The Role of Biomechanics in Personal Injury Compensation: First Research Outcomes from AreYouFine?

by

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THE ROLE OF BIOMECHANICS IN PERSONAL INJURY COMPENSATION:

FIRST RESEARCH OUTCOMES FROM AREYOUFINE?

INTRODUCTION

by

Denise Amram, Giovanni Comandé, Benedetta Guidi, Luca Nocco*

Abstract

The main objective of the AREYOUFINE? Erasmus+ project¹ is to offer an innovative e-learning course focused on biomechanical analysis in order to improve personal injury assessment in the context of the different legal conditions within the EU. Taking into account requirements for professional practice, the Strategic Partnership² proposes new harmonization contents and validates them for EU countries in order to fill the gap between the theoretical insights offered by biomechanical analysis and their application in Europe.

On July 12th 2016, the first Multiplier Event of the Project took place in Pisa (Italy), at Scuola Superiore Sant’Anna, where the first outcomes of the project have been introduced through three sessions including individual panels, poster presentations, and a roundtable. A fruitful interdisciplinary dialogue between forensic scientists, lawyers, scholars, and engineers has been established.

Keywords: Persona Injury, Biomechanics, Bodily Harm Assessment

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¹ Areyoufine Training in assessment of personal injury based on biomechanical analysis to improve sustainability and efficacy of the health care system Erasmus + n. 2015-1-ES01-KA202-016294.

² Instituto de Biomecànica de Valencia (www.ibv.org), Scuola Superiore di Studi e Perfezionamento Sant’Anna (www.santannapisa.it), CEREDOC (www.ceredoc.eu), Universidad de Santiago de Compostela (www.usc.es), International Academy of Legal Medicine (www.ilm.info), Centralny Instytut Ochrony Pracy – Panstrowowy Instytut Badawczy (www.ciop.pl).
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I. THE AREYOUFINE? PROJECT: AIMS AND FIRST OUTCOMES

The AREYOUFINE? project develops, implements, and sets the basis for a new Body of Knowledge focused on innovative biomechanical analysis methodologies and aimed at improving clinical assessment of the main musculoskeletal disorders in Europe.

An interdisciplinary approach is at the core of the project. From this perspective, the Consortium of the Areyoufine? Project constitutes a Strategic Partnership because it includes scholars, researchers, and professionals whose expertise in the field of personal injury compensation is recognized at the national, European, and international levels in the various fields that affect bodily harm assessment (like forensic science and law). These commonly interrelated competences are connected in the project to expertise in biomechanics, whose role in personal injury damages assessment is both innovative and expanding in scope.

Traditional debates between legal experts and forensic scientists on the evaluation of personal injury damages find a new player in biomechanics expertise, since the innovative practices of clinical biomechanics are postulated as a complementary tool in the determination of the kind of treatments provided, their expected effectiveness, and the possibility of total recovery from bodily harm that they represent. This has proven especially true for locomotor system functions.

According to the European Agency for Safety and Health at Work, musculoskeletal injuries represent the most common health problem in the EU working-age population. In some EU countries, more than 40% of social and health compensation for lost working days is paid to redress these injuries. Traffic accidents also play a relevant role in the prevalence of musculoskeletal disorders among personal injuries. In fact, whiplash is the most common injury in collisions. However, it is still difficult to assess the related damages because they sometimes have unspecific origins or it is not possible to find an organic alteration that justifies them.

Personal injury assessment is not only of interest to clinicians; it also affects both judicial disputes and private negotiations between victims and liable parties. Accordingly, the Areyoufine Project has employed analysis of the main procedures used in such assessment in order to identify all of the players involved in personal injury damages compensation—including clinicians, lawyers, courts, and insurance companies. These players represent the target group for the Knowledge basis contained in the e-learning course which will be available online at the end of the project on our platform www.areyoufine.eu.
In this context, the implementation of the Areyoufine training program aims at improving the skills of the main actors involved in the evaluation of the musculoskeletal system injuries and sequels (and, in case of clinicians, it aims at improving treatment as well).

The knowledge developed includes as well the results of a comparative medico-legal analysis on personal injury assessment in car accidents undertaken in the EU systems represented by the Consortium (i.e. Italy, Spain, Poland, and references on France, Belgium, Portugal, UK, The Netherlands, and Hungary). The comparative analysis has been adapted to the different professional realities as well as to the multiform legal requirements in the targeted legal systems. In addition, the content of the course includes biomechanics analysis and principles designed to enrich the skills and competences of the professionals involved in personal injury damages evaluation. A proper diffusion of biomechanics techniques could satisfy the increasing need to assess personal injury damages objectively—particularly when minor musculoskeletal impairments are at stake.

