This month I want to discuss a secret weapon. This secret weapon is critical to performing at your optimal best, yet few people take it seriously. Rather, this area is neglected, ignored or unrecognized as important. This secret weapon is how long you sleep. Research has revealed that extra prolonged sleep can improve athletic performance in a significant manner, while sleep deprivation is detrimental to performance.

Adults require an average of eight hours of sleep, whereas children and young people in their twenties physiologically need up to ten hours of sleep per night. When getting less than this amount, an individual builds a cumulative sleep debt. This sleep debt can impact short-term memory, reaction time and other important factors detrimentally. On a more serious note, sleep debt has been linked to heart and stomach problems, high blood pressure, cancer, pregnancy problems, obesity, anxiety, depression and even an increased risk of death.

I’d like to explore the importance of sleep on maximizing performance on the lanes. With a focus on sleep extension, getting more sleep than normal, you can prepare yourself to be at your best in tournament play. After reading this article, it is my hope that you approach your pre-tournament plan differently, and seriously focus on the amount of sleep that you get leading up to an important tournament.

Extra sleep improves performance

Research on sleep has found that athletes benefit greatly from getting more sleep than normal. Specifically, sleep extension research findings demonstrate the importance of sleep in the pre-performance phase of preparing for peaking for competition.

In a study of the Stanford University Women’s Tennis Team, participants improved their athletic performance after a period of extended sleep. Specifically, researchers were studying the impact of getting extra sleep on performance. Initial testing was completed over a baseline period of three to four weeks. Players slept during their normal time over this period. Then, during the next five to six weeks, they made an effort to sleep close to ten hours each night.

After the sleep extension period, athletes improved their sprinting speed as well as their hitting and serve accuracy. Sleep extension was associated with a faster sprinting drill (19.12 seconds at baseline compared to 17.56 seconds after sleep extension), increased accuracy including valid serves (12.6 serves versus 15.61 serves), and hitting depth drill (10.85 hits versus 15.45 hits). In addition, the participants’ mood improved after the extended sleeping period.

A similar finding was revealed in a study of the Stanford University Men’s and Women’s swim teams. Specifically, athletes swam faster and had quicker reaction times after the extended sleep period. After

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two weeks of normal sleep patterns, the athletes increased their sleep to 10 hours each night for six to seven weeks.

Athletic performance was assessed after each regularly scheduled swim practice. After obtaining extra sleep, athletes swam a 15-meter sprint 0.51 seconds faster, reacted 0.15 seconds quicker off the blocks, improved turn time by 0.10 seconds and increased kick strokes by 5.0 kicks. These swimmers also reported less fatigue and higher measures of vigor after the sleep extension period.

In a third study, which studied extended sleep with the Stanford University men’s basketball team, athletes improved their performance significantly after a post-period of increased sleep. Initially, the basketball players slept their normal sleep pattern for a baseline period of two weeks. Then, for several weeks, the basketball players slept as many hours as they could. These athletes improved their speed as well as shooting proficiency at the free-throw line.

As is illustrated from the sleep extension research, you can improve performance for an important event by sleeping longer for six weeks prior to a tournament. This is as important, or perhaps more, than other pre-tournament preparation in being ready to perform at your best.

Sleep deprivation decreases performance

On the other hand, sleep deprivation can greatly undermine your ability to be at your best at an important tournament. The reality for most readers is getting less sleep than needed. So, how does sleep debt and sleep deprivation hurt your performance?

Only a few hours of sleep loss can impair performance. In a study of the effects of receiving less sleep, individuals who normally slept eight hours were made to sleep for only six. The results were remarkable. Sleep deprived participants lost reaction time equivalent to those who were tested after drinking alcohol. Specifically, the performance impairment was equivalent to drinking two to three bottles of beer. In addition to reduced reaction time, participants who were sleep deprived had memory recall losses similar to those experienced when consuming alcohol. When participants received only four hours of sleep, it impaired performance equivalent to drinking five to six beers.

What about four hours less sleep than normal? Sixty participants were involved in a recent study to measure the impact of sleep deprivation on target accuracy. Participants threw 20 darts five times daily. These individuals were tested after a normal night’s sleep and then again after a night of partial sleep. Specifically, they went to bed four hours later than normal but woke up at the normal time. Sleep deprivation had a negative effect on performance as well as mood. Alertness decreased and fatigue levels increased after sleep deprivation.

