The Veronesi Method - Judicial Expertise for Physical Therapists

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Abstract. The Veronesi method follows scientific criteria, applicable law, regulations and recommendations on the subject to a path in a structured completion and grounded to assist the court in decisions. The goal is to bring to society the knowledge of the technical and scientific aspects of the method. From TST guidelines, the method analyzes the nexus, conducts research in the workplace, where you use regulations such as ISO 11226 to assess posture and motion analysis software to quantify them, ISO 11228 for survey analysis the lifting and transport of weigth and repetitive activities. Using criteria established by the Instruction of the INSS for the link. It was a retrospective, cross-sectional, which randomly chose 100 cases by Method. It analyzed the number of affected segments (diagnosed diseases) that sought if there was a causal nexus, concausa nexus and no nexus. Randomly selected 10 first and second instance decisions in order to correlate the findings with the method. Found 159 diseases diagnosed being 49 showed 1 affected segment, 43 had 2 segments 7 with 3 segments, and 1 case with 4 diseased segments. They showed causal nexus in 71 cases, 50 nexus concausa and 38 no nexus. All judgments of first and second instance, the Veronesi method was accepted, giving sustainability to justice fulfill their craft. The study method was shown to be an important scientific technical tool to be used by experts for reports with informed and fundamentas conclusions, thus helping the judgment in fairer decisions.

Keywords: Veronesi Method · Judicial expertise · Causal nexus

1 Introduction

The meaning of the word Method comes from the Greek, "Methodos" meaning pathway, route, in other words, the means used to reach an end. Therefore, "Methodos" is the way of the best scientific techniques in the search for a problem's solution. In science, the problem is the object of research, it's what drives the search for answers in order to bring the philosophy of science, that is generating answers to reflect on new doubts. According to Popper (1985), the task of epistemology or the philosophy of science is to rationally reconstruct *the later proofs by which it was discovered that inspiration was a discovery or came to be recognized as knowledge* [1].

The practice of judicial expertise by the physical therapist professional in Brazil initiated in 1999 by physiotherapist José Ronaldo Veronesi Junior, when this

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professional made a Physiotherapeutic report for a patient following the ABNT standards in an article format and this document sent by the lawyer to court.

The method of analysis and expert formatting has been studied for years. The first book on the subject was published in 2004, reissued in the years 2008 and 2013 [2]. Also in 2004, at the request of the Federal Council of Physical Therapy and Occupational Therapy, Dr. Veronesi launched the professional enhancement course in Judicial Expertise by Method, where many students have been trained these years.

In 2011, the Method's author, Dr. Veronesi, concluded his PhD thesis validating an evaluation and quantification protocol regarding functional capacity for judicial expertise. This work resulted in publications at the World Conference on Ergonomics, United States, 2014 [3], and in a scientific journal of law in the same year [4]. To evaluate the functional capacity within the Veronesi Method's protocol, the author published, in 2012, the Book of Orthopedic Functional Tests [5].

Seeking for continuous improvement in the judicial expertise area, and in need of a more complete instrument for analysis of the expertise process, Dr. Veronesi launched the "Veronesi Ergonomic Risk Index for Repetitive Activity of Upper Limbs" (IVRE-ARMS). The "6th International Conference on Applied Human Factors and Ergonomics" validated this work in 2015 and it was also published in Procedia Manufacturing journal in the same year [6]. The IVRE-ARMS tool allows an analysis of the labor activity in a broader way and from the perspective of the physical, cognitive and organizational aspects, bringing a greater systematization inside the expert inspection.

The Veronesi Method provides continuous training for Physiotherapists professionals interested in working in the judicial expertise area, following the precept of the Code of Civil Procedure (CPC), Art. 156 [7].

In 2014, the physiotherapeutic expertise was recognized by the Superior Labor Court (TST), in its publication on guidelines of the expert evidence in labor accident and occupational diseases [8]. Chapter 1, regarding the expert, in art. 1 says: "In matter of occupational accidents and diseases, judicial expert should be appointed to meet the legal and ethical-professional standards for analysis of the object of proof, such as physicians, psychologists, *physiotherapists*, among others, without loss to the appointment of more than one professional, even if it is not a complex skill, in the mold of art. 431-B of the Code of Civil Procedure."

