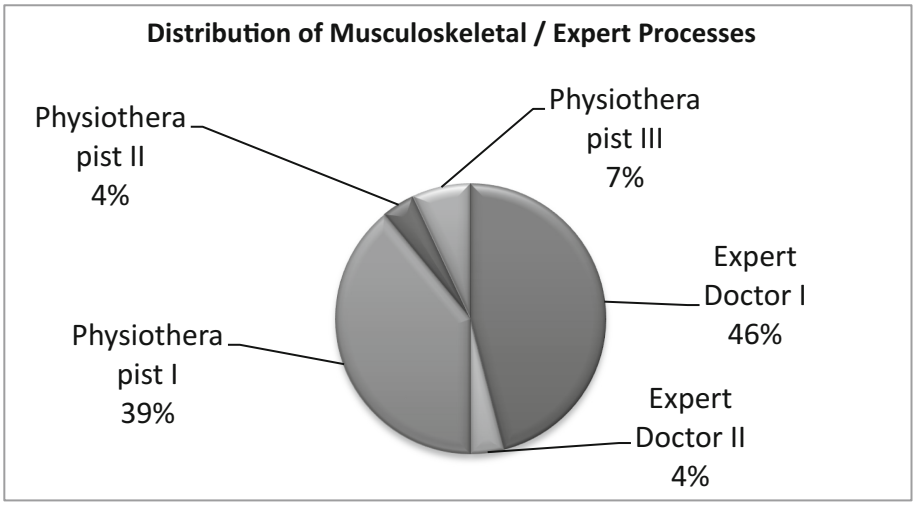

Fig. 1. Legal proceedings involving musculoskeletal complaints by appointee

It should be noted that the 28 lawsuits analyzed in detail in only 12 of them were conducted by an expert with medical education and postgraduate in ergonomics. From the Table 1 It is possible to know the academic formation among the expert professionals named in the judicial processes of investigations of the ergonomic constraints of osteomuscular character.

Table 1. Processes distribution when versus is wrapping LER/DORT without straight/indirect causal connection for the expert body employed methodology

Process	Expert evaluation with focus in	Professional formation of the expert body
Process 1	Human	Physiotherapist with Postgraduation in: Physical therapy of the Work and certified by ABERGO
Process 2	Human	Physiotherapist
Process 3	Human/System	Doctor with Postgraduation in: Medicine of the work, medical skill, ergonomic
Process 4	Human	Doctor with Postgraduation in: Medicine of the work, medical skill, ergonomic
Process 5	Human/System	Doctor with Postgraduation in: Medicine of the work, medical skill, ergonomic
Process 6	Human/System	Doctor with Postgraduation in: Medicine of the work, medical skill, ergonomic
Process 7	Human	Doctor with Postgraduation in: Medicine of the work, medical skill, ergonomic
Process 8	Human	Physiotherapist with Postgraduation in: Physical therapy of the Work and certified by ABERGO
Process 9	Human/System	Doctor with Postgraduation in: Medicine of the work, medical skill, ergonomic
Process 10	Human/System	Doctor with Postgraduation in: Medicine of the work, medical skill, ergonomic
Process 11	Human/system	Doctor with Postgraduation in: Medicine of the work, medical skill, ergonomic
Process 12	Human/System	Physiotherapist with Postgraduation in: Physical therapy of the Work and certified by ABERGO
Process 13	Human/System	Physiotherapist with Postgraduation in: Physical therapy of the Work and certified by ABERGO
Process 14	Human/System	Doctor with Postgraduation in: Medicine of the work, medical skill, ergonomic
Process 15	Human/System	Doctor with Postgraduation in: Medicine of the work, medical skill, ergonomic
Process 16	Human/System	Doctor with Postgraduation in: Medicine of the work, medical skill, ergonomic
Process 17	Human/System	Doctor with Postgraduation in: orthopedy, medical skill, business management and hospital administration

(*continued*)

Table 1. (*continued*)

Process	Expert evaluation with focus in	Professional formation of the expert body
Process 18	Human	Physiotherapist with Postgraduation in: Physical therapy of the Work and certified by ABERGO
Process 19	Human/System	Physiotherapist with Postgraduation in: Physical therapy of the Work and certified by ABERGO
Process 20	Human	Physiotherapist with Postgraduation in: Physical therapy of the Work and certified by ABERGO
Process 21	Human	Physiotherapist with Postgraduation in: Physical therapy of the Work and certified by ABERGO
Process 22	Human	Physiotherapist with Postgraduation in: Physical therapy of the Work and certified by ABERGO
Process 23	Human	Physiotherapist with Postgraduation in: Physical therapy of the Work and certified by ABERGO
Process 24	Human	Doctor with Postgraduation in: Medicine of the work, medical skill, ergonomic
Process 25, 26, 27, 28	Damaged due to: death of the claimant, decision still not hands, still not carried out Skill	

The existence of experts with a postgraduate degree in ergonomics alone does not represent a total guarantee regarding the inclusion of ergonomic tools in investigative nexus-causal methods. In only 54% (thirteen processes) of the processes there was an investigative focus through considerations of the system in which the complainant had been inserted and of analyzes of his/her clinical/mental history.

