Prostate cancer (PCa) is the most common non-cutaneous malignancy among men in the United States and the second leading cause of cancer related death.[1](#_ENREF_1) Screening with prostate specific antigen (PSA) and digital rectal examination (DRE) has led to earlier PCa detection but performance of these measures is not optimal, leading to imprecise risk assessment. In addition, the random nature of transrectal ultrasonography (TRUS) guided biopsies can miss or underestimate the burden of cancer.[2](#_ENREF_2) Earlier disease diagnosis leads to challenges in deciding optimal management strategies for patients presenting with fewer disease burden, whereas missed tumors on TRUS-guided biopsies can result in inappropriate diagnoses.

The use of non-invasive imaging in the evaluation of PCa could lead to improved diagnosis, risk-stratification, and management. Magnetic resonance imaging (MRI) has been available for use in the workup of patients with PCa since the early 1980s but early studies on its diagnostic accuracy were heterogeneous. However, the more recent ability to include functional parameters in PCa MRI analysis has yielded promising results.[2](#_ENREF_2),[3](#_ENREF_3) Among the MRI modalities currently used in the study of PCa, it is well established that T2-weighted imaging (T2WI) offers the best assessment of prostate anatomy due to its ability to delineate prostatic margins, distinguish internal structures and differentiate among the glandular zones.

Acoustic radiation force impulse (ARFI) imaging is an ultrasound-based modality that evaluates the mechanical properties of tissues.[4](#_ENREF_4) ARFI has the potential to aid in PCa diagnosis and management by evaluating the structural composition of prostate zones and tumors base on their stiffness. Zhai et al were able to visualize prostatic anatomy by utilizing ARFI imaging *ex vivo*. In a second study, Zhai et al demonstrated the feasibility of ARFI prostate imaging *in vivo*.[5](#_ENREF_5) However, to the authors’ best knowledge, there have been no studies to date that compare *in vivo* ARFI prostate imaging to other imaging modalities.[6](#_ENREF_6) The goal of this study was to evaluate the ability of ARFI to distinguish prostate zonal anatomy in-vivo as compared to endorectal T2WI.

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**3.** Hricak H, Choyke PL, Eberhardt SC, Leibel SA, Scardino PT. Imaging prostate cancer: A multidisciplinary perspective1. *Radiology.* 2007;243(1):28-53 %@ 0033-8419.

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**6.** Zhai L, Madden J, Foo W-C, et al. Acoustic Radiation Force Impulse Imaging of Human Prostates< i> Ex Vivo</i>. *Ultrasound in medicine & biology.* 2010;36(4):576-588 %@ 0301-5629.