

Abstract Submitted
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Quantitative Ultrasonic Properties of Prostate Cells SARAH IACOVIELLO¹, EMMA USHCHAK², MARIA-TERESA HERD, Assumption University — In the United States, prostate cancer is the second leading cause of cancer death and the most diagnosed form of cancer in men. It has been shown that healthy and malignant cells have differences in their quantitative ultrasonic (QUS) properties. This study explored the fundamental QUS properties of healthy prostate cells by determining attenuation, speed of sound, and backscatter, with the object of comparing the QUS differences between cancerous and non-cancerous prostate cells in the future. Ultimately, these findings could lead to a non-invasive way of detecting cancer through quantitative ultrasound. It was found that in the higher frequencies, the cells reflected more of the waves leading to higher backscatter coefficients generally matching the theoretical fit for a spherical scatterer, attenuation also increased with frequency following a power law of $f^{0.7}$. Speed of sound was determined to be frequency independent.

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