

Podcast of the Journal of Clinical Sleep Medicine

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Welcome to the regular podcast of the *Journal of Clinical Sleep Medicine*. I am Dr. Stuart Quan, editor of the *Journal*. These podcasts are a regular feature of each issue of the *Journal* and can be downloaded at the *Journal's* website. Each podcast features summaries of important articles published in the current issue of the *Journal*, as well as occasional interviews with authors of these papers.

The lead article in this issue of the *Journal* is entitled, "Delaying School Start Time By One Hour: Some Effects On Attention Levels In Adolescents," by Dubi Lufi, Orna Tzischinsky and Stav Hadar from Emek Yezreel College in Emek Yezreel, Israel and the Sleep Laboratory, Faculty of Medicine Technion, Israel Institute of Technology in Haifa, Israel. Recently, there has been data to suggest that delaying school-start times for adolescents will improve school performance and well-being by allowing the students to sleep longer at night. In the current study, the authors attempt to determine whether delaying school-start time by one hour enhanced attention and performance among 14 year-old middle school students in Israel. 47 students were studied and were randomized to either an experimental group with 26 students and a control group of 21 students. The study lasted two weeks. In the experimental group, for the first week of the study, school-start times were delayed by one hour. In the second week of the study, school-start times reverted back to normal, that is to say 7:30am. In the control group, students kept their normal school-start time of 7:30am during the entire duration of the study. During the entire two weeks, all students wore an actigraph and kept a sleep diary. On the last day of each week, all students completed two attention tasks. One was a mathematics continuous-performance test and the other was an alphabetic-cancellation test.

The results of this study showed that students in the experimental group slept, on average, approximately 55 minutes longer each night. In addition, during the week in which school-start times were delayed, there was a significant improvement in both attention tasks in the experimental group. However, there were no changes in performance in the control group. These data add to the growing body of data suggesting that early school-start times result in sleep deprivation in adolescent children and that this contributes to worse academic performance.

The next study to be highlighted in this issue of the *Journal* is entitled, "Dissimilar Teen Crash Rates In Two Neighboring Southeastern Virginia Cities With Different High School-start Times," by Robert Vorona, Mariana Szklo-Coxe, Andrew Wu, Michael Dubik, Yueqin Zhao and J. Catesby Ware from Eastern Virginia Medical School and Old Dominion University in

Norfolk, VA. As noted previously, there is a growing body of literature to suggest that early school-start times contribute to sleep deprivation and poor academic performance, mood disorders and excessive sleepiness. It is possible adolescents may have an increase in motor-vehicle crashes as a result of drowsy driving, as well. Motor-vehicle safety data indicate that motor vehicle crashes and fatalities are highest in the adolescent age group. In this study, records from the Virginia Department of Motor Vehicles were analyzed for two communities, Virginia Beach and Chesapeake. High schools in Virginia Beach start classes 75-80 minutes earlier than Chesapeake. The authors analyzed the crash rates for teenage drivers aged 16-18 years for both communities. Teenage crash rates in Virginia Beach were significantly greater than in Chesapeake for the years 2008 and 2007. Furthermore, the morning peak in crash rates occurred one hour earlier in Virginia Beach than in Chesapeake. These analyses suggest that earlier high school-start times contributed to an increase in crash rates amongst teenagers in the United States. They are additional data suggesting that high school-start times should be delayed to increase the amount of sleep that teenagers get during the school week and, hence, reduce the amount of sleep deprivation they incur.

The next study to be discussed in this podcast is entitled, "No Independent Association Between Insufficient Sleep And Childhood Obesity In The National Survey Of Children's Health," by Fauziya Hassan, Matthew Davis, and Ronald Chervin from the University of Michigan in Ann Arbor, MI. There are increasing amounts of data, particularly in adults, that suggest a linkage between insufficient sleep and obesity. There are less such data in children, but several epidemiologic studies in children also have indicated that inadequate sleep may be a risk factor for childhood obesity. Identification of obesity risk factors in children, and potentially designing interventions to mitigate these risk factors, is important because obese children have a high likelihood of becoming obese adults. In this study, data were analyzed from the National Survey of Children's Health, which is a national survey of U.S. Households contacted by random-digit dialing. Between January, 2003 and July, 2004, primary-care givers of 102,303 children aged 6 to 17 years were contacted. Among the questions asked was one specific question related to sleep. Specifically, the question was, "How many nights of sufficient sleep did your child get in the past week?" Responses were on a scale from zero to seven nights per week. Responses to this question were analyzed with respect to age and sex specific body-mass index, as well as ethnicity, household income level and household education.

The authors found that among children aged six to 11 years, those who were judged to have only zero to two nights of sufficient sleep, had almost a two-fold higher odds of obesity compared to those who obtained six to seven nights of sufficient sleep. However, after adjusting for sex, ethnicity, household income and household education, these results were no longer statistically significant. Furthermore, among children aged 12-17 years, no associations were found between nights of sufficient sleep and obesity. These analyses stand in contrast to previous epidemiologic studies suggesting a linkage between short duration of sleep and obesity. It should be cautioned that this study relied on self-report of children's sleep from their caregivers. In addition, the term "sufficient sleep" may not be an accurate representation of the actual duration of sleep these children had. Further research using a better measure of sleep duration is indicated to determine whether or not there is a link between insufficient sleep and obesity in children.

The final study to be highlighted in this podcast is entitled, "The Influence Of Intermittent Hypoxemia On Platelet Activation In Obese Patients With Obstructive Sleep Apnea," by Shilpa Rahangdale, Susie Yeh, Victor Novack, Karen Stevenson, Marc Barnard, Mark Furman, Andrew Frelinger, Alan Michelson and Atul Malhotra from Brigham & Women's Hospital, Children's Hospital, and Harvard Medical School in Boston, MA and the Soroka Clinical Research Institute in Beer-Sheva

in Israel. There is substantial data now linking the presence of obstructive sleep apnea as a risk factor for cardiovascular disease, including myocardial infarction and stroke in adults. However, the mechanism by which obstructive sleep apnea confers increased cardiovascular risk remains to be precisely defined. Some data are available suggesting that patients with obstructive sleep apnea have increased platelet activation. In this study, the authors evaluated platelet function in 77 subjects who were obese, of whom 47 were diagnosed with obstructive sleep apnea. The groups were matched for body-mass index, with a mean body-mass index of $40.3 \pm 9.6 \text{ kg/m}^2$ in those with obstructive sleep apnea and $38.9 \pm 6 \text{ kg/m}^2$ in those without obstructive sleep apnea. The authors found that time spent with oxygen saturations less than 90% and female sex were the only significant independent predictors of platelet surface glyco-protein one Beta fluorescence. The apnea-hypopnea index was not related to platelet function. These data are consistent with recent epidemiologic studies where nocturnal hypoxemia appears to be an independent risk factor for increased risk of cardiovascular disease in those with obstructive sleep apnea.

This concludes the regular podcast of the *Journal of Clinical Sleep Medicine*. The listener is encouraged to read the contents of the *Journal* for additional information regarding each of the articles summarized in this podcast, as well as other papers published in this issue of the *Journal*.