Sports And Performance Nutrition

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Lecture-21: **Competition nutrition**

Hi everybody, in the high performance nutrition, fight tuning race day strategies can be a game changer for an athlete. In this lecture we will discuss how athletes can practice for competition with the right choice of food and fluids, what can be the challenges, how to deal with sports performance anxiety and the sports supplements used in a typical tournament day. If you remember the macro cycle which is from training to the tournament that can span a long duration going from off season to targeting certain athletic goals weekly to preparing for the big day. The athlete can practice race day strategies during the training cycle and athlete needs to remain very sharp and have the speed needed for a race day. The player also needs to be strong with high muscle strength and athlete also needs to have the stamina needed to sustain endurance activity while the player also needs to ensure optimal recovery to prevent injuries. So the food and supplements consumed on training days should ensure these objectives are met and it is typical that prior to a big match athletes will taper their training load.

For these days of lesser training demand the calorie or the carbohydrate also can be lowered to suit their needs so the athlete can avoid an unnecessary weight gain and it goes without saying that athletes must adapt to tried and tested strategies on a tournament day. The right hydration protocol and food consumed prior to a match can be the deciding factor between winning and losing. Also the correct food and fluid strategy for a match can optimize performance. It is not uncommon for a player to consume a very large meal with a notion that a larger meal can give him extra energy that is counter productive and it may work exactly in the contrasting way.

It is recommended to eat light easy to digest meals and definitely give at least 2 to 3 hours of gap before the big event and if you recollect in the fundamentals of carbohydrates where we talked about the glycemic index and the glycemic load of a food for a match day it is best to eat foods with low fiber content with higher GI or glycemic index. Low fiber diets are easy on the tummy and does not lead to bloating of later especially if an athlete is prone to stress or GI distress can suffer from loose stool the high Fiber diet can make it worse. If the main meal has been consumed with a gap of 2 to 3 hours and if only there is a desire or hunger to consume an extra snack can be taken prior to 1 hour for endurance events which last more than 1, 1 and a half hours increasing carbohydrate intake over 1 to 2 days which we will discuss in detail in carbohydrate loading can be very helpful to maximize the liver and muscle glycogen to ensure prolonged exercise capacity. This is another common practice during the interview schedule when we discuss and collect data and details of athletes we get this common query I consume sugar before I get into the match that consuming sugar can give energy and not only athletes even the parent community thinks likewise a lot of sugary foods sweets chocolates is offered to the player with the intention that it can give them extra energy and they will perform better.

So is this the right practice consuming plain sugar or anything sugary which is very very high glycemic index can actually lead to the release of insulin hormone and the function of insulin is like a gatekeeper it takes the glucose from the blood and pushes it into the cell thereby the level of the glucose in the blood falls and that leads to hypoglycemia.

So sugary foods are not energy givers before a tournament rather it can work against you another common thing not planned for a race day is heat acclimation particularly in outdoor sports such as tennis or marathon based on the weather conditions the heat and humidity athletes can take 2 to 3 days either to arrive at the destination of the match earlier so they are used to the environment or alternatively during the training period the athlete can train in similar conditions so that they get used to a similar weather condition which can help them adapt better and perform better than what they typically would. As I just explained the meals taken before the match should not only have less fiber to avoid gas bloating or flatus they also need to ensure they are modest in protein and lower in the fat composition. During the match in sports like football during the half time or during the water break in cricket or racquet sports one must ensure that they take about 200 to 250 ml of water and along with 30 to 60 grams of carbohydrate based on the duration of the match. Typically about 30 grams of high GI carbohydrate such as glucose or maltodextrin is very comfortable to take as a liquid solution or isotonic drink. Also if you recollect I had discussed where athletes can use a mouthwash with menthol and that can help lower the core body temperature by stimulating the neurons in the mouth and have a cooling effect.

In some sports it may be also convenient to consume a few dates or bites of bananas to get that instant energy. For those athletes who are very fatigued to consume any food or have a very sensitive gut and may not be able to digest food sports supplements become a very convenient option on a match day. Between matches or even in between a match sipping sports drinks or consuming bites of gels can give them that instant energy for a pick me up. Do remember in the hydration chapter that I emphasized of how sports drink contain phosphoric acid and do not forget to mouth chase where after consuming the sports drink it is best especially in children and in adolescence to advise them to take a sip of plain water so that the acids do not corrode the enamel and lead to dental cavities. Also for higher intensity sports or longer duration be it endurance activities such as cycling triathlon or even in racquets sports where the matches can prolong consuming gels or isotonic drinks with double sugar combination called multiple carbohydrate transporters can be very effective in absorbing more carbohydrates.

