Artículo de revisión

Appropriateness of hydrokinesitherapy in the orthopedic-traumatological patient: a cross sectional survey

Idoneidad de la hidrocinesiterapia en el paciente ortopédico-traumatológico: una encuesta transversal

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ABSTRACT

Introduction: Hydrokinesitherapy is a rehabilitation method used for the treatment of different types of orthopedic, neurological, respiratory problems, etc. However, the existing literature presents not so much evidence regarding the greater efficacy of water treatment compared to dry treatment in patients with post-traumatic outcomes.

Objective: Through the administration of a questionnaire, we tried to investigate the rehabilitation experience of hydrokinetic therapists (trained with the so-called Sequential and Preparatory Approach) in order to understand hydrokinesitherapy areas and methods of proper application based on experts' opinion.

Methods: A cross-sectional study was carried out in 2020 by administering a questionnaire to physiotherapists trained in hydrokinesitherapy according to the

Sequential and Preparatory Approach method, with the aim to investigate their opinion on the use of hydrokinesitherapy in patients with various orthopedic-traumatological problems. Microsoft FORMS® platform was used for the administration of the questionnaire.

Results: Sixty-two users participated in the study. From their answers emerged that the use of hydrokinesitherapy is not recommended for the treatment of post-traumatic hypersensitization of peri-lesional tissues (hypersensitive scars; general hypersensitization) and neuropathic syndromes (of the upper and lower limbs).

Conclusions: The data obtained from administering the questionnaire were not sufficient to create a specific path to define the appropriateness of hydrokinesitherapy for some orthopedic-traumatological problems but could be considered a good starting point on which to build future developments through further studies.

Keywords: hydrokinesitherapy; orthopedics; appropriateness.

RESUMEN

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Introducción

As reported by other authors, Hydrotherapy is a field that pursues the treatment of disease or beneficial health effects by using various properties of water for therapeutic purposes. Hydrotherapy has been applied in combination with various therapies, such as physical therapy, rehabilitation therapy, and health promotion programs.[1,2]

The literal meaning of the term "hydrokinesitherapy" is “healing through movement in water”, and is a rehabilitation method that was born in the 70s especially in the sports field, and then expanded to the different sectors of rehabilitation.

By exploiting the physical properties of water, and associating them with neuromotor principles, the hydrokinetic therapist seeks to favor and accelerate normal learning

processes, the recruitment of motor fibers, perceptual work and balance research, joint motility, and what is necessary for the functional recovery of the patient.[3,4,5]

As for the contraindications the presence of some pathologies, the presence of open scars, bedsores, etc. must certainly be mentioned. In addition, especially during the COVID-19 pandemic emergency, the hot humid environment especially in the locker rooms, is an excellent carrier of nanoparticles;[6,7,8] in any case, there are several measures that can minimize the contraindications to treatment in water (use of waterproof patches, suitable clothing, etc.).[6]

Hydrokinesitherapy (IKT) is a rehabilitation method used for the treatment of different types of orthopedic, neurological, respiratory problems, etc. The micro-gravity environment, the buoyancy, the hydrodynamic resistance, the facilitation of inertia in the movements reproduced in buoyancy and the destabilizing effect produced by turbulence and perturbations of the water on the immersed body are just some of the tools offered by the aquatic environment to the rehabilitation therapist.[1,9]

Existing literature, however, presents not so wide evidence regarding the greater efficacy of water treatment compared to dry treatment in patients with post-traumatic outcomes;[1,3,9,10] furthermore, some elements such as the lack of knowledge of this method by the health personnel, the different attended training courses, and the different experiential settings could lead to formulate diametrically opposite hypotheses of its efficacy.