2 Objective

Bring to society in general, the knowledge of technical and scientific aspects adopted in the Veronesi Method of Judicial Expertise for Physical Therapists.

3 Applied Methods

Methods used in this work were divided into: method procedures and work performed.

3.1 Procedures of the Veronesi Method for Judicial Expertise

The legal and judicial expertise of the Veronesi Method follows the scientific criteria, a current law, recommendations, and norms on a thematic.

The Veronesi Method works with three main fields of analysis: Establishment or not of the legal nexus, to evaluate and to quantify the functional capacity and analysis of the labor regulating norms fulfillment.

In labor judicial expertise, the Method starts the analysis following the recommended by Art. 5 of the TST Guidelines on Actions in Occupational Accidents and Occupational Diseases [8]: "The expert must find the correlation between the health condition and the functional incapacity, and observe if it is related to the Technical Epidemiological Social Security Nexus". From this presumption of nexus, the investigative process begins.

The Veronesi Method, in its protocol, strictly follows Article 473's second paragraph of the CPC [7]: "The expert is forbidden to exceed the limits of his designation, as well as to issue personal opinions that exceed the technical or scientific examination of the object. Therefore, the object of the skill is given according the court's designation where the entire expert's work concerns the object." Both the documentary analysis of the procedural records and the expert inspections, and on-site (in case of labor expertise), are made based on the object designated by the court.

It is important to emphasize that the Article 473' second paragraph of the CPC [7] brings a special and differential condition to the Physiotherapeutic Expertise, because by law, the physiotherapy professional cannot diagnose diseases, meaning he cannot discover injuries. Therefore, the expert analysis by the Veronesi Method analyzes only the object demanded by the court, thus contemplating, with all property, the CPC and collaborating for the judicial process to be more agile and just.

Still following the CPC's Art. 473 [7], the Veronesi Method uses in its expert inspection an analysis according to the demanded object, searching for the best tools and scientific instruments for such.

In order to make the analysis of the legal nexus (causal or concomitant cause), judicial expert reports, for labor justice, use as recommended by Art. 7 of the TST Guidelines on expert evidence, which initially performs on-site expert inspection in the company, analyzing the organization of the work [8].

For work organization analysis and legal nexus, the INSS's Normative Instruction 98/2003, which is the regulatory labor standards, is used as base for orientation and guidance [8]. In particular, NR 17 and its application manual, as directed in Art. 4 of the TST guidelines on expert evidence, which analyze the following criteria [8]: Nature of exposure, ergonomic risk of work activity, time and intensity of daily exposure, time and intensity of total exposure, physiomorphopathological characteristics of the disease, preventive methods adopted and incidence of the disease at the analyzed spot.

Complementing the legal norms for work organization analysis, the Veronesi Method also uses as reference: NBRs ISO 11226 [9], which deals with static posture and brings references about acceptable and non-acceptable angulations, NBR ISO 11228-1 [10], about lifting loads, ABNT ISO 11228-2 [11], which contains load bearing references with safety and ABNT ISO11228-3 [12] which guides the analysis of repetitive activity.

For the ergonomic risk analysis of the work activities developed by the individual, the Veronesi Method applies the following scientific tools [13]:

– The IVRE-ARMS: Veronesi Ergonomic Risk Index for Repetitive Activity of Upper Limbs, which analyzes ergonomic risk separately, within the organizational, cognitive, biomechanical aspects of the shoulder, elbow and wrist (Fig. 1).

Fig. 1. IVRE-ARMS tool.

– The Ocra Index, which according to ANBT ISO 11228-3 is an instrument whose final index brings a risk classification and prediction of illness for repetitive activities of upper limbs [14].
– The NIOSH tool, oriented and recommended by ABNT ISO 11228-1 [10], establishes the recommended weight in the analyzed activity and compares it with the actual weight manipulated, thus providing a final index with a prediction of illness due to the task (Fig. 2).

