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an independent morning daily • arizona state university

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Volume 86 Number 102

Thursday, March 1, 2007

www.statepress.com

Professors find way to predict epileptic seizures



BY JENNIFER VOGES
STATE PRESS

Epileptic seizures have been impossible to predict in the past, but now an ASU professor has found a way to predict and prevent them in some patients.

Dr. Leon Iasemidis, an associate professor of bioengineering at ASU, and professor James Sackellares, from the University of Florida, presented their findings at the annual convention of the American Association for the Advancement of Science on Feb. 19 in San Francisco.

Iasemidis, who has been at ASU for five months since leaving the University of Florida, and Sackellares monitored five patients with uncontrollable epileptic seizures. With the help of an electroencephalogram (EEG) device they were able to detect seizure 20 to 43 minutes before they happened.

Epilepsy, also referred to as a seizure disorder, is a neurological condition that disturbs the normal electrical functions of the brain. The seizures are caused by sudden bursts of electrical energy and can last anywhere from a few seconds to several minutes.

In all the patients Iasemidis and Sackellares studied, the area in the brain where the seizures originated from was identified and surgery was performed to remove that region. The surgeries were successful and the patients no longer have seizures, Sackellares said.

Epilepsy can result from damage to the brain due to infections in the brain or any kind of head trauma.

Iasemidis and Sackellares combined two techniques that have never been used together to reach their findings. The techniques were quadratic binary programming, which is used for finding electrode sites in the brain relevant to the research, and dynamical system approach, which studies how the different components of

Chris Sholl / State Press

Outside a lab that will soon be dedicated to brain dynamics, associate bioengineering professor Dr. Leon Iasemidis points out what an EEG would look like during the onset of an epileptic seizure.

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