

## Ultrasound in Physical Therapy

The use of ultrasound in physical therapy was the first way that ultrasound could effectively be used. By taking the transducer, applying some gel, and moving around in a circle over the affected anatomy, physical therapists were able to help aid the healing process and make the bone heal quicker than before. Heating the area of injury helps to create more blood flow and thereby increase the healing process.<sup>1</sup>

## Shock Wave Therapy with Ultrasound

For shock wave therapy treatment, shock waves are triggered to break down the stone so that they get broken down into pieces that are small enough that they can pass naturally in the urine.<sup>2</sup> The main component for shock wave therapy is allowing the wave to run over the stone to create shear waves that tear the stone apart from within. **Figure 1** shows how an impassible stone can be broken down using shock waves into much smaller and passible pieces.<sup>3</sup>

## Ultrasound in Dentistry

Ultrasound is being used in the evaluation of periapical lesions, follow up of periapical bone healing, and helped in differentiating between vital and root filled teeth.<sup>4</sup> By using this kind of imagine, ultrasound can also be used to detect early stages of caries. The ultrasound image in **Figure 2** shows multiple anechogenicities in the infraorbital space confirming the presence of an abscess.<sup>5</sup>

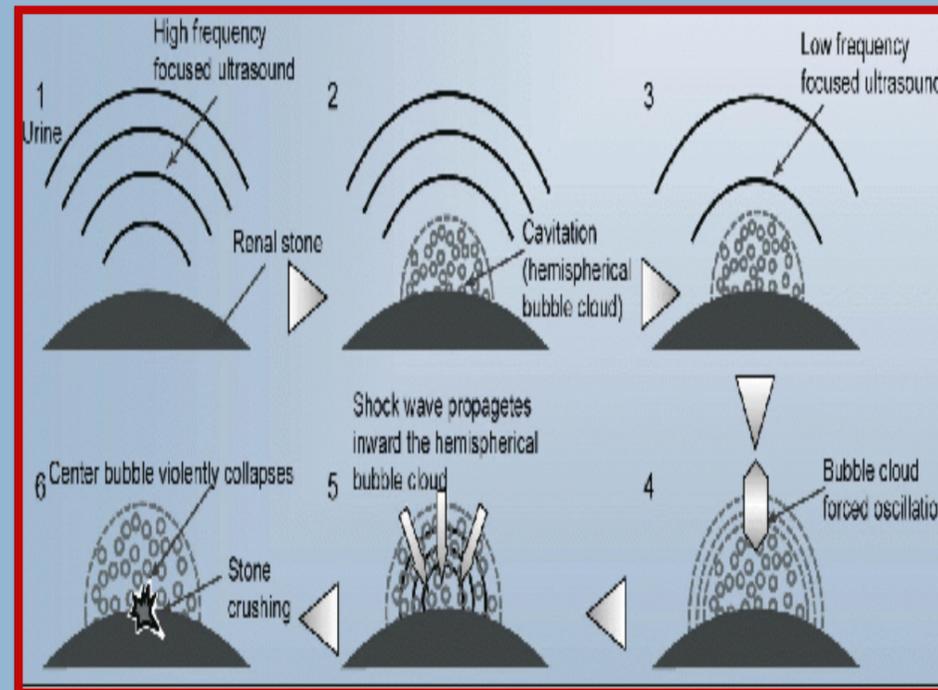


Figure 1. Graphic demonstrating how high intensity shock waves break down stones.<sup>3</sup>



Figure 2. Using ultrasound to find abscesses in dental patients.<sup>5</sup>

## High Intensity Focused Ultrasound

The initial game plan for high intensity focused ultrasound was to attempt to use in the cases of inoperable brain tissues for Parkinson's disease, but uses for this high-powered system found a better use in treating uterine fibrosis, cardiac ablation, visceral soft tissue ablation, aesthetic treatment to lift the eyebrow, and more recently for the treatment of glaucoma.<sup>1</sup> High intensity focused ultrasound is one of the most studied ways that researchers are looking into helping treat nerve conductance and some types of cancer. An extensive amount of research is being done in this area, and many feel that a solution to some of these problems is will only be a matter of time before they could potentially have an answer with this kind of treatment.<sup>1</sup>

## Why Ultrasound Isn't Always the Right Call

At this point in the research of this kind of therapy, many things are still unknown and are still in the experimental stages of research.. Therapeutic ultrasound is being prescribed when there are likely better, more proven methods that are already set in place that should be done instead.<sup>6</sup> While ultrasound is one of the safer and cheaper imaging modalities, and could be an excellent option in the future, we're just not to the point that we should be relying on therapeutic ultrasound to cure all of those issues just yet.

## References

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