The non-predominance of evaluations with an ergonomic look can be explained by the possible technical ignorance regarding the propositions of ergonomic tool use in the auxiliary support of the osteomuscular causal links, although actions of the Federal Council of Brazilian Medicine are observed through technical guidance so that other scientific areas, Like ergonomics, can combine and produce scientific synergy in the establishment of the technical nexus by correlating the diagnosis of the disease with work.

The results of the Table 1 Also show that it is possible to apply knowledge of the Ergonomic Analysis of Work to the processes, after all it suggests to be a powerful ally of the Expert Expert Judicial in the understanding of kinesiogenesis and the evolution of the occupational pathologies with repercussions in the causal nexus.

According to Reis (2005) occupational diseases should be observed through the adoption of multicausal and multifactorial eyes, especially those that are portrayed of musculoskeletal disorders.

The Table 2 Makes the crossing of 11 specific processes of musculoskeletal pathological regions with the possibility of applying ergonomic tools observed in ISO 11228-3.

Table 2. Suggestion of ergonomic tools pointed out by ISO 11228-3, its characteristics, quali/quanti, applied to the LER/DORT processes where no causal link was recognized.

Process	Affected bodily region claimed in the proceeding	Ergonomic tools suggested by ISO 11228-3	Main features of ergonomic tool
Judicial process 1	Trunk	OWAS	(A)
		REBA	(B)
		PLIBEL	(C)
		QEC	(D)
Judicial process 2	Upper limbs	STRAIN INDEX	(E)
Judicial process 3	Trunk	OWAS	(A)
		REBA	(B)
		PLIBEL	(C).
		QEC	(D)
Judicial process 4	Trunk	OWAS	(A)
		REBA	(B).
		PLIBEL	(C)
		QEC	(D)
Judicial process 5	Trunk	RULA	(F)
		STRAIN INDEX	(E)
		OSHA CHECKLIST	(G)
		HAL/TLV ACGIH	(H)
		UPPER LIMB EXPERT TOOL	(I)
		OCRA INDEX	(J)
		OCRA CHECKLIST	(K)
Judicial process 6	Upper limbs	RULA	(F)
		OSHA CHECKLIST	(G)
		HAL/TLV ACGIH	(H)
		UPPER LIMB EXPERT TOOL	(I)
		OCRA INDEX	(J)
Judicial process 7	Trunk	OWAS	(A)
		REBA	(B)
		PLIBEL	(C)
		QEC	(D)
Judicial process 8	Mixed joints	STRAIN INDEX	(E)
Judicial process 9	Trunk	OWAS	(A)
		REBA	(B)
		PLIBEL	(C)
		QEC	(D)

(*continued*)

Table 2. (*continued*)

Process	Affected bodily region claimed in the proceeding	Ergonomic tools suggested by ISO 11228-3	Main features of ergonomic tool
Judicial process 10	Trunk	OWAS	(A)
		REBA	(B)
		PLIBEL	(C)
		QEC	(D)
Judicial process 11	Lower members	OWAS	(A)
		REBA	(B)
		PLIBEL	(C)
		QEC	(D)

SUBTITLE:
(A) OWAS: Analyzes postures of different body segments; Also considers their frequency during the transfer of work
(B) REBA: Similar to the RULA (checklist). Considers all body segments at the same time
(C) PLIBEL: Check List to identify different risk factors for different body segments; Considers postures, movements, equipment and other organizational aspects
(D) QEC: Quick method to estimate exposure level; Considers different postures, strength, load handled, duration of task with assignment of scores
(E) STRAIN INDEX: A careful method that considers the following risk factors: effort intensity, duration of effort per cycle, exertions per minute, hand/wrist posture, work speed and duration of the task per day
(F) RULA: Fast coded analysis of static and dynamic postures; It also considers frequencies of force and action: the result is an exposure score for which preventive measures should be taken
(G) OSHA CHECKLIST: Checklist proposed during development of the OSHA standard (revoked); Considers repetitiveness, inadequate postures, strength, some additional elements and some organizational aspects
(H) HAL/TLV ACGIH: Detailed method based mainly on the analysis of frequency of actions and peak of force; Other key factors are generally considered
(I) UPPER LIMB EXPERT TOOL: Workload scanning evaluation method; Considers repetitions, force majeure, inadequate postures, duration of the task and some additional factors
(J) OCRA INDEX: A careful method that considers the following risk factors: frequency of actions, repetitiveness, inadequate postures, strength, additional factors, lack of recovery periods, repetitive task duration
(K) OCRA CHECKLIST: Checklist proposed during development of the OSHA standard (revoked); Considers repetitiveness, inadequate postures, strength, some additional elements and some organizational aspects

