

J.M. TURPIN, C. CRIDELICH, B. TEBOUL, L. BOSCHER, A. MARTEU, A. PFISTER, O. GUERIN, P. ROBERT. **Actigraphy for assessment of elbow articular amplitude for articular assessment in gerontology.** *Gerontechnology* 2012;11(2):262; doi:10.4017/gt.2012.11.02.649.00 **Purpose** Articular damage causes loss of autonomy<sup>1</sup>, and the social and functional impact directly affects the elderly in terms of morbidity, mortality, and quality of life. Articular assessment is standard in geriatric physical therapy<sup>2</sup>. An essential step in this assessment is the evaluation of articular angles. Different techniques exist, but present some drawbacks<sup>3-5</sup>. We tested the hypothesis that an actigraph used as inertial sensor (Motion Pod), coupled to the specific software Bioval (MP-BV), is an interesting alternative method to assess elbow articular amplitude for articular assessment in gerontology. **Method** This study is a randomized single-center study, with older adults (more than 65 years old) who are hospitalized in the geriatric department of Nice hospital. On the one hand, the validity of the MP-BV was evaluated against an inclinometer<sup>6,7</sup> by calculating the proportion of measures for which the difference between the two tools is below 10 degrees for the four movements (flexion, extension, pronation, supination). On the other hand, we evaluated the reproducibility of measurements with the MP-BV and compared the measurement time between the MP-BV and the inclinometer. Finally the acceptability of the MP-BV was assessed using visual analog scales. **Results & Discussion** This study ended 22 March 2012. The results are being analyzed by the Department of Clinical Research of Nice University Hospital and will be available in June.

**References**

1. Collège national des enseignants de gériatrie. Vieillesse de l'appareil locomoteur et pathologies associées. In: Balas D, Belmin J, Berthel M, Roland J, editors. *Corpus de gériatrie, Tome 2*. Paris: 2M2 Edition et Communication; 2004; pp 127-156
2. Royer A, Cecconello R. Bilans articulaires et goniométriques: généralités. *EMC- kinésithérapie-médecine physique-réadaptation* 2004;1:82-91
3. Fisch DR, Wingate L. Sources of goniometric error at the elbow. *Physical Therapy* 1985;65(11):1666-1670
4. Watkins M, Riddle D, Lamb R, Personius W. Reliability of goniometric measurements and visual estimates of knee range of motion obtained in a clinical setting. *Physical Therapy* 1991;71(2):90-97
5. Pol RJ van de, Trijffel E van, Lucas C. Inter-rater reliability for measurement of passive physiological range of motion of upper extremity joints is better if instruments are used: a systematic review. *Journal of Physiotherapy* 2010;56(1):7-17
6. Dufour M, Colné P, Barsi S. Examens cliniques et diagnostiques. In: Dufour M, Colné P, Barsi S, editors. *Masso-kinésithérapie et thérapie manuelle pratiques, Tome 1*. Paris : Masson; 2009; pp 138
7. Delbarre Grossemy I. Mesures du membre supérieur: le coude. In: Delbarre Grossemy I, editor. *Goniométrie: manuel d'évaluation des amplitudes articulaires des membres et du rachis*. Paris: Masson; 2008; pp 78-80

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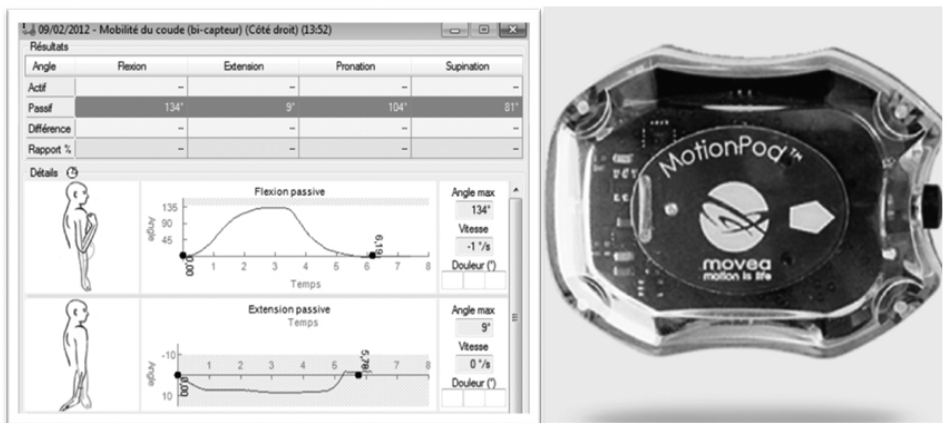


Figure 1. Bioval software and Motion Pod actigraph