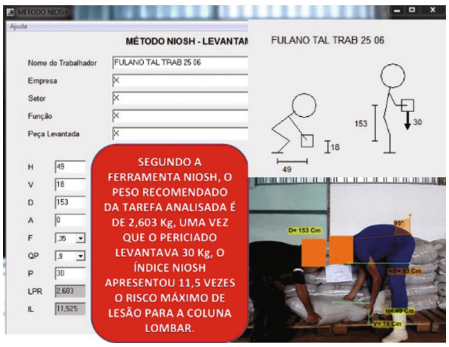

Fig. 2. NIOSH tool.

The HARSIM, (Humanoid Articulation Reaction Simulation) model consists of a humanoid computer representation with 38 segments, a full spine with 24 vertebrae, and upper and lower limbs with 8 and 6 segments, respectively. The developed model has

100 degrees of freedom, 72 for the spine, 12 for the lower limbs and 16 for the upper limbs. HARSIM can do the following functions Simulation of posture sand movements: the model allows the simulation of the main postures in an interaction with a product or workplace situation. Calculation of forces, strain and stress in each articulation joint [15], (Fig. 3).

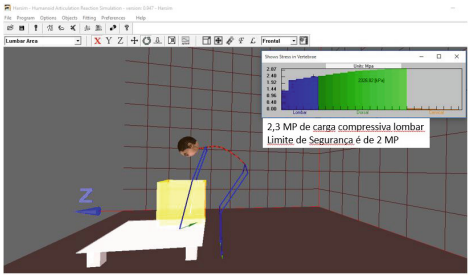

Fig. 3. HARSIM - humanoid articulation reaction simulation.

- The RULA, REBA and Strain Index (developed by Moore and Garg) tools, all recommended by NBR ISO 11228-3 [12], for upper limbs biomechanical risk analysis.
- The OWAS tool, also recommended by NBR ISO 11228-3 [12], for lumbar spine biomechanical risk analysis.
- For cargo transport analysis, is recommended by NBR ISO 11228-2 [11] the table developed by SNOOK AND CIRIELO (Fig. 4).

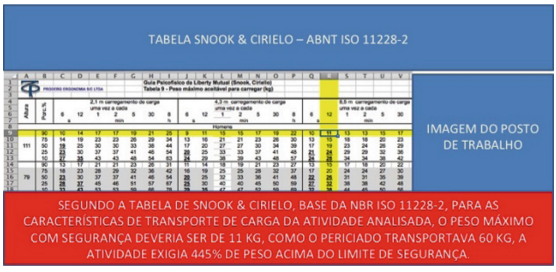

Fig. 4. Reference table on safe weight for loading.

For movement and work posture analysis, following the ABNT ISO 11226 [9] guidelines in detail, the Veronesi Method uses a photogrammetry resource, which using human movement analysis, through angular measurements, a computer program (Kinóvea) [16] creates a video analysis of the activity at different speeds. At specific moments in the analysis (guided by the Normative Instruction 98/2003 of INSS) the video is paused and the postures angulations required by the work are analyzed (Fig. 5).

Fig. 5. Kinóvea software illustration.

According to the first paragraph of Article 473 [7], "In the report, the expert must present his reasoning in simple language and with logical coherence, indicating how he reached his conclusions. The Veronesi Method uses a technical language of simple understanding with objectivity within each phase of the protocol, and has a textual logic leading all reasoning with coherence on report's conclusion".

In the event of a traffic accident, both for Civil Expertise and for DPVAT (Mandatory traffic insurance in Brazil), the Veronesi Method uses the SUSEP [17] (Superintendence of Private Insurance in Brazil) table. However, in labor investigations involving diseases, the method follows the third paragraph of Art. First, Circular number 029, December 20, 1991, about SUSEP table, that says: "SUSEP table must not be used in case of diseases included to the professionals because they are not included in the concept of personal accident". Therefore, it's applied the Veronesi Method's Functional Capacity Assessment Protocol for functional capacity evaluation and quantification.