Travel can hurt performance, due to disruptions in the circadian rhythm. In one analysis, a comparison of NFL Monday Night Football games revealed the fact that West Coast teams had a 26 percent higher win percentage compared to East Coast teams playing at a worst circadian time. Specifically, West Coast teams won 63.5 percent of the time by a winning margin of 14.5 points, whereas the east coast teams won 36.5 percent of games by a winning margin of 9 points. Both sleep deprivation and jet lag were factors associated with performance declines.

Finally, sleep deprivation increases fatigue and moodiness. In a study of collegiate weightlifters, confusion, vigor, fatigue and mood states were all negatively impacted by a significant loss of sleep the evening before.

As is illustrated from the sleep deprivation research, not getting enough sleep or being sleep deprived is detrimental to performance. Considering the mental game implications of confusion, vigor reduction, increased fatigue and an increase in anger, a loss of sleep will impact performance negatively.

Recommendations

As illustrated, extra sleep improves performances and sleep deprivation decreases performance. Accordingly, I present three recommendations to help you be at your best at important tournaments.

Increase your sleep leading up to an important tournament

As the research on improvement performance has shown, increasing sleep leading up to an important tournament will lead to a performance peak. Specifically, as indicated by the research, this increased sleep period should start five to six weeks before the big tournament. Attempt to get ten hours of sleep per night. Increased sleeping will help reduce sleep debts and allow you to peak when it matters most...at the major tournaments.

Take a nap the day after a travel day or reduced sleep night

Sometimes during travel, the schedule creates a situation in which you can’t sleep much the night before a competition. As discussed earlier, sleep deprivation impacts performance negatively. A nap can improve this situation. In one study, a 30-minute nap after lunch was shown to greatly improve athletic
performance as well as cognitive tasks over those who didn't take a nap.

Participants were made to sleep only four hours the previous night. After lunch, the following day, one group slept for 30 minutes while the others read quietly. In the study, those who had taken a nap became faster in a sprint test and were more alert than their peers who didn’t nap. Short-term memory and accuracy in a visual choice reaction time task were also improved for those who took a nap. Sleepiness was also reduced in the group that napped.

A second study, completed by NASA, revealed the power of a half-hour nap. The study evaluated the effect of a short nap on the performance of long-haul pilots. After a nap, the pilots’ physiological alertness increased by 54 percent, with an objective performance increase of 34 percent. The effects of the short nap lasted 3 to 4 hours.

Take a 30-minute nap during a travel day or the day following a poor sleeping experience. This will help you perform better on the lanes.

**Pre-trip diet to reduce/eliminate jet lag**

Performance reductions due to jet lag are well documented. Dr. Charles Ehret, a biologist at the Argonne National Lab, developed a special diet to help reduce jet lag. Argonne National Lab is the largest and the oldest research facility of the U.S. Department of Energy.

Ehret tested the diet on soldiers who traveled from the United States to Korea. Soldiers who did not use the diet were 7.5 times more likely to report jet lag upon arrival. Of the 186 participants, 95 used the diet. Of the 95 participants using the diet, only 9 experienced jet lag upon arrival in Korea. Of the 91 not using the diet, 44 percent experienced jet lag upon arrival.

The diet starts three days before departure and involves a rotation of feast and fasting days, starting with a feast day and ending on a fasting day on trip day. On feast days, you eat three full meals. Breakfast and lunch on these days should be high in protein. Protein assists in producing chemicals your body produces when awake whereas high carbohydrate meals prepare an individual to sleep. Dinner on feast days should be high carbohydrates. The pattern of alternating eating before the trip helps to reduce the sudden shift of the internal clock after traveling to a different time zone.

On fasting days, you should eat three small meals. These meals should be 800 or less calories. If you are a caffeine drinker, only drink coffee from 3 to 5 p.m. on any of these pre-departure days.

Meat, fish, poultry, dairy products, nuts, legumes and eggs are all sources of protein. Carbohydrates include pasta, breads, pastries, cereal grains, such as wheat, rice, corn and oats as well as potatoes, rice, beans, vegetables and fruits.

**Conclusion**

As indicated from the article, sleep is an important consideration for bowlers who want to continually perform at their best. It is clear that sleep can either be a benefit to you meeting your performance goals or, literally, make it a reality that you meet your tournament goals. Mental focus, reaction time, and short-term memory are important factors to performing at your best on the lanes. Each will be enhanced by sleep extension.

**References**


