

Vivago activity curves collect wellbeing data

Measuring circadian rhythm, sleep and activity

Measurement of activity

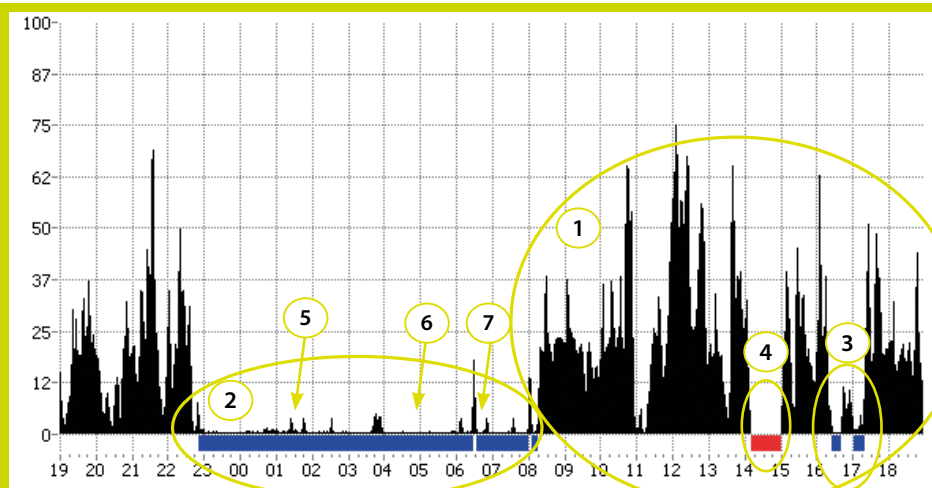
Vivago solution measures the activity of the Vivago watch user. The measurement result depends on the amount and intensity of movements.

For each minute, an activity value is calculated, which is in the range 0–100. An activity chart represents the person's average activity. On the basis of the chart one can draw conclusions about the person's functional capacity and wellbeing.

Activity chart reveals changes in wellbeing

Many of the changes in functional capacity are reflected in the human circadian rhythm and sleep and, therefore, also in the activity chart. Analysis of wellbeing data is a powerful tool for detecting problems, assessing treatment and measuring its effectiveness once the actual diagnosis has been made.

Activity chart representing the sleep-wake rhythm of a healthy person



1

During daytime, the activity chart shows high values and the activity level varies a lot.

2

During the night, the chart shows clearly lower values as the person is asleep and moves very little.

3

Based on the activity represented by the chart, we can infer whether the person is awake or not (e.g. a nap in the afternoon). The chart can also be used for monitoring periodic events during the day.

4

While outdoors, the user is outside the range of the base station. In the activity chart this is shown as a gap.

5

While asleep, a person moves about a little. Movements during sleep can be seen as minor activity which is, however, clearly lower than activity while awake.

6

During deep sleep, a person does not usually move at all and the activity is zero.

7

Nocturnal awakenings appear as high-activity periods during the night.

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A good sleep is long enough, regular, continuous and includes periods of deep sleep.

Side-by-side comparisons (good vs. poor)

Legend:

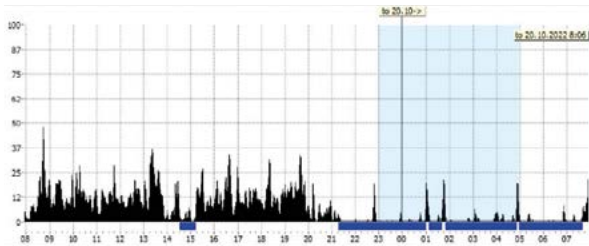


High black bars: good daytime activity – a lot of activity interspersed with moments of rest

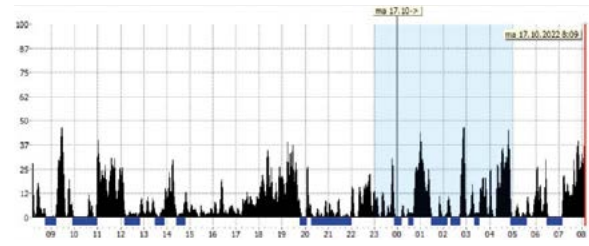


Low black bars: poor daytime activity – low level of activity and a lot of rest

Sleep – awakenings, length, regularity and timing of sleep

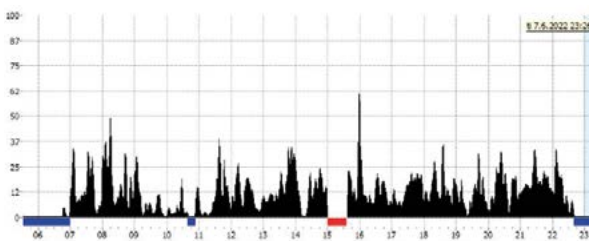


good sleep long enough, during the night, no awakenings, several periods of deep sleep

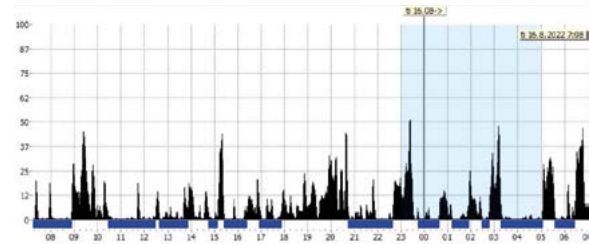


POOR SLEEP several awakenings, long periods awake during the night, sleep is short and irregular

Wake – level of daytime activity



Good daytime activity with a lot of activity interspersed by periods of rest, outdoors in the afternoon (red line).

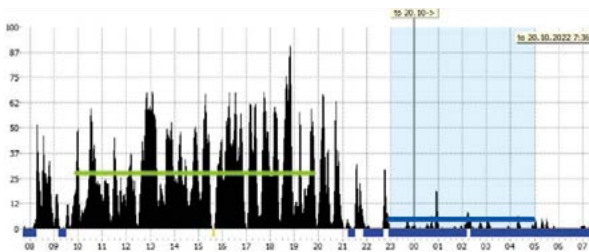


Poor daytime activity with low level of activity and a lot of rest in daytime.

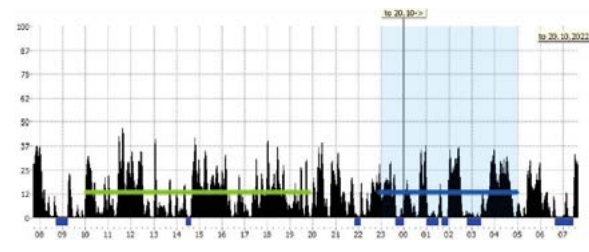
Circadian rhythm – ratio of daytime and night-time activity

Blue line = average night-time activity

green line = average daytime activity



Good circadian rhythm with clear difference between night-time and daytime activity.



Poor circadian rhythm with no clear difference between night-time and daytime activity.

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