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| **Title:** | Observing Tumor Ablation of Numerous Soft Tissues Using High Intensity Focused Ultrasound Setup | | |
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| **Abstract:** |  |
| Medical science is presented with the aim of finding cures and techniques that reduce patient intervention and hospital visit. Thermal ablation methods are invasive cancer treatment option that is rapidly gaining clinical acceptance.High-intensity Focused Ultrasound (HIFU) is much more efficient, painless, cost-effective and time-consuming than conventional cancer treatments such as chemotherapy, radiation therapy, bone marrow transplantation, invasive surgery, and so on. Mutation in DNA cause cancer. A DNA alteration can lead genes involved in normal cell growth to become tumorigenic. HIFU requires that the detectable and curable tumor/cancer would have been at least 1 cm in diameter; otherwise, it will not be diagnosed. Three basic types of tumors (Benign, Premalignant and Malignant) can be ablated with the HIFU therapy technique, however if the tumor becomes too enormous, surgical therapies can be done in combination with this therapy to ensure a complete cure. The primary processes of HIFU ablation discussed in this research include mechanical and thermal consequences.In this study, investigations and simulations on tumor ablation with HIFU were performed to determine how multiple soft tissue ablation operated and how to optimize tumor ablation while minimizing disruption to surrounding healthy tissue by setting the optimal temperature, power, intensity, frequency spectrum, field depth and transducer lens radius of curvature. All computations were performed by selecting several focal lengths ranging from 55 mm to 65 mm.A piezoelectric transducer was employed as a pressure probein the instance of tumor ablation. In conclusion, we tried to find the beneficial aspects of HIFU that are expected to play a major part in future everyday clinical practice in this research. | |