



JOINTDYNAMICS

Effective Solutions

to Address Objective Knowledge Gaps,

Poor Efficiencies, Accountability & Inaccuracies

Present in most Government Run

Worker's Compensation Insurance Systems

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Areas of Enhancement within Present Processes of Government Run Insurance

Note: These comments are only related to the evaluation and management of Musculoskeletal and Soft Tissue Injuries.

“**Base data**” is accurate, objective quantitative joint function data used as a foundation for one or more subjective interpretations to take place.

Introduction

Joint Dynamics has over the last 15 years developed a computerised electromechanical system to measure joint function in the human body, so that more accurate functional assessments could be achieved. Measuring torque or joint strength has little purpose without knowing the measured torque was provided as a maximal effort. The second key parameter was to accurately measure the Range of Motion.

This technology was independently verified to identify 100% of maximal effort subjects and 99.4% of Submaximal assessments. Joint dynamics went on to develop devices that could be used in a clinic environment to accurately measure joints including the spine.

The greater the knowledge of Physical Assessments for Worker's Compensation insurance claimants, the greater there was a large discrepancy between the commonly used subjective and survey methods and the collection of accurate unbiased objective facts. Methods were mostly unrepeatable, not comprehensive and highly unaccountable.

Joint Dynamics is looking at ways more accurate and fairer data can replace older subjective methods to provide more effective and fairer outcomes that are auditable.

The Community and the Government will greatly benefit with the application of objective technology replacing subjective interpretations made in Musculoskeletal Injuries where possible.

Scope of Physical Assessment

- To ensure there is standardised, meaningful objective and comprehensive data about the factual impairment caused by a workplace injury.
- Present methods excessively rely on claimant's subjective interpretation of capabilities and other difficult to verify pieces of information – not accurate unbiased objective function measurements.

Solution:

- Ensure there is set of comprehensive assessments carried out to obtain objective data about individual and composite joint function, physical work and home functions.
- Measure in a standardised manner tasks such as standing sitting, walking, pushing, pulling, stair climbing, bicycle pedaling, and other functions related to daily living and work functions.
- Acquire survey data in a structured standardised manner – keeping in mind it's value in relation to higher forms of evidence able to be acquired.
- Combine unbiased objective factual data with subjective survey information to form a basis for accurate and the highest level of fairness decisions.
- Depending on the type of injury, periodic assessments need to be programmed to detect any changes in the status of the rehabilitation.
- Use the maximum amount of accurately measured objective data where possible.

Accuracy of Measured Range of Movement of a Joint

- Is a Range of Movement (ROM) angle able to have a defined accuracy quoted with the measurement methods presently used?
- Is a presently used hand held device such as a Universal Goniometer (a protractor) or an inclinometer able to be inter and intra-tester error free?
- Is the measurement of the range of movement a valid method of assessing joint function or would the accurate verified measurement of ROM combined with torque, effort and fatigue be a more comprehensive and evidence-based approach?
- How is a proven unreliable goniometer measurement that has an error of up to $\pm 10\%$ (sometimes 40%) able to be inserted into an AMA5 (American Medical Association Guides to Impairment) calculated WPI calculation and then compared with an absolute threshold of 10%? Joint Dynamics can provide in excess of 60 peer reviewed papers confirming the inaccuracy of recorded goniometer measurements.

Solution:

- Use the most certified accurate (and most comprehensive) set of objective evidence-based angular data that is available.
- Do not accept angular data sourced from proven inaccurate devices.
- Have accurate, comprehensive and independently sourced joint function testing data to provide an unbiased foundation for higher quality decisions to be built upon.

Management & Auditing of the Functional Assessment Process

- Minimal objective tools allowing accurate & meaningful auditing of the process.
- No standardised record keeping to ensure uniformity and assessment completeness.
- Virtually, no objective foundation data collect or used to base critical decisions upon.
- Low confidence levels by decision makers because very few factual measurements are available.
- Not transparent - little or no progress feedback to the subject or anyone involved in the claim.
- No meaningful tools to guide an auditor to identify possible discrepancies.
- Over-servicing not accurately monitored or reliably identified on a case-by-case basis.
- Almost impossible to audit because there is virtually no standardisation in the rehabilitation management process.
- All physical assessment status and progress data should be fed back to the regulator for accurate statistical data collation.
- No normative data to be able to make effective performance comparisons.
- Higher efficiency cannot be readily produced without standardisation.
- Debatable accuracy because the claimant is the source of information in survey form relating to the status of the impairment.
- Very debatable approach of having a case manager making critical decisions with little or no medical qualifications to ensure the decisions have a valid, scientific and accurate basis.
- An integrated and structured reporting system is missing to effectively monitor and manage all aspects of the assessment process.

