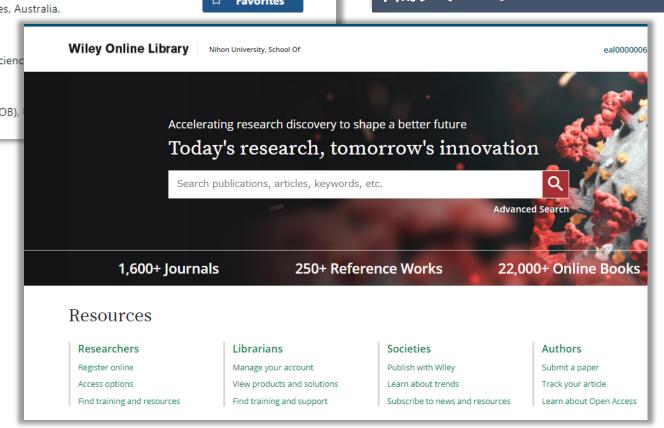
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## RESEARCH ARTICLE

HANGER STREET WILLIAMS

Proportional loss of parvalbumin-immunoreactive synaptic boutons and granule cells from the hippocampus of sea lions with temporal lobe epilepsy

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### Abstract

One in 26 people develop epilepsy and in these temporal lobe epilepsy (TLE) is common. Ma patients display a pattern of neuron loss called hippocampal sclerosis. Seizures usually start in t hippocampus but underlying mechanisms remain unclear. One possibility is insufficient inhibition dentate granule cells. Normally parvalbumin-immunoreactive (PV) interneurons strongly inhi granule cells. Humans with TLE display loss of PV interneurons in the dentate gyrus but questic persist. To address this, we evaluated PV interneuron and bouton numbers in California sea lic (Zalophus californianus) that naturally develop TLE after exposure to domoic acid, a neurotoxin ti enters the marine food chain during harmful algal blooms. Sclerotic hippocampi were identified the loss of Nissi-stained hilar neurons. Stereological methods were used to estimate the number granule cells and PV interneurons per dentate gyrus. Sclerotic hippocampi contained fewer gran cells, fewer PV interneurons, and fewer PV synaptic boutons, and the ratio of granule cells to interneurons was higher than in controls. To test whether fewer boutons was attributed to lease the properties of compatible paragraphs and the patient of the properties of compatible paragraphs.

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