Sleep restriction protocol:

Following standard CBT-I protocols, the minimum prescribed sleep opportunity/time in bed was 5 hours. Our previous data highlights the importance of attaining at least 6.4 hours of total sleep time by mid-treatment for improving pain.[1] Thus, we modified a standard 90% sleep efficiency cutoff for advancing bedtime by 15 minutes such that for participants who had achieved an average of less than 6.5 hours of total sleep the previous week, their sleep efficiency cutoff for advancing bedtime by 15 minutes was set at 85%.

Changes to actigraphy autoscoring protocol:

Changes were made to the autoscored major sleep period times based on a standardized procedure, as follows: 1) If there was a ≤60 minute deviation between the auto-scored sleep and the diary "lights out" time or the diary "time out of bed" time, we deferred to the auto-scored sleep. 2) If there was a >60 minute deviation between the auto-scored sleep and the diary, the actigraphy record was edited to match the sleep diary time. 3) Whenever the auto-scoring broke a night of sleep into two distinct sleep periods, actigraphy data were rescored to include both periods if it was consistent with diary data. Files with adjusted major sleep period were then rescored using CentrePoint software and the Cole-Kripke algorithm Our lab has developed and used this standardized approach across several RCTs in an effort to minimize reliance on subject ratings to determine the sleep period, but to prevent likely invalid autoscoring sleep period determination, taking into account both diary and actigraphy pattern data.

1. Salwen JK, Smith MT, Finan PH. Mid-treatment sleep duration predicts clinically significant knee osteoarthritis pain reduction at 6 months: effects from a behavioral sleep medicine clinical trial. Sleep 2017;40.