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**The effect of ultrasound on Escherichia coli viability.**

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The effect of continuous-wave ultrasound on the viability of Escherichia coli HB101 was assessed using a 20 kHz ultrasonic processor. A standardised cell suspension of fixed concentration was used to investigate the influence of different physical and environmental conditions on ultrasound susceptibility. Cell viability decreased exponentially with time at different intensities of ultrasound. Increasing intensity caused a decrease in decimal reduction times. Loss of cell viability occurred primarily from the mechanical effects of ultrasound rather than free radical damage. E. coli susceptibility was also shown to vary with growth conditions, whereby cells cultivated either on agar or harvested from the stationary phase of liquid culture were significantly more susceptible to ultrasound than an equivalent population obtained from the exponential phase of liquid growth. The implication of these results is discussed in relation to the use of ultrasound as a novel means of bacterial transformation.