Ultrasound is a rapidly developing area of sports medicine that has many different applications, which can be used in the clinic, training room, and even on the sideline. It can be used for diagnostic as well as treatment purposes.

Ultrasound uses sound waves that are sent from a transmitter and then reflected back to a receiver after bouncing off of structures to create an image. The type of object that returns the sound waves determines the image that is displayed on the screen. This allows the ultrasound operator to tell the difference between bone, fluid, soft tissues (like tendon, muscle, nerves), and other structures. Ultrasound devices used in clinic have a small, hand-held probe that contains both the transmitter and the receiver. Most people are familiar with ultrasounds used in obstetrics on pregnant patients. People are also familiar with therapeutic ultrasound which is used in physical therapy, but this type of ultrasound contains only a transmitter and uses a slightly different wavelength.

In sports medicine, ultrasound is useful for diagnostic purposes, as it facilitates evaluation of various musculoskeletal structures. For example, a doctor may use ultrasound to look at the Achilles tendon or calf muscle to assess for tears. Ultrasound can be used to look for fluid around or within a structure as an indication of inflammation, tendonitis, or bursitis. This concept can be applied to most muscles, tendons, and bursa throughout the body. A sports medicine physician may also be able to look at a structure as it progresses through a range of motion. Additionally, some physicians have proposed the use of ultrasound to evaluate for fractures and stress fractures of various bones.

In addition to its diagnostic uses, ultrasound can be used during procedures to allow for direct visualization of the target structure being injected. When used in this way, the needle can be visualized as it is directed into the target during the procedure. This can be extremely helpful to make sure that a medicine or injectable is placed directly into the area that is causing pain.

Ultrasound has the advantages of being quickly accessible, relatively inexpensive, and highly accurate in experienced hands. Additionally, there is no risk of radiation and no need for injected contrast material, as in some other imaging studies. A sports medicine physician may use the device in a variety of ways, and the examples mentioned here highlight just a few of the potential applications of ultrasound technology.

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References