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Solution:

- Ensure that objective data is used as a basis for assessment decisions over subjective information sourced by the claimant.
- Ensure that the person managing the case is qualified to make medical decisions or has direct access to someone who has and take their advice.
- Have comprehensive and independent physical function measurements to provide an accurate unbiased foundation upon which high quality subjective interpretations and decisions are based.
- Have an integrated database so all authorised parties can readily access relevant information and assessment results.
- Maximise standardisation of assessments and procedures so there is a solid foundation for the complete assessment process – this will enhance the accountability and auditability of the system.

Possible Vested Interests not wanting objective accurate assessments

- There are many sectors in the worker's compensation arena that do not want accurate and objective data – in fact it is only the taxpayer, employer and the injured worker that want the facts for the most cost-effective and fairest outcomes.
- Could there be objections to having accurate joint function data that would allow the performance of the various parties to be effectively monitored and audited?
- Could there be one side of a legal argument that does not want clear objective assessment data but would prefer a series of grey subjective opinions from expert witnesses?
- Is it possible for a Doctor to positively confirm that the milestone of Maximum Medical Improvement (MMI) was in fact passed and the progress of the rehabilitation was not likely to change?
- Could a Doctor prefer to over-service a claimant simply because he did not have sufficient known accurate objective data and progress curves to confidently know that MMI milestone had in fact been reached and possibly passed some time ago?
- Lack of objective data only leads to uncontrolled and difficult to manage costs
- Could a physiotherapist report to a Case Manager (or Doctor), that the person required additional physiotherapy, when in fact this was not the case and the physiotherapy functions served no purpose?
- Could an assessment professional, make a decision based on inaccurate and unverifiable foundation assessment data with possible benefit implications?
- It is extremely difficult to argue against unbiased evidenced based, verified accurate objective data collected about the factual status of the injury. The base data would be quantitative fact and not a subjective interpretation of subjective information.

Solution:

- Put in place structured systems that ensure cost effective and the fairest outcomes built on factual and the highest quality evidence possible.
- Maximise the quantity of objective data and graphs to ensure the highest quantity of decision-making are based on fact – not on an opinion or a survey with information mostly provided by the injured worker.
- Maximise the independence of assessment information by having the Organisation that shoulders the risk/Insurer paying for the service.
- Provide the ability for all decision-makers to have the highest levels of confidence in their decisions by having high evidence-based and verified accurate objective factual joint functional available to them as a foundation.

The Injury Assessment Process

- Little or no procedural structure to the methods adopted - individual assessments are not based on a uniform comparable framework.
- Little or no objective status assessment to ensure that the previous functional assessment had not changed – the person was not going to improve any further.
- Minimal amounts of independent accurate standardised objective data are used as a foundation for accurate decision-making.
- Scope of present assessment is only based on angles inaccurately measured with no measurement of strength or endurance of the movement function.
- Proven inaccurate endpoint and ROM angles inserted into a subjective diagnosis calculation by a suitably qualified person?
- Very difficult to gauge factual accuracy because of subjective information especially when it is mostly sourced from the impaired person using surveys.
- Subjective information makes it very difficult to manage and audit the productivity and monitor for the most cost-effective and accurate result.
- Not a transparent process – with no objective feedback to the injured person.
- Little or no validation of the accuracy of impairment calculations with quotable accuracy, to identify poor overall assessment performance.
- Paperless results not easily accessible by authorised people.
- Why should the impaired person and tax payer have to bear the brunt of inefficiencies and inaccurate Injury outcomes – **no-one else suffers**, only the system and the employers/taxpayer?

Solution:

- Develop detailed procedures with checklists to ensure the highest quality and completeness of any non-measured evidence is reliably gathered to be used as a foundation of a subjective decision.
- Have comprehensive and independent Evidence-Based Joint Function testing to provide an accurate unbiased foundation for higher quality and fairer decision making.
- Have the ability to identify sub-maximal efforts during the assessment, so that valid & meaningful maximum-effort strength/torque values can be collated.
- Ensure the highest levels of fairness and transparency of all aspects of the rehabilitation, its management and end result have the highest level of fairness to the injured worker are achieved.