One of the first intellectual outputs of Areyoufine has been developed through a comparative analysis of the legal frameworks applicable to countries represented in the consortium. The Report showed both the variety of criteria adopted to assess personal injury damages and the common need to achieve objective and efficient solutions especially to assess minor health impairments. In addition, it confirmed that in all of the represented countries, no official data on the role of biomechanical assessment are available, even if some legal frameworks enable the use of biomechanics as an additional non-invasive exam for ascertaining and evaluating the degree of permanent impairment.

All these topics were debated in the Multiplier Event, which took place at the Scuola Superiore Sant’Anna (Pisa) on July 12th 2016.

II. THE MULTIPLIER EVENT IN PISA

The Multiplier Event in Pisa on “Personal injury damages compensation and biomechanics” provided the opportunity to introduce the project and its first outcomes, as well as to enlarge the dialogue with potential stakeholders.

The opening and final sessions included panellists directly involved in the project (like Professor Giovanni Comandé, Dr. Serena Starnazzi, Dr. Denise Amram, Dr. Luca Nocco, Dr. Enrico Pizzorno, Dr. Benedetta Guidi, and Professor Ranieri Domenici) and illustrated the Project’s aims and results. In particular, the sessions focused on underlining the importance of adopting an interdisciplinary approach in personal injury damages assessment. In fact, scientific tools and new technologies may help

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to satisfy the common need for harmonized technical and legal solutions at both the national and international levels. Moreover, panelists debated the way in which biomechanics analysis/biomechanical analysis intervention could help to identify malingering or exaggeration for many somatic and/or psychic disorders for which clear biological markers of impairment and disability are missing.

These issues also emerged in the analysis undertaken by The International Observatory on Personal Injury Damages (www.osservatoriodannoallapersona.org) of the Scuola Superiore Sant’Anna, whose results have been collected in the posters that follow this paper.

Topics included the analysis of judgments on personal injury damages incurred in traffic accidents, workplace accidents, and medical malpractice actions, examining both national trends on non-pecuniary losses awards and the specific heads of damages made available (e.g. the loss of chance).

A roundtable covering neuroscience, occupational biomechanics, legal medicine, robotics, new technologies, and legal remarks on bodily harm evaluation debated the results, concluding, with appreciation of the pursuits envisaged by the AreYouFine? project, that its results will certainly contribute to filling existing gaps in the evaluation of musculoskeletal injury.
CASE-LAW ANALYSIS ON NON-PECUNIARY LOSSES FOR THE VIOLATION OF FUNDAMENTAL RIGHTS

Avv. Valentina Ceccarelli-Avv. Elena Occhipinti-Avv. Isabella Sardella
International Observatory on Personal Injury Damages – LIDER LAB – Scuola Superiore Sant’Anna

In the Italian system, the violation of fundamental rights allows personal injury compensation. This study identifies a series of heads of damages awarded regardless the assessment of personal injury to the health, such as bereavement damages, the infringement of personal and professional imagine, privacy violation, discriminatory behaviors, criminal offenses, etc.

In the Observatory on Personal Injury Damages database we collected almost 180 judgments from July 2013 to February 2016 based on the violation of fundamental rights included in the Italian Constitution.

- 72 concern bereavement damages
- 28 concern the injury to the personal image
- 33 concern criminal offence
- 4 concern discriminatory behaviors and privacy violations
- 43 concern the infringement of other fundamental rights included in the Constitution.

The research also demonstrated that the principles affirmed by the Supreme Court in the judgements nn. 28772-26975/2008 have been confirmed in several domains:

- Cass. Sez. III, January 13th, 2016, n. 336 → limits to award different heads of damages for non-pecuniary losses under art. 2059 c.c. (i.e. excluding the so-called “danno esistenziale”).
- Cass. Sez. Lav. February 4th, 2016, n.2217 → excluding the “danno esistenziale” as an infringement of fundamental rights for the lack of the burden of the proof.

The debate regarding the possibility of a link between childhood vaccinations and the subsequent development of autism has recently become a public health issue, especially with reference to the increasing parents’ reluctance towards preventative diseases vaccinations.