According the TST Guidelines, article 12, on expert evidence, referring to the conclusion of functional capacity, "In the incapacity evaluation, the International Classification of Diseases (ICD-10) and other documents, national or international standards of recognized competence and technical scientific qualification may be used in conjunction, for this purpose, and the expert shall determine whether the disability is partial or total, permanent or provisional [8]."

The Protocol for the evaluation of functional capacity for judicial expertise, which was the doctoral thesis of Veronesi Method's author, contemplates what article 12 says, and was published in a World Congress of Ergonomics and at the Scientific Interface Magazine [4].

The protocol for functional capacity evaluation for judicial expertise was based on fundamental aspects to evaluate the functional capacity of the work within a philosophy of thought that concerns the worker's functionality, based on two instruments: the ICF - International Classification of Functionality and the Functionality Classification of Baremo. In addition to these two instruments, other data were used to analyze the functional capacity such as age, schooling, injured structures, diseases prognosis and functional tests, because they have to be applied for functional capacity analysis.

A protocol was made for upper limbs analysis and another for the lower limbs and spine, because the ICF variables were specific for each segment. The same was created

in a computerized system for better applicability and data management. It has 3 lists of analyzes: documentary list, practice list (these two lists are common for both protocols), and activity and participation list, which is specific for each protocol and has specific functionality elements for each segment of analysis related and oriented by the ICF.

The Veronesi Method, within its expert analysis, can verify whether the individual is simulating or not during the expert inspection, because it applies kinematics analysis elements associated to kinesiopathogeny knowledge, knowing the coherence of the facts. Here, by expert secrecy it is not possible to do more detail. For Veronesi (2014), convincing elements of the expert are test responses and observations made by the expert to analyze the reliability process of the movement's functional behavior, which would indicate a possible simulation condition created by the investigated individual [4].

3.2 Work Performed

The present research was carried out through a retrospective and cross - sectional study, where a hundred judicial trials were randomly selected by the Veronesi Method, already performed by the Electronic Judicial Process (PJE) system from 2014 to 2016.

It was analyzed the number of affected segments (diagnosed diseases) that sought to establish or not a nexus and, from these, how many were causal nexus, concomitant cause nexus and non-existence of nexus. Among these 100 skills analyzed, the 10 first and second instance decisions were randomly chosen to analyze the conclusions and relate them to the Method.

4 Results

All first and second court judgments based on the Veronesi Method were analyzed in the processes investigated here. In all cases, the judge of the first instance took a decision based on the expert's report. Regarding the cases that were appealed and went to the second instance, the labor courts, of the regional labor court, that analyzed the facts unanimously maintained and, in some cases, even praised the expert's report.

Of all the analyzed processes, when added the affected segments, 159 segments were found, or diseases diagnosed for the nexus establishment. Among these, 49 cases presented only 1 segment affected, 43 cases presented 2 segments, 7 cases with 3 segments, and 1 case with 4 segments affected with diseases.

Was found causal nexus in 71 cases (44.6%), 50 had concomitant cause nexus (31.4%) and 38 (24%) had no nexus. The average disability was 30%, and the highest disability was found in 3 cases of the 100 studied, representing 80%, of which 2 were of permanent disability and 1 of temporary disability.

In three of studied cases, the analyzed individual presented capacity preserved, which means 100% functional capacity, even if there was a causal or concomitant cause relationship.

In four cases where the individual had three diseases, we had three different conclusions: a causal nexus, a concomitant cause nexus, and a lack of nexus.

In three cases, it was concluded that there was no nexus between diseases and work, where the defendant was not guilty in the process. The other findings of non-existence of nexus were in cases where the individual had more than one segment, in one of the cases that had three affected segments, two had no nexus, and one had concomitant cause nexus.

When the court judgments were analyzed, in one of them the defendant contested the Veronesi Method with the following argument: "The SUSEP table was not designed to measure incapacity due to illnesses but accidents instead." However, the Judge in his decision pronounced the following: "In addition, the TST has admitted the appointment of Physiotherapist for the accomplishment of expertise in matter of work accident and occupational diseases, being worth the expert of using the international classification of diseases and other documents National and international standards of recognized suitability and technical-scientific qualification for the collimated purposes. In this case, the expert made an analysis of the functional capacity based on the doctoral thesis itself, of recognized scientific value. In this process, the scientific recognition of the Veronesi Method in the quantification of functional capacity is evident".