4 Conclusion

The absence of direct/indirect causal nexus attested by the expert body to the 28 lawsuits shows that even the professional body possessing postgraduate in ergonomics, nevertheless it was not observed application of consecrated tools of the ergonomics that could strengthen the conclusive process with consequent less possibility Of future challenges.

In fact, the mere use of investigative methods based on clinical, kinesiological and biomechanical aspects, among other aspects, are not sufficient guarantees for a nexus-causal conclusion free of vices or inaccuracies involving musculoskeletal disorders. It is necessary to include in the methodological scope expert essential visits to the work environment of the worker with consequent use of ergonomic tools consecrated scientifically, such as those listed by ISO 11228-3.

The 2nd Labor Court of Sergipe (Brazil) has postponed the appointment of experts with specialized training restricted in ergonomics, waving so that the experts proceed in their conclusions without technical complements in terms of ergonomic tool that could distance or approximate the rationale for the existence of A causal link. The development of this work confirms the belief that it is possible to include in the labor judicial processes a methodology of investigation of musculoskeletal causal links shared with investigative tools of an ergonomic character, especially those indicated by ISO 11228-3, since they do not meet international scientific requirements Good analysis by body region.

A perfect fit between the subject of technical expertise and the special knowledge on the subject suggests that it is the best decision to make when the appointment of an expert.

References

Alberto, V.L.P.: Perícia Contábil. Ed. atlas (2012)

de Azevedo, I.B.: O prazer da produção científica. 7.ed. UNIMEP, Piracicaba (1999)

Bernardes, J.M., Moro, A.R.P., Merino, E.: Pericias judiciais em casos de LER/DORT: Modalidade prática da ergonomia? (2010)

Bernardes, J.M., Júnior, J.R.V.: A atuação do fisioterapeuta nas perícias judiciais de LER/DORT. Revista Fisioterapia Brasil **12**(3), 232–236 (2011)

Cavaliere Filho, S.: Programa de Responsabilidade Civil, 10th edn. Atlas, São Paulo (2012)

Carrara, P.R., Abreu, M.J.: A utilização de ferramentas ergonômicas em perícias judiciais de DORT. http://www.sefit.com.br/sefit2012/wp-content/uploads/2012/01/A-Utiliza%C3%A7%C3%A3o-de-Ferramentas-Ergon%C3%B4micas-em-Per%C3%ADcias-Judiciais-de-DORT-Priscila-Romano-Carrara.pdf Accessed 02 May 2014

de Holanda Ferreira, A.B.: Dicionário Aurélio da Lingua Portuguesa. Brasil (2014)

de Macedo Guimarâes, L.B.: Série monográfica ergonomia. Ergonomia de processo. FEENG, V 1, UFRGS, Porto Alegre (2004)

Marins, M.M.M.L.: Ergonomia e sua Implantação no Poder Judiciário. In: monografia de conclusão de curso em administração judiciária, Rio de Janeiro: FGV (2004). http://www.google.com.br/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CC8QFjAA&url=http%3A%2F%2Fwww.tjrj.jus.br%2Fc%2Fdocument_library%2Fget_file%3Fuuid%3D171d613b-9b2f-4d66-8bb3-0018af6f41d3%26groupId%3D10136&ei=5wdjU_szzpPIBNXggbgD&usg=AFQjCNES8-LC7dSc4BqlukcTe0Pv4J1J1g&sig2=r2XEELMUpq9KThfbMIuPDg&bvm=bv.65788261,d.aWw&cad=rja. Accessed 14 Feb 2014

Menegon, N.L., Camarotto, J.A., Bernardino, M.T.S.M.: OPAPEL DA ERGONOMIA NO RECONHECIMENTO DO NEXO CAUSAL. In: VII Congresso Latino-Americano de Ergonomia, Recife. Sessão Técnica, São Paulo (2002)

Nascimento, J.A.: Pericia Judicial Teoria e prática: Lições de um Magistrado. Aracaju: jus fórum (2010)

Vidal, M.C.: Introdução a Ergonomia. Apostila do curso de especialização em ergonomia do OPPE/UFRJ (1997)

Yee, Z.C.: Perícias de Engenharia de Segurança do Trabalho: Aspectos Processuais e casos práticos. Juruá, Curitiba (2009)