Through the administration of a questionnaire, the purpose of this work was to investigate, the rehabilitation experience of hydrokinetic therapists (trained with the so-called Sequential and Preparatory Approach (ASP)) in order to understand IKT's areas and methods of proper application and create a path of appropriateness based on experts' opinion.[3]

The so called Sequential and Preparatory Approach could be defined as the treatment of the patient in water through Sequential exercises (i.e. of increasing difficulty), in such a way that each subsequent exercise is proposed only once the previous one has been acquired, proceeding from the simple to the complex. It is also called Preparatory because it proposes sequences of exercises that allow the patient to progressively acquire confidence and adaptation in the water and subsequently, by increasing the difficulty of the proposed exercises, allows the improvement of performance up to the acquisition of total autonomy in the water.[11]

Methods

A cross-sectional study was carried out in 2020 by administering a questionnaire to physiotherapists trained in hydrokinesitherapy according to the ASP method, with the aim to investigate their opinions about the use of hydrokinesitherapy in patients with various orthopedic-traumatological diseases (the investigated pathologies were selected on the basis of the admission diagnoses recorded in the medical records of patients admitted to the Motor Rehabilitation Center - CRM of Volterra (Italy) where the study has been conducted).

The sample was formed by hydrokinetic therapists trained with the ASP method of the National Hydrokinetic Therapy Association (ANIK).

Microsoft FORMS® platform was used for the administration of the questionnaire; the distribution of the questionnaire was entrusted to ANIK, which sent the questionnaire link to its subscribers via email (one hundred and forty-seven persons).

Structure of the Questionnaire

The creation of the questionnaire followed an articulated and complex path that involved both the hydrokinesis team of the Volterra CRM and the collaboration of the National Hydrokinetic Therapy Association (ANIK).

The pilot scheme of the questionnaire was drawn up in February 2020 following the main items for carrying out quantitative surveys reported in the literature.[12,13,14,15]

To streamline the structure of the questionnaire, and avoid incomplete compilations, we decided to adopt schematic questions and a visual analogue type of response; Forms® offers the NPS® method as a basis,[16] which is usually used to evaluate loyalty in the business-customer relationship, measuring the proportion of promoters for that product / service and returning a value ranging from -100 (all detractors) to +100 (all promoters). This method asks the interviewee to assign a satisfaction value from 0 to 10 to their experience at the company, or rather it asks the interviewee to indicate how much they would recommend that company to another potential customer; the reinterpretation in our questionnaire was then the following: "*how much would you recommend hydrokinesitherapy treatment in the following clinical situations*?".

On June 8, 2020, the final questionnaire consisting of thirty-seven items, was published and sent to the 147 users registered in the ANIK mailing list who had consented to the sending of material for the purpose of statistical surveys. The items were divided into three sections:

- *Diagnosis and Clinical Pictures Section*, consisting of the first twenty-four questions, in which respondents have been asked to indicate how much on a scale from 0 to 10 they would recommend the treatment of IKT in certain clinical pictures;
- *Signs and Symptoms Section*, consisting of the subsequent eleven questions, in which respondents have been asked to indicate, in the same way as the first section, how much hydrokinesitherapy treatment could be considered suitable when there are particular signs and symptoms;
- *Contraindications*: in the item number thirty-six respondents were asked to indicate (using a likert scale on four levels ("IKT highly contraindicated"; "IKT contraindicated in the absence of suitable precautions"; "low contraindication"; "no contraindication")) how much they believe IKT contraindicated in presence of particular conditions (for example: psychiatric disorders, open scars, etc.).

Finally, the item 37 was a blank space where the interviewed could express personal opinions.

The questionnaire was available for fifteen days, and immediately after closing it, the results of the Net Promoter Score were retrieved from the software.

Statistics

Statistical analysis was conducted using IBM SPSS® Statistics v. 22.

The descriptive analysis of the items of the first two sections (items 1-35) was conducted, for each of them the value of the average and its 95% confidence interval were calculated, in addition to the value of the average trimmed to 5% and of the median, moreover, for a greater insight into the homogeneity of the responses to each single item, the variance value, the minimum and maximum value, the absolute interval and the interquartile interval were calculated; finally, the shape indices (asymmetry and kurtosis) were

calculated, so as to be able to evaluate how symmetrical and comparable to a normal distribution of the answers to the single question.

In order to have a more immediate and concise representation of the form of distribution of the answers, the graphical representation through boxplot was used, also known as box and mustache graph,[17,18] a particular type of statistical graph used for quantitative variables, useful for understanding the distribution of values and above all for quickly and accurately identifying the outliers.