Let me give a simple analogy to explain this. Multiple carbohydrate transporters are a combination of two sugars glucose and fructose. So if you see this slide here the absorption of both the sugars is through two different paths if you have a toll gate and there are ten cars lined up to cross the single gate there is obviously going to be a challenge. The stomach can absorb only about 60 grams of carbohydrate in one hour so that is about 30 grams in a given half hour. So those of who practice consuming intake of two gels or glug down a whole bottle of a sports drink assuming that it gives you an advantage or someone who is not using these sports supplements you are mistaken.

It will lead to GI distress, abdominal discomfort and a ache or a pain where there is a hypertonic solution meaning excess amount of these sports drinks will lead to discomfort. Now in the given scenario you have glucose and fructose which is assuming we have two toll gates so we

segregate cars all white cars will go through one toll gate and the non-white cars will go through the second toll gate. So that way you have two toll gates and cars pass through easily. So glucose and fructose is working in a similar fashion where glucose is absorbed through one channel and the fructose then which gets additionally absorbed through a different path. So the body has the best of both sugars and hence an athlete can absorb more amount of carbohydrate by this strategy.

As with the guideline for optimal recovery of muscle glycogen or to rebuild the muscle protein even for a match day this holds good. This strategy can be very very important particularly if you have multiple matches where you need to replenish the lost liver glycogen by eating a high GI option be it a fruit or a white bread or even continue sipping on sports drink. Do ensure you don't need high fat in meals on match days particularly if you have multiple matches. As a rule ensuring high GI carbohydrate and easy to digest protein options as either a chocolate milk or a protein shake can be very helpful. During the competition even meals between the matches an athlete can avoid high fiber foods be it the pulses, salads or heavy intake of vegetables.

Even immediately after the match when the athlete is exhausted liquid meals like the chocolate milk or a protein shake or even a fruit milkshake can be very light on the tummy especially if the athlete is feeling queasy or does not have the appetite to consume a meal. Thereafter the athlete can prioritize consuming balanced meals with adequate intake of fruits and vegetables. In addition to focusing on food an athlete must ensure a good hydration protocol hours before the match ensuring consumption of electrolytes as simple as even extra salt in his food and drinks prior to the event. Understanding the same amount of loss fluids in sweat along with electrolytes can ensure not only the hydration but can prevent exercise induced hyponatremia and muscle cramping for professional athletes who have a hectic traveling and a competition schedule. Moving from city to city or many times even international travel requires some planning but the challenge of travel fatigue, lowered immunity or disturbed sleep the performance can be lowered.

So it is best recommended athletes choose to consume tried and tested food options even during travel also to keep in mind food safety and hygiene avoiding fresh fruit juices, cut salads, undercooked non-vegetarian foods can ensure there is no compromise on gut health. Athletes can prioritize to consumed cooked meals which are safer and can prevent gastrointestinal disorders as loose stool or vomiting. Another big challenge that athletes face on match day is muscle cramps. There are several reasons why an athlete suffers from muscle cramps typically that could be getting back to a training or having intense training sessions, dehydration or not taking care to ensure adequate electrolytes, heat illness or magnesium and calcium deficiency or exertion can be several reasons why an athlete can cramp. Ensuring adequate electrolyte intake in chilled fluids can help hydration.

Similarly consuming rich magnesium sources such as dark green leafy vegetables, almonds, pumpkin seeds or calcium rich dairy products till soya based products in daily diet can beef up these mineral stores and many times when there is a challenge you can also consume a mineral supplement. Now if you follow all these strategies and still suffer from muscle cramps particularly on a match day you are not the only one. This is not been fully understood and there is no explanation to what causes muscle cramps on important days like tournaments. So one theory to contributing to understanding this is the altered neuromuscular control.

Overactive neurons can lead to muscle cramps in spite of taking care of all the other protocol to give you an extra edge to beat the opponent other than the food and the basic sports supplements as sports drinks and gels.

