Sports And Performance Nutrition

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Lecture-28: Sleep hygiene

In this lecture, let us understand sleep hygiene, foods which enhance sleep, how to control plan, meals closer to bedtime and how sleep is related to growth hormone. As I was mentioning in a few lectures earlier, athletes go gung-o about supplement intake and sometimes get distracted and deviate from the primary focus on food and the right intake of fluids. Sleep is highly overlooked which is one of the basic aspects that governs recovery. The highlight of this lecture is a request with athletes and those fitness enthusiasts who pursue a gym or a sport to also pay equal attention to the sleep protocol. Setting up a sleep routine, going to bed same time and rising around a similar time can really improve the recovery process. So you may question me and ask what happens when athletes have a very late training session and it is understandable that it can be very challenging to plan meals very late in the night that can disturb sleep and besides high intensity workout not only revs up the metabolic rate but also can thwart the appetite and the desire to eat in athletes.

With this cascading effect, it is but natural that sleep can get delayed. So how can athletes plan their food if the training session lurks late into night? It's good to break up the meal perhaps as even a pre-workout snack or a larger intake of food prior to the training. That way you can meet the principle or the goal of replenishing the glycogen stove by consuming lesser portion of carbohydrate post training as you have already amplified your intake prior to the training. So by consuming lighter meals if it's too close to bedtime can be another way to ease the digestion and meet your objective of consuming a targeted calorie intake.

Also when athletes rise very early in the morning and if they also have school, college or even individuals who are working but are passionate about exercising who hit the gym very early in the day or go for a run can be very fatigued and may want an afternoon snows. For those of you who take a afternoon nap try and do it early in the afternoon so that it's not going to delay your night sleep. High carbohydrate foods such as oats, banana, rice increase serotonin. Serotonin induces sleep and hence some athletes who are weight making or on a low carbohydrate diet for weight loss can be very irritable with low serotonin and they may also not sleep well in the night. So for those individuals who are trying to lose weight and keep carbohydrate low it's best to carb cycle.

Keep carbohydrate higher on the days of training and those nights or evenings when athletes don't train try and skip carbohydrate intake to balance this. In the fundamentals of protein I talked about the essential amino acids and one particular amino acid called the tryptophan is very important because it is a precursor to serotonin. So high protein diets improve sleep quality. I just mentioned the neurotransmitter serotonin. It's colloquially called the happy hormone.

Serotonin not only influences your mood but also how sharp you stay. It is the signaling between the cells. Intense exercise or endurance workouts increases central fatigue. So thereby by pushing the serotonin levels the body tries to give the impression that it is feeling better or trying to lower the fatigue thereby higher serotonin can be seen in over trained athletes. We have touched upon high altitude training.

When athletes want to increase their arthropoiesis or making of red blood cells for higher uptake of oxygen they relocate to higher regions where the air is sparse and arthropoiesis can be stimulated. Or sometimes when athletes are travelling even for tournaments if the region is situated in on a higher altitude athletes will be faced with difficulty in falling asleep. So this requires a bit of acclimation. As humans we are governed by the day and night cycle called the circadian rhythm. So athletes must respect this and adhere to the day and night routine and maintain a routine to go to bed at the same time as I just mentioned a few minutes earlier.

Sleep is vital for the recovery process where all the repairing or the rebuilding is taking place while you sleep. Sleep also lowers the long term stress hormone cortisol. Sleep has a profound impact on the brain function helping improve attention focus and cognitive abilities. Several research studies recommend an average of 8.5 hours of sleep for athletes sometimes rather many times athletes don't meet this requirement from the daily training and the travelling needs for sports training itself athletes fall short of sleep time.

Also you can imagine when an athlete travels for tournament this can get further amplified because of anxiety or other challenges. Apart from the stress of the daily training needs sports performance anxiety can make falling asleep more difficult. Athletes can tweak the timing and the food and hydration strategy to improve their sleep. For those athletes who have a sleep debt must ensure they take time out to sleep extra hours to make up for the deficiency of the number of hours of sleeping time. So keeping aside one or two days especially morning time to sleep longer extra hours can make up for the deficit of the sleep time.

Improving sleep hygiene can help improve the quality of sleep. In addition to sticking to a similar sleep schedule allowing a room which is used only for the purpose of sleeping can be a good approach. A pitch dark room and a quiet place can be helpful to improve sleep. Also the body falls asleep faster when the room is pleasant and cool. Now for some of you who cannot do with the caffeine and those of who are caffeine responders and get disturbed by the caffeine and do not fall asleep please space caffeine intake 5 to 6 hours before the bedtime so that the caffeine does not disrupt sleep.