To complete the statistical analysis, the reliability of the results was then assessed and the possible correlation both between the items (through the calculation of the correlation coefficients) and between the users, practically evaluating the degree of agreement between them calculation of the Kendall concordance coefficient.

Results

At the closing date of the survey sixty-two users participated in the compilation (approximately 42% of the invited), one of whom did not provide any response.

The average time taken to complete the questionnaire was six minutes and forty-six seconds, the average of the answers given by each user was 39.42 (SD: 3.48) out of a total of forty-one (thirty-six questions plus five sub-questions); eight users decided to use the question thirty-seven to express personal considerations almost always referring to the importance of associating hydrokinesitherapy with dry treatment.

The main results are reported (Annexe).

From the answers it emerges that the interviewed are more inclined to recommend aquatic exercises for pathologies of the lower limbs more than those of the upper limbs (especially if, in the former case, there is a contraindication to the total load). Moreover, experts prefer to use IKT to treat the proximal joints of the appendicular skeleton, rather than the distal or axial skeleton, even reporting negative NPS for fractures of the elbow, ulna / radius, wrist / hand and for rib fractures.

As for the contraindications, with the exception of minor mental disorders, considered by 66% of the participants as low or no contraindication, this section highlights a tendency of experts to be cautious, especially with regard to open scars and infections (Fig. 1).

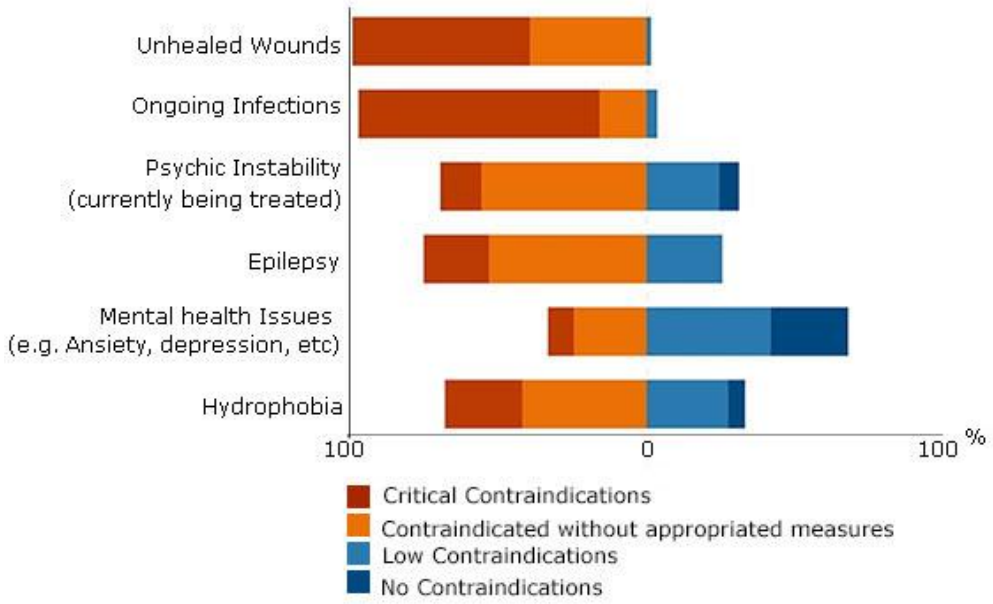

Fig. 1 - Contraindications.

From table 1 it is evident that the percentage of users who answered the questions of the first two sections (from number 1 to number 35) is almost always higher than 90% (in fact the only questions that obtained a response percentage lower than this threshold are those relating to rib fractures (88.5%), neuropathic syndromes of the lower and upper limbs (83.6% and 88.5% respectively), and Regional Complex Painful Syndrome (CRPS) (85.2%) , hypersensitivity of periwound tissues and afephobic patients (86.9% for both cases).

On the other hand, the items in which 100% of the participants responded are those related to rotator cuff injuries, shoulder, humerus, hip and ankle fractures, lumbago / lumbosciatica, ligament injuries, polytrauma and load prescription touching (Fig. 2).