The MMR vaccine dispute started in 1998 with the publication of a (fraudulent) research paper by Andrew Wakefield on the medical journal *The Lancet* that suggested an association between vaccinations and the development of autism or autism spectrum disorder. Following these findings, extensive epidemiologic studies have been undertaken and no reliable study has shown a link between ASD and the MMR vaccine. The *Lancet* paper was fully retracted in 2010. Despite the scientific evidence, parents still present their claim for compensation against the Ministry of Health. Like the U.S., Italy has a national vaccine injury compensation programme to give some financial support to those who are injured by compulsory and recommended vaccinations.

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<th>GRANTED COMPENSATION</th>
<th>CASE</th>
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<td>TRIB. RIMINI, SEZ. LAV., 15.03.2012 N. 148</td>
<td>A 15-month old boy received his MMR vaccine on March 26, 2004. He then immediately developed bowel and eating problems and received an autism diagnosis with cognitive delay within a year.</td>
<td>The decision flew in the face of the conventional mainstream medical wisdom that an MMR-autism link has been “debunked”</td>
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<td>TRIB. MILANO, SEZ. LAV., 29.09.2014</td>
<td>The infant plaintiff received three doses of the GlaxoSmithKline’s Infanrix Hexa, a hexavalent vaccine than not suffered autism and brain damage because of the neurotoxic mercury, aluminum and his particular susceptibility from a genetic mutation. Few kilograms.</td>
<td>Based on expert medical testimony, the court concluded that the child more likely had a normal physical and mental development autism, and “the absence of evidence of other causes”</td>
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<tr>
<th>DENIED COMPENSATION</th>
<th>CASE</th>
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<td>TRIB. NAPOLI, SEZ. LAV., 25.06.2013</td>
<td>The son of the plaintiffs had a normal physical and mental development autism, and “the absence of evidence of other causes” which had adopted the temporal connection has no scientific medical consultant evidence” about the cause and did not evaluate connection between the autism vaccine and autism.</td>
<td>There is no absolute proof of a causal link between vaccine and mental development autism, and “the knowledge is still very limited, and it is not possible to argue scientifically about a causal link between vaccine and autism.”</td>
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<td>C. APP. BOLOGNA 13.02.2012 N. 1767</td>
<td>Appeal against Trib. Rimini, sez. lav., granted because “in 15.03.2012 n. 148, the absence of evidence of other causes”</td>
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Under the DSM-5 criteria, ASD occur in presence of persistent deficits in social communication and social interaction across multiple contexts, and of restricted, repetitive patterns of behavior, interests, or activities, individuals with ASD must show symptoms from early childhood, even if these symptoms are not recognized until later. The exact cause of ASD is currently unknown. Given the complexity of the disorder, and the fact that symptoms and severity vary, there are probably many causes. Both genetics and environment may play a role. Surely, no link has found with MMR. According to the Special Master of the U.S. vaccine court, the theory of vaccine-induced autism is comparable to Lewis Carroll’s Alice in Wonderland.
Violation of Self-Determination in Medicalcare and Compensation
A.v. Valeria Fargione
Observatory on Personal Injury Damages – LIDER LAB – Scuola Superiore Sant’Anna

Informed consent is the needed permission before conducting a healthcare treatment. Informed consent is based upon a clear appreciation and understanding of the facts and consequences of an action.

Breach of obligation to inform

non-pecuniary damage

for the infringement of self-determination right
for the violation of health, as a fundamental right

Informed consent

without

tort

Informed consent protects person’s self-determination right

Assessment of damages for breach of duty of disclosure although healthcare intervention has been successful

Discretionary assessment of Damages compensation (Trib. Of Campobasso 04.02.2014: € 25.000,00; Trib. Of Firenze 22.01.2014: € 20.000,00)

Burden of the proof:

damage to health: the victim has to prove that if she was well informed she would not have undertaken such a medical treatment:
burden of the proof is on the victim
damage to self-determination right: burden of the proof is on the surgeon

The research demonstrated that on 17 judgements analysed, there are 8 rejection of the damages for breach of informed consent

Why?

lack of evidence on the damage suffered by the patient
the obligation to inform concerns only predictable risks

The main inconstant variables of quantification of non-pecuniary damage

Avv. Alessandra Garibotti
International Observatory on Personal Injury Damages

The analysis of the judgements collected in the Observatory on Personal Injury Damages database dealt with the criteria applied for non-pecuniary losses compensation. In particular, this study focused on the identification of the Italian Tort law functions. From this perspective, judicial reasoning is particularly relevant whereby lower courts shall personalize the amounts of damages identified by the Barèmes of the Tribunal of Milan.

