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Motion Detection Using FID Navigators

Free induction decay (FID) navigators have shown to provide information about motion with negligible time penalty for various MR techniques. The concept of FID navigators will be introduced and exemplified by a motion detection and prospective correction setup for diffusion MR imaging. Thereby, the FID navigator is used to monitor motion continuously. If motion is detected, a volume without diffusion encoding is scanned intermittently to the diffusion acquisition and online registered. The obtained motion parameters are then used to directly update the gradient coordinate system. In the presented experiments (with b-values of 500,1000 and 3000), the navigator showed an excellent sensitivity and specificity.