For a concise, immediate, and detailed representation of the results of the descriptive analysis, it was decided to use the boxplots chart or "box and whisker diagram".

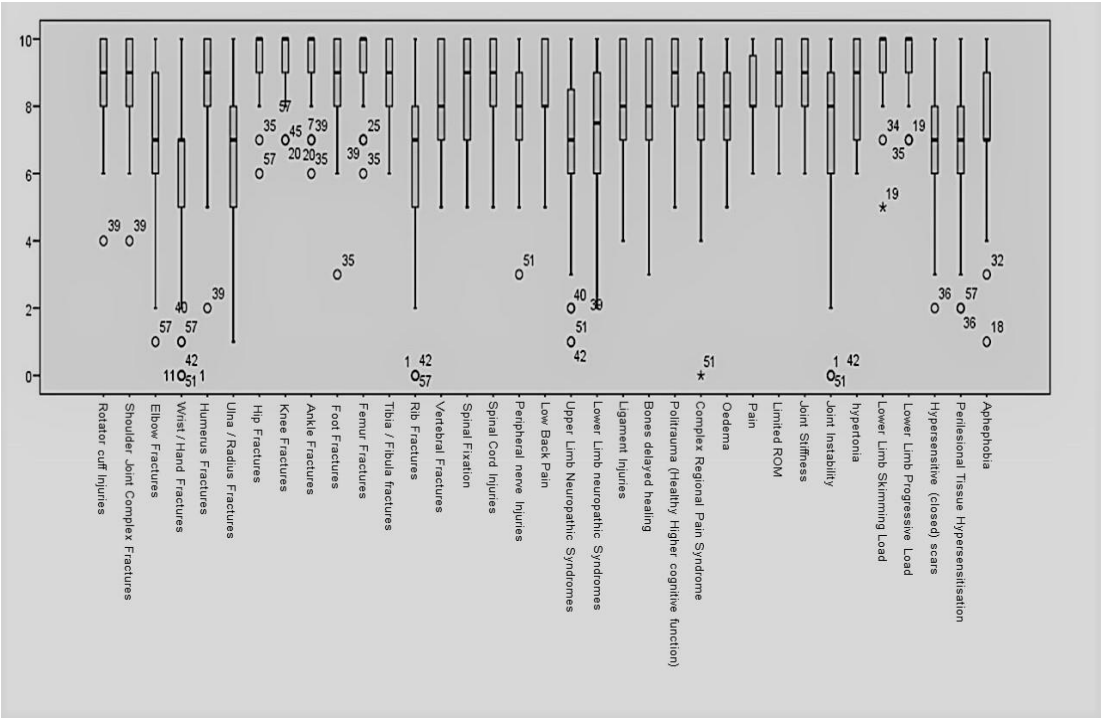

Fig. 2 - Boxplots sections 1 - 2.

All the boxplots reached the upper limit of the graph (value 10 on the ordinate axis) to indicate that, for each item, at least one user has considered the rehabilitation in water as absolutely indicated.

Other elements, such as: the greater length, for each item, of the upper mustache compared to the lower mustache; the total absence of outliers in the upper part of the pits; the value of the median (that only in nine of the thirty-five items falls below the value of eight and in no case below the six) revealed a general users' tendency to consider IKT as a treatment indicated in all clinical cases proposed in the questionnaire.

The items relating to fractures of the hip, knee, ankle, femur, and loading prescriptions (questions 7, 8, 9, 11, 31 and 32) deserve a separate evaluation, these six items, in fact, have the same characteristics graphics:

- The median line is hooked to the upper part of the boxing then superimposed on the upper end of the graph, the maximum value of the distribution, to indicate that, for these items, more than half of the respondents assigned a value of 10;

- The length of the box, that is the interquartile range, is contained between the value 9 and the value 10 on the ordinate axis, indicating that most of the answers given by users to these questions are contained between 9 and 10;
- Absence of the upper whisker and lower whisker of reduced size, which confirm a strong consistency between the values assigned by users to these items, as also demonstrated by the analysis of the mean, the SD, the IQR shown (Annexe);
- The presence of outliers is limited (about two per item).

