ARTIFACTS IN THE SLEEP EEG - A DATABASE FOR THE EVALUATION OF AUTOMATED PROCESSING METHODS.

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Automated artifact processing methods are one part of an automated sleep analysis system. For the evaluation of the artifact processing methods, ninety minute segments of 15 all-night sleep recordings from 8 European sleep laboratories were scored for artifacts. Nine types of artifacts (EOG, ECG, muscle, movement, failing electrode, sweat, 50/60Hz, breathing, pulse) were distinguished. Seven EEG channels based on a time resolution of one second were scored by experts.

Code	Type	epochs [1s]	%
0:	no artifact	345.254	**61,3**
1:	EOG	51.427	**9,1**
2:	ECG	123.886	**22,0**
3:	muscle	43.861	**7,8**
4:	movement	20.209	**3,6**
5:	failing elect.	10.804	**1,9**
6:	sweat	4.135	**0,7**
7:	50/60 Hz	11.608	**2,1**
8:	breathing	2	**0,0**
9:	pulse	-	**0,0**
	SUM	611.186	**108,5**

Table 1: Overview of artifacts. From 8 different sleep laboratories 15 all-night recordings, approx. 90 minutes each, and 7 EEG channels were scored for 9 types of artifacts.

In total 7 * 80.456 = 563.192 1s-epochs were scored. The difference to 611.186 (8,5%) is due to scoring of multiple artifacts in some epochs. In 38,7% of the recording time at least one artifact was identified. From Table 1 can be seen that (nearly) no breathing and pulse artifacts were identified.

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