The following content was supplied by the authors as supporting material and has not been copy-edited or verified by JBJS.

Appendix. Studies investigating treatment modalities targeted at improving sleep following TKA

<table>
<thead>
<tr>
<th>Study Topic</th>
<th>Methods</th>
<th>Results</th>
<th>Conclusions</th>
<th>Limitations</th>
<th>Reference</th>
</tr>
</thead>
</table>
| Self-Guided Meditation for Sleep following TKA | • Cross-sectional, observational  
• 9 minute long video focused on breath awareness with static image  
• Instructed to watch twice per day at any point in time for 2 weeks preoperatively and 2 weeks postoperatively  
• All 380 patients were offered the video.  
• 189 patients utilized video, 191 did not  
• Mean age 68 years old (range 45-90), 48% female  
• No statistically significant differences in baseline age, gender or preoperative sleep status as determined by baseline questionnaire | • Average time sleeping in video watchers was 6.58+/−1.35 hours preoperatively and 8.27+/−1.66 hours postoperatively  
• Average time sleeping in non-video watchers was 6.62+/−1.28 hours preoperatively and 7.4+/−1.5 hours postoperatively in non-video watchers  
• Those who watched the video improved on average 52 minutes (95% CI) | • Self-guided meditation may improve subjective sleep following TKA | • Selection bias as the video was offered to all and those that selected to utilize it may have a different level of understanding of sleep and buy-in to meditation methods  
• No objective measures collected  
<table>
<thead>
<tr>
<th>Zolpidem Treatment following THA and TKA</th>
<th>Double-blind randomized, placebo controlled trial with polysomnography measurements</th>
<th>No difference in sleep stages with zolpidem vs placebo</th>
<th>Limited number of patients enrolled</th>
<th>Krenk, L., P. Jennum, and H. Kehlet, Postoperative sleep disturbances after zolpidem treatment in</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Intervention was a single night treatment with 10 mg</td>
<td>• Subjective improvement in sleep quality</td>
<td>• No improvement in REM or short wave sleep on the night of surgery with single night</td>
<td>• Only monitored postoperative</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

49.8-52.8) following surgery which was a significant difference from non-video watchers

- Those who watched the video reported the had less awakenings (p<0.001) than those who did not watch the video
- No differences in sleep disturbances due to pain or VR-12, KOOS-JR or satisfaction scores

Zolpidem Treatment following THA and TKA

• Double-blind randomized, placebo controlled trial with polysomnography measurements
• Intervention was a single night treatment with 10 mg

No difference in sleep stages with zolpidem vs placebo
• Subjective improvement in sleep quality
• No improvement in REM or short wave sleep on the night of surgery with single night
• Limited number of patients enrolled
• Only monitored postoperative

Krenk, L., P. Jennum, and H. Kehlet, Postoperative sleep disturbances after zolpidem treatment in
| Zolpidem on the night of surgery | Ten patients in each arm of study (6 TKA in zolpidem arm) | All received spinal anesthetic and multimodal pain regimen | Sleep monitoring performed 1 night preoperatively in patients home at least 3 days prior to surgery, on the night of surgery in the hospital | and fatigue in zolpidem group (p<0.05) | Reduced number of arousals in zolpidem group (71) vs placebo group (99) with p=0.004 | treatment with zolpidem | day 0 when in the hospital | fast-track hip and knee replacement.
|-------------------------------|-------------------------------------------------|-------------------------------------------------|-----------------------------------------------|-----------------------------------------------|----------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------|----------------------------------------------------------------|
| Melatonin does not improve sleep quality following THA or TKA | Randomized placebo-controlled trial employing 42 day postoperative use of 6mg melatonin vs placebo | 118 patients (66 TKA) enrolled over 2 year with 77 in the melatonin treatment arm | Preoperative PSQI scores were predictive of postoperative scores at 2 and 6 weeks | PSQI scores were not improved with the use of melatonin as compared to placebo at 2 or 6 weeks postoperatively | Postoperative melatonin use did not improve sleep quality following THA or TKA | Poor sleepers preoperatively have worse sleep quality postoperatively at 2 and 6 weeks | Only included individuals without sleep disorders | May be underpowered due to an attrition rate of 23.7% | No dose variations were explored | Clarkson, S.J., et al., Melatonin Does Not Improve Sleep Quality in a Randomized Placebo controlled Trial After Primary Total Joint Arthroplasty. J Am Acad Orthop Surg, Nov 2021.