

FOUR MONTHS OF CONTINUOUS ONE CHANNEL EKG IN REAL LIFE.

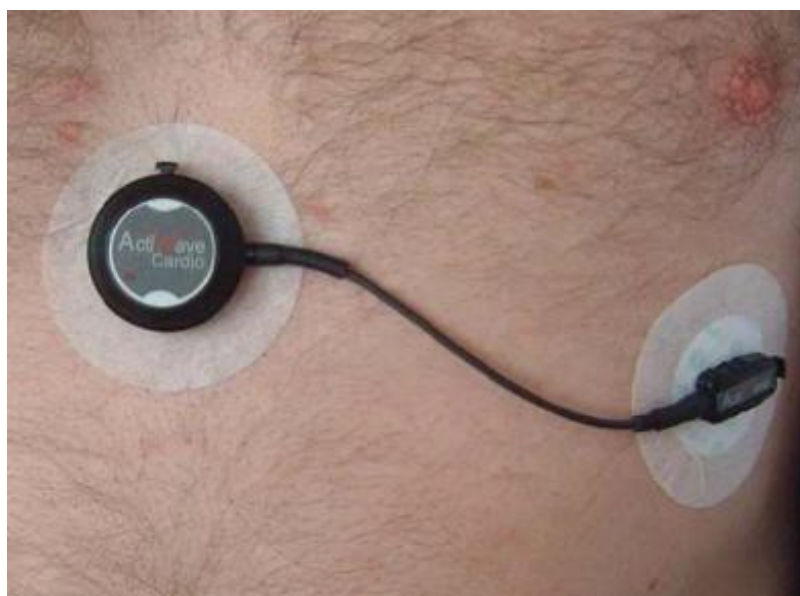
The recording started September 29, 2019 and ends March 7, 2020.

The night between October 28 and October 29, 2019 there was the change from summertime (UTC+2) to standard time (UTC+1).

Instrument

The recording was performed using two Actiwave Cardio (Camntech LTD, Cambridge, UK) with software version Actiwave 2.0.14.

The unit records one channel EKG and three channels of Actigraphy. The accelerometer is positioned on the larger part of the unit (see picture).



Positioning of the Actiwave Cardio

The larger part was on the right side of the body. The position of the two electrodes was changed as needed along the same horizontal axis, more or less 2 cm below the nipples. Several attempts made before the recording, demonstrated that other positions were not ergonomic for the body of the subject. That means that body fat distribution designs the lines that are more subject to movements and on that lines the electrodes are stressed too much, so those areas must be avoided. The hairs distribution is also important, since to cut them was avoided and therefore only areas with a minimum of hairs were available.

The larger part of the unit moved from near the sternum up to 6 cm on the right. The smaller part moved from near the sternum up to 10 cm on the left. The distance of the two parts was from a minimum of 8 cm up to 13 cm, the maximum distance allowed by the cable is 14 cm.

The larger part of the unit has a push-button to firm the connection with the electrode and that also indicates one of the axis of the accelerometer

Setting of the instrument

The analog filter is 1-30 Hz. The sampling rate was set at 128 Hz for EKG and 32Hz for actigraphy. That allows a recording time of 27 hours. Swapping the units once a day allows a continuous recording while one of the units recharge the battery.

For comparison purposes, few days were recorded at 256 Hz (January 18 – 27, 2020) and at 512 Hz (January 27 – February 2, 2020).

Data

The software allows the export in EDF and CSV formats and both were used and are available.

Due to mismanagement:

- from October 1 to October 2, 2019 data are missing;
- the night between October 2 and 3, 2019 is available only in EDF;
- from October 3 to October 4, 2019 data are missing;
- from October 24 to October 26, 2019 data are missing;
- the night between November 14 and 15, 2019 is available only in CSV;
- from November 16, 2019 morning until November 17 evening, nearly only artefacts;
- from December 23 , 2019 morning until December 24 evening, data are missing;
- from December 31, 2019 morning until January 1, 2020 evening, data are missing;
- the nights between January 9 and 11, 2020 are available only in CSV;
- the night between January 18, 2020 and January 19 is available only in EDF;
- from January 25, 2020 morning until January 26 evening, data are missing;
- January 27, 29 and 30, 2020 during the day the recording is nearly only artefacts;
- from January 31, 2020 evening until February 1 evening, data are missing.

Summing up, over four months, September 29,2019 – February 2, 2020 about 12 days were lost.

The continuous recording stops in the evening of February 2, 2020 due to skin irritation and restarts in the evening of February 20, 2020.

- February 26 evening until February 27 evening, the recording is nearly only artefacts;
- from February 29 morning to March 3, 2020 evening, data are missing due to skin irritation.

A new, stronger skin irritation ended the protocol the morning of March 7, 2020.

Subject.

Age 65 at the start of the recording.

Several known mild pathologies, among them: right heart conduction defect, mitral valve prolapse, gastro oesophageal reflux, light snoring.