Responsibility for efficient, accurate and cost effective rehabilitation/monitoring

- Which organisation or part thereof is ultimately responsible for accurate accountable operation of the rehabilitation/monitoring and assessment processes?
- Which independent auditing party ensures that the assessments and rehabilitation decisions are carried out in the most accurate and efficient manner?
- Are the assessors effectively audited, possibly by sending the same claimant to 5 different assessors to compare the variations of the resultant assessments?
- How are rehabilitation regimes monitored to ensure the most cost-effective path to ensure a fair and accurate result is utilised?

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Solution:

- Ensure a management and treatment monitoring system is set up that will indicate focus areas which are outside defined normal functions with Red Flag alarms.
- Ensure that a fully structured, comprehensive and uniform data acquisition is in place so realistic treatment regime and cost comparisons can be effectively monitored and normative data can be acquired.

Biased or Distorted Subjective Decision Making

- Is the Family Doctor, with a 20-year relationship, going to provide unbiased decisions about the claimant's injury status that will probably not be identified nor punished if it was identified?
- Would an "independent" assessor be truly independent if family members also used that same doctor?
- Why not reduce the chance of assessment errors by providing independent and comprehensive joint function data to the assessing medical professional?
- Does the Medical Assessor view any prior assessment content before providing the Independent unbiased review of the assessment without influences of other people's assessments?

Solution:

- Have comprehensive and independent Joint Function testing to ensure an accurate unbiased foundation for higher quality decision making.
- If the independent assessment is carried out by a verified accurate machine there cannot be any bias involved.
- Utilise a standardised Assessment that provides accurate unbiased objective measurements of the functional capacity of specific work based functions.

Difficulties in Auditing Impairment Assessment Performance

- Because there is minimal (or no) standardised structure and objective data available to the assessor and auditor, the accuracy of these assessments are extremely difficult to verify and successively audit?
- ***"If you can't measure it - you are unlikely to effectively manage (or audit) it"***

Solution:

- Have a highly structured assessment and survey procedure in place to ensure comprehensive and comparable assessments.
- Ensure the highest quantities of unbiased, accurate objective data is available to the person carrying out the assessment.
- Carry out (say 5) separate random assessments of the same injured worker – in theory the results should be very similar because they would be based on the same objective data and the same subjective set of surveys.
- Gather detailed statistical data on the complete management process.

Overall Results after a Claim is Disputed or Refused

- In many cases, it is the reviewing officer/case manager who carries out the initial review (leading to possible bias)
- A very high number of cases are disputed due to the lack of accurate evidence based objective base data in making decisions.
- Little or no normative data to effectively compare results with the population.

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Solution:

- Have comprehensive and independent Joint Function Assessments to provide an accurate unbiased foundation for higher quality decisions based on objective facts. Objective facts from an objective assessment made by a NATA (National Association of Testing Authorities) certified accurate machine are difficult to argue against in court.
- Less physical impairments will be disputed if physical function facts are pitted against subjective opinions of the base data upon which decisions are made.
- Ensure that the expert Medical Assessor does not have access to any assessments made by other parties to ensure the assessment is unbiased for any reason.

Likely Yellow and Red Flag Cases

- There are no structured effective quantitative automated tools to identify possible “Yellow” and “Red Flag” cases to the Case Manager.

Solution:

- Use Structured Surveys so all alerts can automatically be provided to the case manager to monitor the progress and maximal joint performance parameters.
- There can be an automated Red/Yellow Flag algorithm developed using a combination of Objective factual performance correlated to the subjective survey answers.
- Develop algorithms that relate physical function assessment information with claimant provided Activities of Daily Living (ADL)

Inaccurate Return to Work Assessments

- Extremely difficult to accurately identify if an injured worker is ready to return to work without accurate objective data.
- Very limited understanding of what the true work capacity of the subject is – thus leading to poor decisions and low RTW durability.
- Ease with which an injured worker can feign their true ability to carry out functional tasks.

Solution:

- Accurately and objectively measure the injured worker’s identified maximum effort capabilities before returning to work.
- By reducing subjective worker survey sourced information and replacing it with objective tool that can accurately measure range of movement and the torque and most importantly the effort provided when the function measurements were made.
- A combination of accurate and reproducible objective joint and work function data would be a solid first step in addressing RTW efficiencies.

