

Physical Bases of Elastography. Part 1. Compression Elastography (Lecture)

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Abstract

The physical principles of compression elastography – a new method of ultrasound diagnostics, based on the difference in Young's moduli of the pathological neoplasms and surrounding tissues with controlled compression sensor are set out. This involves comparison of their strains or deformations along the force. Strain variations of arbitrarily selected regions of tissue are shown in form of curves of compression of these regions or color compression elastogram. The method is used to investigate the sub-surface organs to identify tumor pathology, however, it has several disadvantages associated with the complexity of standardization, which increases its subjectivity and limits the practical application.

Key words: Ultrasound Diagnostics, Compression Elastography, Deformation, Longitudinal Module of Elasticity, Young's Module, Strain.

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