

## ESUR2005 Poster #43

**Title:** Magnetic resonance imaging of normal and benign conditions of the urinary bladder.

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**Purpose:** To review a spectrum of MR features in normal and benign conditions of the urinary bladder and to study the magnetic resonance tissue characteristics of urinary bladder structures in 1.0T in order to determine optimal imaging parameters for enhanced contrast in depicting the bladder wall against fat and urine.

**Materials and Methods:** Longitudinal (T1) and transverse (T2) relaxation times of bladder wall, urine, and perivesical fat were estimated for normal subjects and patients that underwent MR examination on a routine clinical 1.0T scanner using the accompanying standard phased-array torso coil. Relaxation times were measured using multi-point fits and a two-point imaging method. Based on calculated relaxation time values contrast curves were plotted for bladder-wall and fat as well for bladder-wall and urine for various pulse sequences.

**Results:** The T1 contrast curve for the spin-echo sequence indicates that the 90% of maximum achievable contrast between bladder wall and urine can be achieved for repetition times in the range of 695 – 1895 ms, and between bladder wall and perivesical fat for repetition times in the range of 305 – 880 ms. The T2 contrast curve indicates that the 90% of maximum achievable contrast for bladder wall and urine is achieved for echo times in the range of 60 – 135 ms, while between bladder wall and perivesical fat is decreased as the echo time increases.

**Conclusion:** Knowledge of relaxation times in routine clinical imaging can provide information for customized sequence optimization according to each imaging problem. In the case of renal bladder imaging, sequence optimization can maximize the delineation of bladder wall in normal and benign conditions.