■ Multimedia teaching material

Epileptic Disord 2021; 23 (2): 432-434

Epileptic Disorders

Use of fitness trackers to identify and document epileptic seizures

Sándor Beniczky[1], Guido Rubboli[2]

[1] Department of Clinical Neurophysiology, Danish Epilepsy Centre, Dianalund and Aarhus University Hospital, Aarhus, Denmark; Department of Clinical Medicine, Aarhus University, Aarhus, Denmark

[2] Department of Neurology, Danish Epilepsy Centre, Dianalund and Copenhagen University, Copenhagen, Denmark

Epileptic Disorders

Use of fitness trackers to identify and document epileptic seizures

Sándor Beniczky and Guido Rubboli

- We are currently in an age of rapid digital integration, with smartphones and consumer wearable devices such as smartwatches which are becoming a part of everyday life.

- The general functions of smart devices can provide useful information for diagnosis and management of patients with epilepsy:

  → Home videos, recorded with smartphones help diagnose seizures.

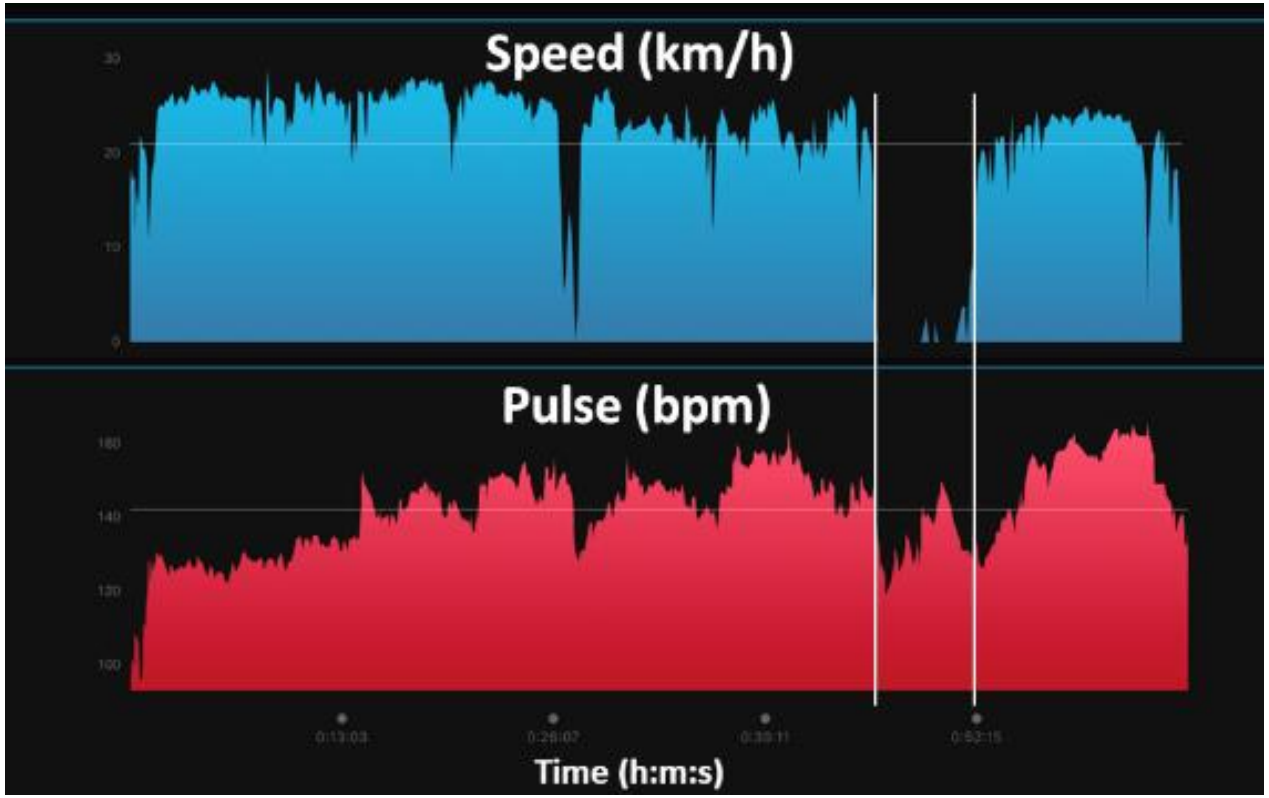
  → Fitness trackers record biosignals (ECG, respiration rate) as well as the map of the route, distance and speed, using the built-in GPS function.

- Here we illustrate the potential application of fitness trackers in the management of epilepsy, with the case of a patient who identified and documented an otherwise unnoticed seizure, using a smart device for cycling.

Epileptic Disorders

Recording of the speed (upper trace) and heart rate (lower trace) by the fitness tracker, during a bicycle tour.

Note the seizure period marked by the white vertical lines.



Map retrieved from the fitness tracker.

The panel to the right is a close-up of the region of interest. The area within the white box shows the position of the patient during the seizure period.