

**Mechanical bone densitometry for U-healthcare service**

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Osteoporosis is one of the common diseases of the aged women and regular examinations are very critical to its prevention and diagnosis. Dual energy X-ray absorptiometry (DEXA) and Quantitative Ultrasound (QUS) measurements are the gold standard methods that have been used to evaluate the degree of deterioration in bones. However, these methods are not suitable for ubiquitous healthcare service since the system is too bulky and patient operation is not appropriate. In this paper, an alternative and simple-to-use method to predict the bone density was proposed. Validation of the idea was performed using several rod-shaped materials. Mechanical impulse was applied on these specimens and its mechanical responses were measured using both 3-axis accelerometers and a polyvinylidene fluoride(PVDF) sensor. The measured signals were analyzed by various time-frequency methods. The results showed that rough discrimination of materials' density difference was feasible and thereby application to u-healthcare system is promising.

**References**

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