

THE INFLUENCE OF DIAGNOSTIC ULTRASOUND ON CELL CULTURES
PROPERTIES

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In present study the bovine kidney cell cultures as experimental model for complex study of the biophysical mechanism of ultrasonic action were used.

The cell cultures were grown in Minimum Essential Medium supplemented with 5-10% calf serum in Roux bottles. Suspensions of 10^6 cells in ml using trypsin were prepared. The sonication of cells at low and very low ultrasound intensity in 37°C water bath was carried out.

In the first series of experiments the morphological and functional changes of cells immediately after sonication were evaluated. One part of sonicated cells was fixed using glutaraldehyde and prepared for electron microscopic examination. The second part of sonicated cells was incubated with trypan blue. After 3 minutes the viability of cells was tested.

In the second series of experiments the sonicated cells were seeded in Roux bottles and grown in optimal conditions. Morphological and functional changes in cells were evaluated at different time intervals after sonication. In each time interval evaluated suspensions of cells were prepared using trypsin. One part of cells was fixed using glutaraldehyde and prepared for electron microscopic examination. The second part of sonicated cells was incubated with trypan blue. After 3 minutes the viability of cells was tested.

In both series of experiments the changes in morphology and viability of cells influenced by ultrasound of low and very low intensity levels were observed. The possible mechanisms of ultrasonic action on cell cultures are discussed.