INTRODUCTION

Relevant case law

Regulars cases

The awards can be increased on the basis of particular individual pain and suffering

Trib. Reggio Calabria
October 16, 2013
The court awarded a personalization of 100% for the severity of the event

Trib. Torino
June 3, 2015
The Court increased of 50% the maximum amount established in the barème for bereavement damages. However, the court stated that the seriousness of the loss can affect the awards only if the consequences on the victim are proved.

Court of Appeal of Bologna
August 11, 2015
The Court of Appeal reduced the amount awarded by lower court because it was too much affected by punitive justification

Court of Appeal of Lecce, criminal division
November 13, 2015
It stated that in the criminal trial the judge can develop the function of liability to the pending case.

DEVELOPMENT

REFERENCES

Italian rules
• Art. 96 c.p.c., art. 12 L. 47/1946, art. 125 D.Lgs 30/2005 have punitive function

Leading Cases
• In lower case law compensation is often affected by punitive arguments (see the so-called Vieri Case, the Cir-Fininvest case, and the Tyssen case)

Reality
• No specific rules that requires to prefer or disregard one function of liability respect to another one.

CONCLUSION

A. Garibotti, Le principali variabili inconstanti della quantificazione del danno non patrimoniale alla persona funzione sanzionatoria e personalizzazione, in Danno e Responsabilità, 5/2016, 527-532.
The analysis of case-law involving contractual liability identified some different compensation trends of non-pecuniary damage.

Judgements analysed by the International Observatory on Personal Injury Damages have been issued from July 2013 to February 2016. The contract of employment is the most common source of contractual liability. The analysis focused on those non-pecuniary losses which did not refer to a damage to the health.

This research, led on almost 80 judgments on contractual liability, aimed at identifying the following compensation trends, and in particular the persistent autonomy of the “danno morale” and “danno esistenziale” compensation.

The research demonstrated that, in the cases of breach of contract, “danno morale” and “danno esistenziale” are still recognized as independent heads of damages as well as the compensation for infringement of inviolable rights.

- 53.75% indemnifies non-pecuniary damages as “danno esistenziale” and as compensation for infringement of fundamental rights;
- 48.25% includes only compensation for damage to health (danno alla salute), in many cases personalized.

• In Italy, as in France, “loss of chance” is qualified as an autonomous damage corresponding to the offence of a legal situation that has already been achieved by the plaintiff. It is described as the possibility of acquiring the advantage that chance refers to.

• A different interpretation considers the loss of chance solely as a criterion of causation concerning the loss of profits or, from a broader perspective, a damage that is not proved according to the parameters that are normally adopted in matters of causation.

• The concept of loss of chance presents diversified boundaries according to the respective domains of application and the various court rulings.

MEDICAL LIABILITY AND LOSS OF CHANCE:

- 17 cases collected
- Misdiagnosis as well as late (or even omitted) diagnosis that led to the death of the patient.

LOSS OF CHANCE COMPENSATION – CRITERIA APPLIED

1) Pure Equity
2) Equity + Permanent Disability
3) Equity + Temporary Disability

DISCRETIONARY POWER OF THE COURT
Case-Law analysis on the evaluation of lower impairments occurred in traffic accidents

Avv. Luca Molinari – Avv. Silvia Raffi
International Observatory on Personal Injury Damages – LIDER LAB – Scuola Superiore Sant’Anna

Case-Law analysis

Personal Injury damages awarded + Lower impairment: from 0 to 9% + Occurred in traffic accident

Types of judgements

Art. 139, D.Lgs. 209/2005 Code of Private Insurance
Value of personal damages are predetermined by Ministerial Charts
Personalization up to 20% under adequate proof

Criteria applied by Case-Law

Personalization > 20%
Value of personal damages are predetermined by Judiciary Barèmes
Moral damages
Barèmes from Tribunal of Milan
Pain and suffering evaluation
Discretionary Assessment

Results

59.00% 17.00% 15.00%
139 C.d.A. > 20% Barèmes Pain and suffering

• The Case-Law analysis on lower impairments occurred in traffic accidents has been conducted on a sample of Judicial decisions, collected and classified on the International Observatory on Personal Injury Damages available here: https://www.lider-lab.sssup.it/lider/odp/

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INTRODUCTION

• Traditional debate on non-pecuniary losses awarded in personal injury cases

• A different perspective: to investigate from a cognitive viewpoint, how unconscious/distortionary mental processes affect non-pecuniary damages evaluation.

