بيانــات عـن البحــث الثانى المقـدم للترقيــة

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عنوان البحث باللغة الانجليزية	**Integration of reliability analysis into mini-plate fixation strategy used in human mandible fractures: Convalescence and healing periods**				
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ملخص البحث باللغة الانجليزية

Purpose: The objective was to assess the reliability level of mini-plate fixation used in fracture mandibles in order to evaluate the structure stability in both convalescence and healing periods.
Methods: In the convalescence period, the failure scenario is measured by the relative displacement between two fracture surfaces which should not exceed an acceptable value in order to obtain a good stability for rapid bone healing and to limit any trauma. However, in the healing period, it is the objective to obtain an acceptable rigidity. Hereby, the failure scenario is measured by the von Mises stresses being as indicator of mandible fractures.
Results: During the surgery operation, some muscles can be cut or harmed and cannot operate at its maximum capability. Thus, there is a strong motivation to introduce the loading uncertainties in order to obtain reliable designs. A 3-dimensional finite element model was developed in order to study the negative effect caused by stabilization of the fracture. The different results were obtained when considering a clinical case of a 35-year-old male patient. The results show the importance of fixation of symphysis fracture by two I-plates with four holes. The structural reliability level was estimated when considering a single failure mode and multiple failure modes.
Conclusions: The integration of reliability concepts into mini-plate fixation strategy is considered a novel aspect. The reliability evaluation seems to be a reasonable asset in both convalescence and healing periods.