Analyzing the items relating to the lower limbs, it is also possible to observe that the boxplots relating to fractures of the foot and tibia / fibula (items 10 and 12) reach the upper limit of the graph, with the absence of the upper whisker and lower whisker content, median equal to nine, and minimal presence of outliers.

As regards the upper limbs: the three items referring to the proximal part (questions number 1,2 and 5) obtained very positive values; the relative boxes reach the upper limit of the graph, have a median equal to nine and an interquartile interval between eight and ten. Moreover, the presence of a single outlier for all three items could indicate negative personal experiences of the user about IKT for upper limb injuries or in general (in fact the same user appears to be outlier in different items (rotator cuff lesions, joint complexes of shoulder, humerus, ankle, femur and neuropathic syndromes of the lower limbs). In these three items (numbers 3,4 and 6) we noticed a rather elongated box shape, a more accentuated length of mustache (among the longest in the whole graph), a median equal to seven for all and three items, all indices of high variability in the responses.

Analyzing the section dedicated to the axial skeleton, we noted a generalized decrease in agreement among experts: the box relating to rib fractures is rather elongated in shape, with a median of six (among the lowest obtained) and an interval of eight (distance between the lower end and the upper end of the whiskers), three outliers at the zero position.

The box related to vertebral fractures and stabilization (amyelic) obtained better results: despite the high interquartile interval (IQR: 3), the median value was high; furthermore, the absence of the upper whisker indicates a variability of results mostly referred to the values at below the median.

The specific item for spinal injuries shows that most of the voters assigned a value between eight and ten, and at least 50% assigned a value greater than eight.

For the remaining items, relating to specific signs, symptoms and syndromes, the greatest variability is found in opinions relating to neuropathic syndromes, joint instability and hypertonia, while there is strong agreement on the effectiveness of IKT in the treatment of joints stiffness, and limitations of the Range of Motion (ROM). Hypersensitivity of tissues and scars achieves rather low average and median values, with moderate disagreement among respondents.

The analysis conducted on the reliability of the questionnaire highlighted a high value of Cronbach's Alpha (0.959), used to calculate the degree of internal consistency between the items: however, its significance is limited because the items referred to pathologies not necessarily related to each other.

Concluding, the Kendal W, a non-parametric test designed to evaluate the degree of agreement between the respondents, is equal to 0.405 and is statistically significant (p <0.05), which suggested that the difference observed in the average ranks of the experts is equal to 40.5% of the possible variability. The degree of agreement between the experts can therefore explain 40.5% of the variability that would be obtained in the event of maximum agreement between the experts.

It can therefore be concluded that, although significant, the degree of agreement between users is not particularly high.

Discussion

Rehabilitation has now become a fundamental constituent of both the recovery and reintegration process of the injured person at work and the tertiary prevention sector in general[19] considered as the set of interventions carried out on the injured and / or sick person, in order to reduce the progression of the disease, the risk of complications, pain, and improve the patient's quality of life.[20,21,22]

The increase in health care costs, together with the decrease in financial resources, made necessary to optimize the rehabilitation programs and their appropriateness.[23]

In fact, although the effectiveness of IKT in the rehabilitation of musculoskeletal disorders is quite proven, the high management costs could constitute an important

deterrent for the choice of this treatment; it is therefore necessary an adequate patients' selection, based on specific criteria and aimed at reducing the inappropriate treatment.[24]

The data obtained from the administration of the questionnaire are certainly not sufficient to create a specific path to improve the appropriateness of IKT in specific orthopedic-traumatological diseases, but the obtained information could constitute a solid basis for future developments.

From our study, the use of IKT does not appear to be recommended for the treatment of post-traumatic hypersensitivity of peri-lesional tissues (hypersensitive scars; generic hypersensitizations) and of neuropathic syndromes (of the upper and lower limbs). These results are in contrast with that is reported in literature: the studies conducted by *Mooventhan et al*,[10] *Zivi* et al[25] and *Villalta et al*.[26] found the substantial parity of effectiveness between the dry treatment and the water treatment.