Pre-Employment Functional Data

- This is an important aspect of assessing factual net impairment actually caused by an injury.
- Because there is no objective measured facts available, only unverifiable Treating Doctor or injured worker provided information is used.

Solution:

- Carryout pre-employment (or during employment functional capacity prior to the employee being injured.

Fraudulent Claims

- Difficult to identify fraud, if just opinions (– not quality facts) from Doctors and injured workers are the basis of assessments.
- Fraud is an aspect of worker's compensation that is critical to containing costs and **maximising fairness** to the claimant.

Solution:

- Ensure the most accurate and highest quantity of objective data is used as a basis (where possible) to ensure the highest quality of assessment results.
- Fraudulent claims can only occur if the assessment does not accurately reflect the factual capacities of a claimant.

No Comprehensive Centralised Injured Worker Database

- There is no centralised case database to allow all authorised medical health professionals to easily access all key information about an assessment case.
- Little or no standardisation of assessment procedures to ensure they are comprehensive and accurate and can readily be meaningfully compared.
- Time wasted in getting information from source to another party in real time.

Solution:

- Configure a flexible web-based database where all key information is stored in a paperless manner.
- Allows data to be accessible to all authorised parties in real-time throughout the life of the case.
- Objective joint function assessments that produce factual assessment data that can compare the person's true status as compared to previous assessments with status change graphs.

High Reliance on Subjective Surveys (erroneously called "Instruments") & Estimates

- The source of the data in the majority of cases is from the claimant.
- Subjective questionnaires (surveys) are extremely difficult to audit.
- Reliance upon highly subjective data which is perceived to be quantitative because it has a number next to it.

Solution:

- Subjective information is likely to involve some sort of bias.
- In some cases, survey interpreted information is inescapable because there is no other way of getting accurate unbiased objective data.
- Minimise subjective sources of information – collect the maximum level of non-interpreted accurately measured data and minimise the quantity of non-measured subjective information.

Inaccurate and Untimely Identification of MMI Milestone

- Because inaccurate objective data is not used, only interpretations are relied upon to identify there is no further improvement, it is difficult to see there is no change in joint function
- Subjective questionnaires (surveys) are extremely difficult identify Maximum Medical Improvement (MMI).
- Because small changes in true joint function progress are not available to the treating Doctor a small increase may be interpreted as no increase.

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Solution:

- High accuracy objective measured functional data would allow the accurate identification of MMI more accurately and in a far timelier manner.
- In most cases, survey interpreted information is used as a foundation to conclude MMI has been reached – accurate objective data will ensure the highest decisions are reached.
- Accurate objective functional measurements of joint function will ensure that small progress changes can be correctly identified.

Unfairness to the Employer, Claimant and the Community

- This is of paramount importance, but in many cases, true fairness is not the outcome resulting from present incomplete, inaccurate non-standardised subjective methods.
- Fairness can only be the result of accurate, unbiased, diagnosis, treatment and accurate assessment. Accuracy is a reflection of the factual status of the assessment.
- Range of Motion (ROM) is only half of the two key parameters crucial to joint function – why not include strength/torque (**with effort**) in a standardised, comprehensive and accurate joint function assessment to get the full picture?
- Have a structured physical assessment of capabilities of various living and mobility functions eg lifting, walking, running, carrying, sitting, standing, stairclimbing, balancing, etc.
- An impairment assessment based on inaccurately measured range of movement angles can result in errors up to 15% - this is very critical.
- Errors resulting from not comprehensively or accurately assessing functional physical capacity, can mean that an underestimation of the factual impact of the injury.
- Presently, there is no objective method of accurately measuring true maximal performance of living or working abilities.

Solution:

- Utilise comprehensive and independent physical function testing to provide an accurate unbiased foundation for higher quality decisions based on objective facts. Fairness can only be achieved by utilising the highest levels of factual information about true capacity of the claimant.
- Minimise the amount of time to accurately identify the Maximum Medical Improvement (MMI) milestone by factually measuring there is no further improvement occurring.
- Have regular (6 or 12 months) intervals between assessments depending upon the type of physical incapacity.
- Ensure there are effective audit methods in place that can identify poor performers in the overall assessment process.
- Generate functional normative maximal effort data to be able to compare with population data.
- Accurately measure factual home or work functions with a machine.

“Excellence can only be achieved, if decisions are based on an accurate, objective (unbiased), comprehensive and factual foundation.”