

Bio -Tissue Structure Monitoring under Shock Wave Treatment

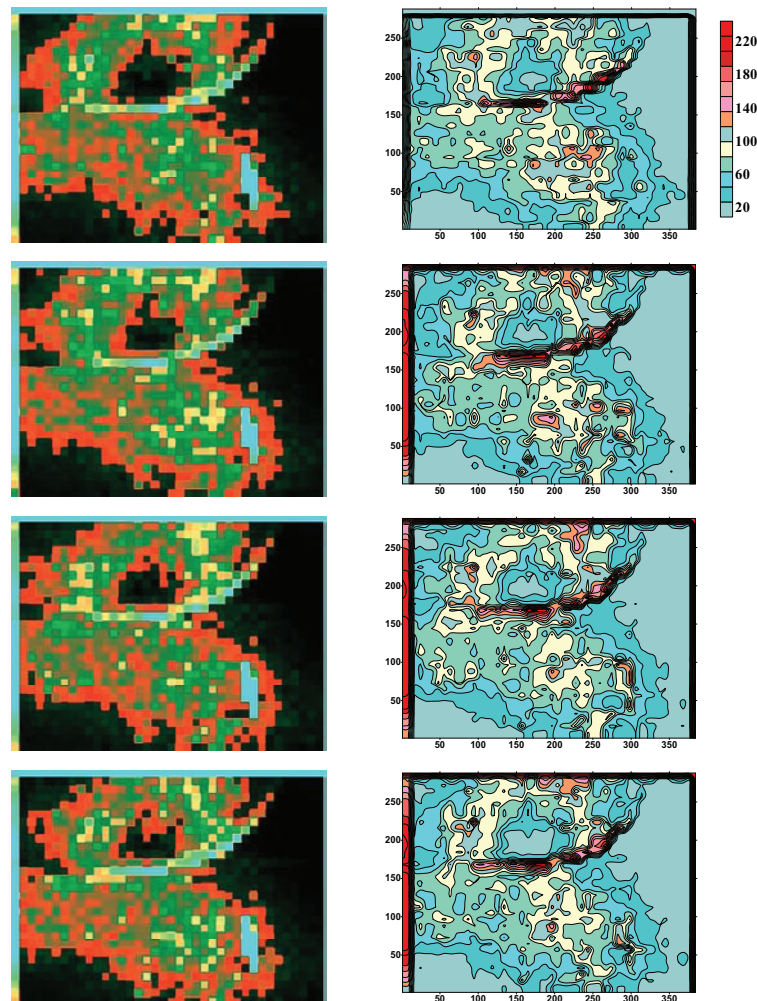
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Real-time maps showing the intensity of the subskin blood flux reconstructed by the contrast variation in single-exposure (prolonged-exposure) speckle photography (left) and isolines of these maps (right)

The dynamic bio-speckle patterns were generated by illumination of living tissue via laser light and were recorded using a standard digital CCD camera (768 x 494 pixels) at a frame rate of 25 frames/second. The exposure time varied from 10 μ s (for cross-correlation analysis of subsequent frames) to 1/60 s (for a single exposure mode). Speckle patterns were recorded as a distribution of gray values $I(m,n)$ in digital form for each pixel (m,n) of the CCD matrix. In real-time operation the image analysis is performed during the time interval between subsequent (two or more) frames.