In particular, in the study conducted by *Zivi et al*[25] on a sample of 40 patients (divided into an experimental group that performed treatment in water and a control group that performed only dry treatment) the equivalence between the results obtained by the two groups was found, with a greater reduction of neuropathic pain in the experimental group.

Regarding the Complex Regional Pain Syndrome CRPS, the results obtained in the questionnaire seem to be in line with the existing literature,[27,28] that describe the immersion in water as a useful tool for pain control, recovery of movement and load re-education.

As for the distal part of the upper limb (from the elbow down), the high indexes of variability in the responses could be attributed to the scarcity of literature in this field: the few evidences that could be found are mostly related to injuries of the shoulder joint.[10,26,29]

The greater presence of studies related to the shoulder joint could explain why, according to the interviewed, IKT is a more suitable treatment for the proximal joints of the upper limb and, probably, the paucity of studies on the distal joints negatively influences their opinion.

As regards the lower limbs, on the other hand, there is a concordance with the evidence in the literature that shows proven efficacy of aquatic exercises for the treatment of pathologies of the lower limbs.[9,10,30,31,32]

Also the book by *Ferrari et al*[33] defines hydrokinesitherapy as an element present in most rehabilitation protocols for pathologies inherent to the lower limb, especially in

cases where it is necessary to gradually grant weight and introduce exercises in a closed kinetic chain.

The specific item for spinal injuries shows that most of the voters assigned a value between eight and ten, and at least 50% assigned a value greater than eight, which confirms the evidence in the literature.[34]

Among the limitations of the study, we should report the choice to use Microsoft Forms® for filling out the questionnaire: in fact, it doesn't ensure an adequate protection against double compilations by the same user, while maintaining the anonymity of the users themselves. However, we tried to minimize this bias by avoiding resubmitting the link via email.

Furthermore, it is possible that the NPS method could have led to confusion in the assignment of scores , increasing the variability of the results. This problem has been partially solved with the use of emoticons as a visual-numeric conversion factor.[35]

In any case, the variability of the responses remained contained for most of the items.

Conclusions

The particular nature of hydrokinesitherapy makes difficult the creation of specific guidelines or therapeutic paths. The purpose of the study was to investigate of the use of hydrokinesitherapy in case of orthopedic-traumatological diseases using the experience of professionals operating in this sector.

The obtained results, although they can be considered a good starting point for improving the appropriateness of treatment, have several limitations that must be overcome through further studies.

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Conflict of interest

None declared

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Annexe - Main results

Statistical analyses of questionnaire results							
Items	Descriptive analyses			Report answers			
				Respondents	Valid Answers	Missing Answers	Valid Answers %
Rotator cuff Injuries	Average		8,64	61	61	0	100,00%
	95% confidence interval	Lower Limit	8,32				
		Upper Limit	8,96				
	Median		9				
	Standard deviation		1,252				
	Minimum		4				
	Maximum		10				
	Interquartile range		2				
Shoulder Joint Complex fractures	Average		8,84	61	61	0	100,00%
	95% confidence interval	Lower Limit	8,49				
		Upper Limit	9,18				
	Median		9				
	Standard deviation		1,344				
	Minimum		4				
	Maximum		10				
	Interquartile range		2				
Elbow fractures	Average		7,08	61	60	1	98,40%
	95% confidence interval	Lower Limit	6,52				
		Upper Limit	7,64				
	Median		7				
	Standard deviation		2,173				
	Minimum		1				
	Maximum		10				
	Interquartile range		3				

Wrist / Hand fractures	Average		5,98	61	59	2	96,70%
	95% confidence interval	Lower Limit	5,31				
		Upper Limit	6,66				
	Median		7				
	Standard deviation		2,583				
	Minimum		0				
	Maximum		10				
	Interquartile range		2				
Homer fractures	Average		8,54	61	61	0	100,00%
	95% confidence interval	Lower Limit	8,15				
		Upper Limit	8,93				
	Median		9				
	Standard deviation		1,512				
	Minimum		2				
	Maximum		10				
	Interquartile range		2				
Ulna / Radius fractures	Average		6,6	61	58	3	95,10%
	95% confidence interval	Lower Limit	6				
		Upper Limit	7,2				
	Median		7				
	Standard deviation		2,278				
	Minimum		1				
	Maximum		10				
	Interquartile range		3				
Hip fractures	Average		9,31	61	61	0	100,00%
	95% confidence interval	Lower Limit	9,08				
		Upper Limit	9,55				
	Median		10				

