

# Estimation of T2\* values in hyperpolarized <sup>13</sup>C MRI of healthy and ischemic kidneys in a porcine model.

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**Background:** Performing hyperpolarized-<sup>13</sup>C MRI, knowledge of T2 values plays an important role for the sake of correct quantification of the metabolites (pyruvate, lactate, and bicarbonate) to increase the SNR and optimize image interpretation. **Aim(s):** To estimate T2 values of pyruvate and lactate in both healthy and ischemic porcine kidneys at different concentrations (250mM, 150mM, and 80mM). To elucidate variation of T2 values under these circumstances. **Method:** An animal study including 4 female Danish domestic pigs subjected to unilateral ischemic reperfusion injury. **Results:** Linear regression showed positive correlation between increasing means of pyruvate and lactate T2 values in healthy kidneys and increasing concentrations of pyruvate-infusion. **Discussion:** This preliminary study suggests a method determining T2-mapping in hyperpolarized-<sup>13</sup>C MRI quantifying T2-values of pyruvate and lactate, which can be used to optimize SNR and image-interpretation. Further studies should explore other organs to determine organ-specific T2\*-values and possible variations.

## Field

Systems and applications

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