This can be sometimes very challenging for athletes who participate in competitions. If the matches are held evening or later this can be very disturbing. For those sensitive athletes taking a theanine supplement can counter effect caffeine. Taking time off from gadgets can be another simple tool to address a sleep challenge. Having a warm or a hot shower few hours prior to bed can be another calming technique.

Soothing music to breathing exercises and meditating for a few minutes prior to bedtime can be important techniques to improve sleep. Alerts are unavoidable in today's situation. Excessive use of mobile phone or laptops expose you to blue light waves. These short waves can increase alertness which means when you are wide awake you obviously cannot fall asleep. So the way to tackle blue light is to wear glasses which block them out or even better steer clear from gadgets at least one hour prior to bedtime.

Eating meals 2 to 3 hours before bedtime can help the digestion process. Heavier meals or deep fried items, rich proteinaceous dishes can slow down digestion and sleeping can become challenging on a full tummy. Also avoid spicy, oily or difficult meals to digest close to bedtime. You may eat them in the day when your digestive fire is more active. If the training time is too late in the evening close to dinner time and the guidelines are obviously to take adequate water during the workout or the equal amount or even 150% of sweat loss post your workout.

How do you deal with that? Excess fluid consumption can fill your bladder and there is an urge to urinate. So waking up in the night a few times to use the washroom prevents sound sleep. In these situations you can plan to hydrate several hours before the training to ensure you hydration. So that way you can balance the amount of fluids consumed post workout. From adding salts into a nimbu pani or a lemonade prior to the workout can help you hold body fluids.

When you train for 45 minutes to 1 hour consuming simple sugars or carbohydrates along with electrolytes such as sodium can also help you hydrate better so that you can avoid excessive fluid intake and rely only on rehydration strategies close to bedtime. So do you go the high carbohydrate way or the high protein way to improve sleep? I just called out carbohydrate rich meals like rice, banana, oats increase the happy hormone or serotonin and serotonin improves sleep. Protein rich foods also have tryptophan and that is the precursor of serotonin. In fact not only high protein foods even nuts like walnuts contain melatonin, fruits like tart cherry also improves sleep because of the melatonin content where melatonin is the precursor to the sleep hormone serotonin. So high protein diets are very important for a good night's rest.

So it is best for athletes to plan a mixed meal of carbohydrates and proteins. In addition if the training load is higher protein supplements such as casein can contribute to not only muscle protein synthesis but add quality proteins in the diet too. I just discuss of how caffeine can be a disruptor of a good night's sleep. Similarly if you consume too much alcohol close to bedtime that can have an equally disturbing impact on sleep quality. Night exposure has great influence on sleep.

The early morning sun rays can sink the circadian rhythm and align the day night cycle. The more time you spend outdoors and the more direct sunlight you have on your skin the better it is for your sleep. Early morning sun rays and daytime sunlight increases serotonin. Interestingly serotonin works bedtime and helps you get a good night's rest. So winding down this lecture plan your meals and hydration to improve sleep quality.

Spend screen time and follow a sleep routine. Use the help of technology where the wearables help you with data on sleep. That may help you plan and look at options to adjust your sleep routine. And sleep also helps for repair and recovery. Growth hormone releases about midnight and that underpins the repair and the recovery process.

A high carbohydrate meal releases the hormone insulin. Ironically insulin lowers growth hormone. So athletes can plan to consume high carbohydrate meals about 3 hours prior to bedtime. High protein diets and strength training can help growth hormone. Athletes can practice sleep hygiene and improve the sleep environment which can be important for recovery from exercise.

High carbohydrate meals are extremely important for performance and also to re-synthesize glycogen but consuming them too close can also lower the growth hormone which is important

for repair recovery and growth in young children. So athletes can plan to consume high carb meals with about 3 hours of gap to bedtime. High protein meals offer an important essential amino acid tryptophan which is the precursor of serotonin which induces sleep. So athletes can optimize their recovery by consuming mixed meals containing carbohydrate and proteins a few hours before bedtime where they get the benefit of both refuelling and repairing strategy when ensuring growth hormone also releases around midnight to aid this process. I hope this lecture will motivate each of you to embrace better sleeping practices.

Thank you for listening. Thank you.