	Standard deviation		0,923				
	Minimum		6				
	Maximum		10				
	Interquartile range		1				
Knee fractures	Average		9,3	61	60	1	98,40%
	95% confidence interval	Lower Limit	9,07				
		Upper Limit	9,53				
	Median		10				
	Standard deviation		0,889				
	Minimum		7				
	Maximum		10				
	Interquartile range		1				
Ankle fractures	Average		9,25	61	61	0	100,00%
	95% confidence interval	Lower Limit	9				
		Upper Limit	9,5				
	Median		10				
	Standard deviation		0,977				
	Minimum		6				
	Maximum		10				
	Interquartile range		1				
Foot fractures	Average		8,75	61	60	1	98,40%
	95% confidence interval	Lower Limit	8,4				
		Upper Limit	9,1				
	Median		9				
	Standard deviation		1,336				
	Minimum		3				
	Maximum		10				
	Interquartile range		2				
Fe mur	Average		9,22	61	60	1	98,40%

	95% confidence interval	Lower Limit	8,96				
		Upper Limit	9,47				
	Median		10				
	Standard deviation		0,993				
	Minimum		6				
	Maximum		10				
	Interquartile range		1				
Tibia / Fibula Fractures	Average		9,02	61	60	1	98,40%
	95% confidence interval	Lower Limit	8,73				
		Upper Limit	9,31				
	Median		9				
	Standard deviation		1,127				
	Minimum		6				
	Maximum		10				
	Interquartile range		2				
Rib Fractures	Average		6,46	61	54	7	88,50%
	95% confidence interval	Lower Limit	5,78				
		Upper Limit	7,15				
	Median		7				
	Standard deviation		2,516				
	Minimum		0				
	Maximum		10				
	Interquartile range		3				
Vertebral Fractures	Average		8,42	61	60	1	98,40%
	95% confidence interval	Lower Limit	8,05				
		Upper Limit	8,78				
	Median		8				
	Standard deviation		1,406				
	Minimum		5				

	Maximum		10				
	Interquartile range		3				
Spinal Fixation	Average		8,42	61	59	2	96,70%
	95% confidence interval	Lower Limit	8,05				
		Upper Limit	8,8				
	Median		9				
	Standard deviation		1,429				
	Minimum		5				
	Maximum		10				
	Interquartile range		3				
Spinal Cord Injuries	Average		9,02	61	59	2	96,70%
	95% confidence interval	Lower Limit	8,7				
		Upper Limit	9,33				
	Median		9				
	Standard deviation		1,21				
	Minimum		5				
	Maximum		10				
	Interquartile range		2				
Peripheral nerve Injuries	Average		8,16	61	57	4	93,40%
	95% confidence interval	Lower Limit	7,74				
		Upper Limit	8,57				
	Median		8				
	Standard deviation		1,567				
	Minimum		3				
	Maximum		10				
	Interquartile range		2				
Low Back Pain	Average		8,41	61	61	0	100,00%
	95% confidence interval	Lower Limit	8,04				
		Upper Limit	8,78				
	Median		8				

	Standard deviation		1,442				
	Minimum		5				
	Maximum		10				
	Interquartile range		3				
Upper Limb Neuropathic Syndromes (e.g. thoracic outlet syndrome or cubital tunnel syndrome)	Average		6,88	61	51	10	83,60%
	95% confidence interval	Lower Limit	6,21				
		Upper Limit	7,55				
	Median		7				
	Standard deviation		2,389				
	Minimum		1				
	Maximum		10				
	Interquartile range		3				
Lower Limb neuropathic Syndromes	Average		7,31	61	54	7	88,50%
	95% confidence interval	Lower Limit	6,77				
		Upper Limit	7,86				
	Median		7,5				
	Standard deviation		1,998				
	Minimum		2				
	Maximum		10				
	Interquartile range		3				
Ligament Injuries	Average		8,3	61	61	0	100,00%
	95% confidence interval	Lower Limit	7,92				
		Upper Limit	8,67				
	Median		8				
	Standard deviation		1,476				
	Minimum		4				
	Maximum		10				
	Interquartile range		3				
Bones delayed healing	Average		7,9	61	58	3	95,10%
	95% confidence interval	Lower Limit	7,42				

