# Karolinska Sleepiness Scale (KSS) 47

**Purpose** This scale [1] measures the subjective level of sleepiness at a particular time during the day. On this scale subjects indicate which level best reflects the psycho-physical sate experienced in the last 10 min. The KSS is a measure of situational sleepiness. It is sensitive to fluctuations.

**Population for Testing** It has been used in studies of shift work, jetlag, for driving abilities [2], attention and performance, and in clinical settings. It is used for both males and females.

It is helpful in assessing the changes in response to environmental factors, circadian rhythm, and effects of drugs. Because the KSS is not a measure of 'Trait' sleepiness, it has not been widely used for clinical purposes.

**Administration** This is self-report measure. It takes 5 min to complete.

**Reliability and Validity** In a study conducted by Kaida et al. [3], the authors investigated the validity of the KSS and found that it was highly correlated to EEG and behavioral variables. The results show that KSS has a high validity. However, because the scores of the KSS vary according to earlier sleep, time of day, and other parameters, it is difficult to deduce its test–retest reliability.

**Scoring** This is a 9-point scale (1 = extremely alert, 3 = alert, 5 = neither alert nor sleepy, 7 = sleepy – but no difficulty remaining awake, and 9 = extremely sleepy – fighting sleep). There is a modified KSS that contains one other item: 10 = extremely sleepy, falls asleep all the time. Scores on the KSS increase with longer periods of wakefulness and it strongly correlate with the time of the day.

**Obtaining a Copy** A copy can be obtained from the authors.

Direct correspondence:
Torbjörn Åkerstedt
IPM & Karolinska Institutet
Box 230
17177 Stockholm, Sweden
Email: Torbjorn.Akerstedt@ki.se

A. Shahid et al. (eds.), *STOP, THAT and One Hundred Other Sleep Scales,*
DOI 10.1007/978-1-4419-9893-4_47, © Springer Science+Business Media, LLC 2012

**Karolinska Sleepiness Scale (KSS)**

| | |
|---|---|
| Extremely alert | 1 |
| Very alert | 2 |
| Alert | 3 |
| Rather alert | 4 |
| Neither alert nor sleepy | 5 |
| Some signs of sleepiness | 6 |
| Sleepy, but no effort to keep awake | 7 |
| Sleepy, but some effort to keep awake | 8 |
| Very sleepy, great effort to keep awake, fighting sleep | 9 |
| Extremely sleepy, can't keep awake | 10 |



## References

1. Akerstedt T, Gillberg M. (1990). Subjective and objective sleepiness in the active individual. International Journal of Neuroscience, 52, 29–37.
2. Kecklund G, Akerstedt T. (1993). Sleepiness in long distance truck driving: an ambulatory EEG study of night driving. Ergonomics, 36, 1007–17.
3. Kaida M, Takahashi T, Åkerstedt A, Nakata Y, Otsuka T, Haratani K, et al. (2006). Validation of the Karolinska sleepiness scale against performance and EEG variables. Clinical Neurophysiology, 117, 1574–81.

## Representative Studies Using Scale

Gillberg M, Kecklund G, Akerstedt T. (1994). Relations between performance and subjective ratings of sleepiness during a night awake. Sleep, 17, 236–241.

Kaida, K., Åkerstedt, T., Kecklund, G., Nilsson, J.P., Axelsson, J. (2007). Use of subjective and physiological indicators of sleepiness to predict performance during a vigilance task. Industrial Health, 45, 520–526.

Maimberg, B., Kecklund, G., Karlson, B., Persson, R., Flisberg, P., Ørbaek, P. (2010). Sleep and recovery in physicians on night call: a longitudinal field study. BMC Health Services Research, 10, 239.

Sallinen, M., Harma, M., Akila, R., Holm, A., Luukkonen, R., Mikola, H., et al. (2004). The effects of sleep debt and monotonous work on sleepiness and performance during a 12-h dayshift. *Journal of Sleep Research*, 13, 285–94.