

Interictal

Interictal refers to the period between [seizures](#), or [convulsions](#), that are characteristic of an [epilepsy](#) disorder.

For most people with epilepsy, the interictal state corresponds to more than 99% of their life. The interictal period is often used by neurologists when diagnosing epilepsy since an EEG trace will often show small interictal spiking and other abnormalities known by neurologists as subclinical seizures. Interictal EEG discharges are those abnormal waveforms not associated with seizure symptoms.

see [Interictal epileptiform discharge](#).

A study aimed to investigate the quantitative relationship between interictal [18F positron emission tomography](#) (FDG-PET) and interictal [High-frequency oscillations](#) (HFOs) from [stereoelectroencephalography](#) (SEEG) recordings in [refractory epilepsy](#) patients.

Zhao et al. [retrospectively](#) included 32 patients. [FDG-PET](#) data were quantified through [statistical parametric mapping](#) (SPM) t-test modeling with normal controls. Interictal SEEG segments with four 10-min segments were randomly selected. HFO detection and classification procedures were automatically performed. Channel-based HFOs separating ripple (80-250Hz) and [fast ripples](#) (FR, 250-500Hz) counts were correlated with the surrounding metabolism T score at individual and group level respectively. The association was further validated across anatomical seizure origins and sleep versus wake states. We built a joint feature FR×T reflecting the FR and hypometabolism concordance to predict surgical outcome in 28 patients who underwent surgery.

They found a negative correlation between interictal FDG-PET and HFOs through the linear mixed effect model ($R^2 = 0.346$ and 0.457 for ripple and FR, respectively, $p < 0.001$); these correlations were generalizable to different epileptogenic zone lobar localizations and vigilance states. The FR×T inside the resection volume could be used as a predictor for surgical outcomes with an area under the curve of 0.81.

The degree of [PET hypometabolism](#) is associated with [High-frequency oscillations](#) generation rate, especially for the [fast ripples](#). This relationship would be meaningful for selection of [SEEG](#) candidates and optimizing SEEG scheme planning. The concordance between fast ripples and hypometabolism combining surgical information could provide prognostic information regarding surgical outcome ¹⁾.

¹⁾

Zhao B, McGonigal A, Hu W, Zhang C, Wang X, Mo J, Zhao X, Ai L, Shao X, Zhang K, Zhang J. Interictal HFO and FDG-PET correlation predicts surgical outcome following SEEG. *Epilepsia*. 2022 Dec 13. doi: 10.1111/epi.17485. Epub ahead of print. PMID: 36510851.

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