		Upper Limit	8,38				
	Median		8				
	Standard deviation		1,823				
	Minimum		3				
	Maximum		10				
	Interquartile range		3				
Politrauma (Healthy Higher cognitive function)	Average		8,87	61	61	0	100,00%
	95% confidence interval	Lower Limit	8,55				
		Upper Limit	9,18				
	Median		9				
	Standard deviation		1,231				
	Minimum		5				
	Maximum		10				
	Interquartile range		2				
CRPS	Average		7,94	61	52	9	85,20%
	95% confidence interval	Lower Limit	7,42				
		Upper Limit	8,46				
	Median		8				
	Standard deviation		1,862				
	Minimum		0				
	Maximum		10				
	Interquartile range		2				
Edema	Average		8,2	61	60	1	98,40%
	95% confidence interval	Lower Limit	7,85				
		Upper Limit	8,55				
	Median		8				
	Standard deviation		1,35				
	Minimum		5				
	Maximum		10				
	Interquartile range		2				

Pain	Average		8,62	61	60	1	98,40%
	95% confidence interval	Lower Limit	8,36				
		Upper Limit	8,88				
	Median		8				
	Standard deviation		1,01				
	Minimum		6				
	Maximum		10				
	Interquartile range		2				
Limited ROM	Average		8,87	61	60	1	98,40%
	95% confidence interval	Lower Limit	8,56				
		Upper Limit	9,17				
	Median		9				
	Standard deviation		1,186				
	Minimum		6				
	Maximum		10				
	Interquartile range		2				
Joint Stiffness	Average		8,77	61	60	1	98,40%
	95% confidence interval	Lower Limit	8,44				
		Upper Limit	9,09				
	Median		9				
	Standard deviation		1,254				
	Minimum		6				
	Maximum		10				
	Interquartile range		2				
Joint Instability	Average		7,22	61	60	1	98,40%
	95% confidence interval	Lower Limit	6,54				
		Upper Limit	7,89				
	Median		8				

	Standard deviation		2,617				
	Minimum		0				
	Maximum		10				
	Interquartile range		3				
hypertonia	Average		8,39	61	57	4	93,40%
	95% confidence interval	Lower Limit	8				
		Upper Limit	8,77				
	Median		9				
	Standard deviation		1,436				
	Minimum		6				
	Maximum		10				
	Interquartile range		3				
Lower Limb Skimming Load	Average		9,3	61	61	0	100,00%
	95% confidenceinterval	Lower Limit	9,03				
		Upper Limit	9,56				
	Median		10				
	Standard deviation		1,038				
	Minimum		5				
	Maximum		10				
	Interquartile range		2				
Lower Limb Progressive Load	Average		9,33	61	60	1	98,40%
	95% confidence interval	Lower Limit	9,1				
		Upper Limit	9,57				
	Median		10				
	Standard deviation		0,914				
	Minimum		7				
	Maximum		10				
	Interquartile range		1				
Hyperse	Average		7,11	61	56	5	91,80%

	95% confidence interval	Lower Limit	6,62				
		Upper Limit	7,6				
	Median		7				
	Standard deviation		1,826				
	Minimum		2				
	Maximum		10				
	Interquartile range		2				
Perilesional Tissue Hypersensitisation	Average		7,19	61	53	8	86,90%
	95% confidence interval	Lower Limit	6,69				
		Upper Limit	7,68				
	Median		7				
	Standard deviation		1,798				
	Minimum		2				
	Maximum		10				
	Interquartile range		2				
Aphephobia	Average		7,53	61	53	8	56,90%