In the verdict, in one of the expert cases conducted by the Veronesi Method, the judge concluded: "Thus, in view of the fundaments and findings reported by the expert, the judgment understands to accept them completely concerning the causal nexus characterization." The defendant filed an appeal and the Judgment of this case concluded: "I accept the expert opinion, because it was prepared by a qualified professional and trusted by the Court."

In another case, the Judgment says: "The expert appointed, in a detailed report, in which no defect is found, acknowledged that the claimant has injuries on the upper limbs … The assumptions for civil liability of the employer are therefore present (Articles 186 and 927 of the Civil Code) [7]".

Contrary to the expert's conclusion, the defendant filed an appeal in the second instance, and the Judgment pronounced "Irresigned, it adds the defendant, in summary, that the expert's report is a partial and personal manifestation of the expert. In addition, the technical expertise of the social security authority did not recognize the causal nexus between pathologies and business activities, and that the expert report should be considered null and void, removing the causality nexus. But the T.R.T. concluded that the expert report presents high technical quality, it is meticulous and elucidative, and the defendant does not present the qualified element capable of belittling and failing the conclusions drawn by the expert."

In another case, the Judgment says: "The expert report analyzed in depth the working conditions in light of the regulatory norms issued by the Ministry of Labor and Employment. The expert report was conclusive in the sense that the claimant has permanent functional impairment in the order of 60% due to spinal problems."

In another case in which he went to the second instance, the Judgment says: "The investigation was conclusive in pointing out the existing relation of concomitant cause between the pathology that affects the worker and the activity performed at the claimed one and the intrinsic factors of the own victim. The expert testified that the functional disability is temporary and partial, in a mild degree, corresponding to 30%. The expert's report is clear, and there is no element in the file that demerits or contradicts the

conclusions made by the expert. Sufficiently proven the damage and the causal nexus with the activity performed".

The judgment of another case, states: "In a court of appeal, the defendant maintains that it is wrong to quantify the applicant's limitations by 80%, since it is impossible to apply the International Classification of Functions used by the expert, fighting for reduction of 30%, depending on the Susep /DPVAT table". The conclusion of the Regional Labor Court. Was: "The quantification of the limitations contained in the expert's report, based on the ICF, is not worth repairing. Currently the ICF is one of the instruments adopted by the World Health Organization as a reference for states of health, capacity and disability, alongside ICD-10. Therefore, no inconsistency is found in the application of the abovementioned technical-scientific criteria by the expert. Once again the court recognizes the technical-scientific criteria of the Veronesi Method for the evaluation and quantification of the functional capacity of the evaluated individual."

The judge in a trial pronounced the following decision: "I take the expert opinion, because it was produced by a qualified and trustworthy professional of the Judge, as well as because there is no evidence in the files capable of invalidating it." The defendant appealed and the Judgment concluded: "In these terms, I maintain the judgment that acknowledged the civil liability of the defendant for the occupational disease acquired by the claimant."

In another case, the judge in his sentence said: "Therefore, I accept the expert opinion regarding *non-existence of causality nexus*, since it is prepared by a qualified professional and trusted by the Court, as well as because there is no evidence in the records capable to inflict it. In this context, I *dismiss* the request for a declaration of the occurrence of occupational disease and the lawsuits for payment of compensation for moral and material damages."

In a judgment presented in a trial, where the defendant contested the amounts of the expert's fees, the decision was: "The defendant is incensed in the face of the sentence that fixed the value of the expert fees in R$ 1,980.00. He maintains, in synthesis, that the accomplishment of the skill required simple equipment and little time of preparation, thus, it required its reduction to R$ 800,00". Under analysis by the class of the regional labor court, the conclusion was the following: "The expertise was performed by specialized physical therapist. Considering the complexity and quality of the work presented by the expert, as well as the time required for its realization, I consider the value of the expert fees fixed at the origin as appropriate."

As evidenced in the first and second instance judicial decisions, the Veronesi Method brings a great technical-scientific consistency, giving support for the justice to fulfill its calling.

