

Computerized evaluation of motion. An instrument of assessment of residual work capability in occupational health

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Introduction:

In daily activity Occupational Doctors frequently have to evaluate functional residual work capability in workers previously involved in vehicular, sport or work accidents. Only few objective instruments are available to support Occupational Doctors in definition of work suitability in these complex cases. Computerized evaluation of worker's motion analysis could be a support to obtain reproducible and objective information about residual functions of different portions of osteomuscular apparatus.

Methods:

In last three years we evaluated 410 patients (221 female and 189 males) sent to our centre mostly by doctors of general health national system or by their occupational doctors. Our patients were affected by pathological symptoms mostly affecting vertebral column and lower limbs (79%). 21% of patients had alterations affecting upper limbs. We evaluated every patient joining a clinical examination with a motion computerized analysis carried out using a recording system SIMI Reality Motion 3D and an elaboration program 7.0. For every patient we evaluated all different affected articulations calculating their specific Range of Motion (ROM) in a complete 3D study.

Results:

Instrumental evaluations have been regularly completed in all patients without particular technical difficulties. For every worker involved in the study has been possible to evaluate and calculate percentage of functional alteration of mobility of every articulation studied comparing the results obtained with normal data in general population divided for gender and age. The results of evaluations carried out for every patients have been used to improve therapeutic specific programs, to follow up progressive clinical evolution and to better define residual work capability of every subject.

Discussion:

Computerized study of motion in patients evaluated allowed to obtain objective and reproducible data which have been utilized by Occupational Doctors to improve specificity of their professional activity. Anyway this instrumental technical evaluation for its complexity must be reserved only for second level medical evaluations.