DEVELOPMENT

According to the US empirical literature on the full compensation of personal injury:

• Decision-makers have a bounded rationality (reflexive + reflective reasoning).

• In awarding damages, they are vulnerable to many different cognitive biases, such as:
  - framing (e.g., endowment effect)
  - anchoring
  - emotional effects of (ir)relevant circumstances (i.e., negligence)...

CONCLUSIONS

• Theoretic-methodological basis for further research, taking into account:
  - Harm perception
  - Heuristics (framing, anchoring, representativeness…)
  - Personal features of decision-makers (i.e., job, cultural biases)
  - Emotional state

• …Towards neurolaw?

REFERENCES

G. Comande, Quando la misura è colma e la motivazione è piena? Realità e percezione dell’integrale risarcimento del danno, in Danno e resp., 2016, 5, pp. 457 ff.
A. Parziale, Percorsi cognitivi e risarcimento integrale: lezioni americane sul danno alla persona, in It. Rev. Legal Medicine, forthcoming.
New trends on personal injury damages compensation

Avv. Ottavia Pizzo, Avv. Federico Russo
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Introduction
The aim of the present work is to:
- confirm known trends
- discover tendencies of the past
- uncover new views

A total of 629 non-patrimonial damage judgments and their outcomes have been analyzed. 3 groups have been identified as follows:
I. Trend biological damage
II. Trend unique comprehensive non-patrimonial damage
III. Trend other than biological damage

Development

I. Trend biological damage [307 judgements]

Pure compensation (134 judgments)
Cases without any personalisation (P) where the judge recognized and granted requested compensation for personal injury that caused a reduction of the psycho-physical integrity of the person, ascertained by medical evaluation (92 judgments P not requested, 40 judgments P not granted).

Personalisation of biological damage (173 judgments)
The judge granted an additional sum where pain & suffering was higher than the expected medium range, and where there were no negative effects on the quality of life.

Assessment criteria:
- a discrete increase of the biological damage percentage (10 judgments);
- a fixed amount on equity basis (41 judgments);
- % identified by the Barèmes of Milan (120 judgments).

II. Trend unique comprehensive non-patrimonial damage [275 judgements]

Non-precurious losses compensation should include not only personal injury certified by medical evaluation but all the additional pain & suffering affecting the person involved in order to guarantee a unitary and complete compensation as stated by the Supreme Court. Since 2009, the Barèmes of Milan guarantee total compensation view.

Most recurring findings on the process of compensation:
EVALUATION
- court medical experts are usually appointed and the judge follows their evaluation.

Quantification
- to date, all Italian Courts in their equitable methods apply the Barèmes of Milan;
- compensation of moral damage is usually granted and the judge follows percentages as advised in the Barèmes of Milan.

III. Trend other than biological damage [47 judgements]

This trend includes the judgments that relate to damage other than biological where there is a different type of non-patrimonial damage that is not identified with personalisation. The judge considered the existence of moral damage linked to the type of injury & burden of the proof not needed.

Types of extra damages found:
- 1 existential damage case;
- 35 moral damage cases apart from the biological damage;
- particular cases linked to a type of offence (4 judgments), or connected to the loss of relationship (7 judgments).

Assessment criteria:
- increasing % biological damage (majority of cases);
- adding an amount of money on top of biological damage;
- on pure equity basis (few cases);
- with a total amount of money that includes both biological and moral damages.

Conclusions
The Italian System is Unique. Assessment made by the judge for non-patrimonial damage compensation is on a case-by-case principle of equity basis and ground on lump sum adjustment approaches. The Barèmes of Milan provide a level of standardisation, but judge discretion still allocates a certain level of compensation for personal injury, especially in the application of the equity concept. Are the judges overstepping their boundaries? This is a very sensitive point. A strong debate on the limitation of personalisation is ongoing, in order to distinguish any tailored compensation from a hidden kind of punitive damage which at the moment has to be considered clearly excluded under the Italian Law, we are waiting for the publication of new charts for the evaluation of macro personal injury.

References