Submission No 261

INQUIRY INTO NSW WORKERS COMPENSATION SCHEME

Organisation: Joint Dynamics Pty Ltd

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Submission

Joint Dynamics of Sydney has developed an assessment tool to accurately measure the performance of joints in the human body. It was co-developed by Richard Creswick and Doctor Michael Creswick an Associate Professor working in the field of Musculoskeletal Medicine. We believe the technology could possibly save WorkCover hundreds of millions of dollars by differentiating claimants who are providing maximal effort when examined versus those who are providing a sub-maximal. This is a unique, first in the world technology.

The introduction of accurately measured (quantifiable) parameters into the management of musculoskeletal rehabilitation would add a new level of accountability to the workers compensation system because:

- presently there is little or no reliance upon joint torque or applied force data because it is extremely difficult to tell if the patient was providing a maximal or near maximal effort.
- Measurement of active joint range of motion in assessing permanent impairment has been proven to have limited accuracy.
- Doctors and rehabilitation managers would have accurate static and dynamic base data about the factual performance of a joint upon which to base rehabilitation regime.
- It would be known if the results of an assessment were maximal or sub-maximal efforts.
- It would be known earlier if a patient were not improving thus shortening back to work times.

- Health professionals could confidently decide not direct additional physiotherapy service (or some other rehabilitation service) if there was no measured progress with a particular regime of rehabilitation.
- Over-servicing of patients because of lack of knowledge about true joint performance status would be greatly reduced.
- If quantitative data about the factual joint performance is gathered, the opportunity for argument is greatly reduced.

Suggested figures from people in the workers compensation rehabilitation industry are - approximately 80% of patients would provide maximal or near maximal effort while 10-15% may provide a non-fraudulent sub-maximal effort and 5-10% may provide a fraudulent sub-maximal effort.

What joint performance data does the system provide?

- Endpoints (range of motion) of the joint movement
- Both static and dynamic joint performance over the full range of movement
- Torque applied by the joint (both peak and at any angle or point of time in the motion).
- Performance of joint under variable load conditions (used to detect submaximal effort.
- Graphical joint performance progress data (endpoints of motion with static & dynamic torque).
- Statistical Analysis of collected joint performance data.
- Ultimately, normative data to which compare a particular patient's results.

The key results of introducing quantitative joint performance data to rehabilitation are:

- High levels of accountability previously not able to be achieved.
- More responsive rehabilitation when accurately monitoring joint performance parameters.
- Greater rehabilitation efficiency.
- Quantification of loss of function
- Degree of permanent impairment based on factual joint performance.
- Reduced non-fraudulent over-servicing because the Doctor/manager was unsure if the present rehabilitation regime was providing any positive or negative results.
- Factual joint performance data and progress curves can be provided to the patient to indicate the true status of the rehabilitation.
- Instantaneous detection of sub-maximal effort can be used to encourage patient to try harder.
- Ultimately to capture normative data to compare joint performance with average results from the population.

The present status of the technology:

- Proven angular accuracy (±0.3 degrees) and torque accuracy (±0.3% of indicated value) to meet usage requirements. Certified by a NATA accredited organisation for accuracy.
- The present operational system can be configured to assess elbows, shoulders, knees, hips and wrists.
- It is to be used for measuring hip joint function, after surgical interventions in a study that has recently received Ethics Committee approval.

- It is possible with further development to assess the performance of the back as a composite joint (by containing the hips and measuring the torque provided at the chest bone).
- Orthopaedic surgeons, doctors, physiotherapists, engineers and other rehabilitation professionals have viewed the assessment system.
- The Scientific Officer from the Orthopaedic Surgeons Association has viewed the system and written an endorsement.
- Greg McCarthy (ex WorkCover Chairman) viewed the assessment system and suggested that it was possible that the system could become the "Gold Standard" for joint performance assessment.
- Clinical trials are needed to prove that the system can differentiate between maximal and sub-maximal effort by the patient.
- Further development is required to differentiate between fraudulent and non-fraudulent sub-maximal effort.

In Summary:

We believe that this new technology (in its fully developed form) would greatly enhance rehabilitation management in the Workers Compensation by:

- Measuring key joints in the human body including the back as a composite joint.
- Increased accountability and lower rehabilitation costs by removing subjective analysis from the foundation of the rehabilitation process.
- Reduced over-servicing caused by lack of accurate quantitative data.
- Bringing forward return to work dates.
- Factual accurate quantitative data used as a basis for incapacity calculations – not opinions.

What needs to occur:

- Confirm that by replacing the existing subjective methods of assessment with a robust quantitative method, substantial gains will be made in the quality and cost of rehabilitation in the workers compensation arena.
- Carry out clinical trials to confirm all claims in this document.
- Set up multiple clinics around the state's population centres.