5 Discussion

When there is injury or damage to the individual, and this is the object of the grounds for claiming compensation as a consequence of the accident or labor disease, a technical investigation called judicial expertise is required [2]. The Veronesi Method seeks to

adapt the established in the precepts of the Code of Civil Procedure's Articles for a technical and scientific investigation providing more results that are concrete.

After determining the existence of the disease in question, the main objectives in the exclusive investigations of LER/DORT are to clarify if the disease presented by the claimant (plaintiff) has nexus with the activities performed by him at the claimed (defendant in the action), that is, the establishment of the causal nexus and also the quantification of the residual functional capacity of the claimant [18].

According to the Aristotelian philosophical system, in the theory of causes, there are material cause, final cause, formal cause and efficient cause [19]. In cases of judicial expertise, the efficient cause is applied, where the cause or concomitant cause nexus can only be removed when the expert concludes that the work activity in no way stops the onset and/or anticipation of the health problem [20]. As illustrated in the present research, the establishment of the nexus separately with disease is important because it establishes an efficient cause between cause and damage separately in each segment. Where the same person can have three diseases in different segments, and for one segment has a cause nexus (the one claimed has total guilt), another has a concomitant cause nexus (the fault is partial) and for the other there is no nexus, no guilt, as occurred in 3 cases analyzed in this work.

Fernandes (2005), in his work already showed the importance of the functional capacity results for the judicial conclusion, since it refers to financial amounts [21]. In the study with the Veronesi Method of Functional Capacity Assessment, the control group, which evaluated the functional capacity in a conventional way, observationally and subjectively, presented a great variability in the results of the same expert cases done by different professionals (CVQ 33%). Meanwhile, the group studied, practically did not present this variability (CVQ 6%), showing that the protocol developed in this work is more solid and consistent in its results. The present study evidenced that the functional capacity average of the studied cases was 30%, following a scientific analysis criterion.

This makes possible the applicability of the impartiality and justice principle, currently recommended in Article 173 [7], second paragraph. It brings light on the applicability of civil liability to the employer when established the nexus, but in an impartial and fair way, where only in the segments that in fact the work had direct or indirect cause will be inferred the responsibility.

6 Final Considerations

The Veronesi Method uses analysis elements of the active simulation process, which, through kinematics, identifies when the individual is simulating or even exaggerating reactions when compared to characteristics of the disease he is carrying, a fundamental condition for the legal analysis process.

The professional improvement offered by the Veronesi Method has a philosophy of continuous and evolutionary learning process, where the students are trained to search for knowledge based on ethics and technical scientific foundation.

Taking into account what is stated in Code of Civil Procedure, Article 173 [7], which clearly recommends that the expert must indicate the method used for the technical and scientific analysis of the object of the expertise demanded by justice, with a simple language and logical coherence.

The Veronesi Method of Judicial Expertise has clearly demonstrated its adequacy to the Code of Civil Procedure Articles, associated with modern scientific analysis techniques, recommended by NBR ISO, NR 17 [22] and its application manual, TST guidelines on expert evidence, Normative Instruction 98 of 2003 of INSS [8] and a protocol of functional capacity evaluation scientifically valid [3, 4], thus demonstrating itself as an instrument of great scientific rigor to assist justice in the decision process and to be more just.

Thereby, the Veronesi Method is an important technical scientific instrument to be used by judicial experts for an expert report with solid and grounded conclusions, thus assisting the judgment in a more just and reasoned decision with great structuring considering contestation cases where judge's decision, when based on the expert's report, has more chance of recognition by the second instance. This can be inferred considering that, in all cases where the Veronesi Method was applied, the first instance judge decided based on the expert report. As for the appealed cases that went to second instance, the regional labor court classes that analyzed the facts, unanimously maintained and, in some of them, praised the expert report, as illustrated in the results of this research.

To conclude, a reflection by Marinoni (2000), the search should always be for fairness, effective justice, not forgetting that there is no risk-free effectiveness, and that "the judge who omits himself is as harmful as the judge who misjudge [23]."

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