Athletes can also work with ergogenic aids such as caffeine and nitrates. We will discuss supplements and ergogenic aids in detail in another chapter. For those athletes who compete in weight category sports for them to qualify to compete in a category there is a weighing in process and that can range anywhere from 1 to 2 hours to over 24 hours where the weighing in can be done the previous day before the event. In practice these athletes will plan to consume less food and water to ensure they lower their weight before the weighing in. These athletes have to ensure they consume water with electrolytes and high GI foods such as white rice, bread and banana immediately after the weighing protocol that way they can ensure hydration and optimize their glycogen.

Several athletes undergo sports performance anxiety. They are jittery, nervous and as we just discussed they also suffer from loose stool. Adding a probiotic can take care that one does not have several bouts of loose stool other than ensuring a low fiber diet and taking care of food safety where they consume only cooked food. In addition to that athletes can ensure and practice balanced diets and address nutritional deficiencies way back in the training days even before the competition season. Accurate amount of B vitamins, B12, magnesium, omega 3 have a very calming effect on brain function.

These nutrients need to be consumed for a recommended duration and it may not work by popping a pill just one hour before a match. So in addition to the right food and fluid approach taking care of nutritional deficiencies and many times addressing them by adding nutritional supplements there are other techniques by which athletes can take care of their anxiety. The most easiest and sometimes hard to follow breathing. So by practicing breathing techniques, awareness, mindfulness athletes can address certain anxiety concerns. And one another common practice that I see in my athletes is the use of music.

Having had the opportunity to spend some time with athletes on tournament days it is a mad place to be in crowded, noisy, overwhelming. And I do see that athletes wear noise cancellation headphones or they listen to music and they switch off from the chaotic environment and perhaps that can be useful for several athletes to keep focus. Also among elite athletes there is going to be a dope test. So the dope officer will collect the urine sample from an athlete directly which will be scrutinized for any banned substance. So professional athletes must ensure that they use batch tested supplements to avoid any adulteration.

A positive dope test can be detrimental for the sporting career of an athlete. So by ensuring the use of batch tested products the player can be guaranteed of a safe supplement. Another challenge athletes typically face is the heat acclimation. The rise of core body temperature in hot humid weather conditions can not only lead to excessive sweating and loss of electrolytes it can also increase the rate of perceived exertion and make exercise challenging. Also on match days using cooling strategies can be very helpful for an athlete to perform better from ice packs to cooling vests, chilled ice stalls or even a AC can be very useful for an athlete to keep his core body temperature lowered and of course to have a cold water shower or an ice bath even before a match or even post a match for recovery or especially in tournaments where there are several match days lined up can be very helpful not only to prevent delayed onset muscle soreness but help with lowering the body heat.

Also to summarize consume light easy to digest meals with a gap of at least 1 or 2 hours before an event. If the athlete is squeezy or is nervous and does not feel like consuming a meal that is also fine as the carbohydrate protocol which is practiced 1 or 2 days before the event can ensure higher glycogen in the body to support exercise. Practice and re-practice strategies in training days follow these practice strategies that has worked for you on a match day ensuring you avoid any new additions or new practices directly on a match day. I hope this lecture gave you a few insights to what can be a competition day for an athlete.

Thank you for listening.

Hi everyone, my name is Harsh Mankad and I'm a former Indian tennis player. I grew up in India, was the top junior player and then played college tennis in the US and then on the ATP professional tour. I had the opportunity to play at different levels including some of the biggest events in the world such as Wimbledon and Davis Cup against several world number 1 tennis players as well. I had a tennis playing career that lasted more than 20 years and over the last decade I've been in coaching and now I run a tennis program in Minnesota and we work with many junior players right from the grassroots level developing them all the way to the advanced level where players are playing for their school teams, going on to play college tennis and others aspiring for professional tennis. Through the course of my playing career and through coaching I gained a lot of experience and insights into the value of nutrition and how it impacts performance.

Of course over the last decade or so nutrition is playing even a bigger role. Most of the top athletes now have nutritionists, they focus a lot on their nutrition and they understand the connection of nutrition to performance. If you look at Novak Djokovic nutrition played a key role in how he was able to overcome some of the physical challenges that he had and has been able to elevate his career and become the highest winning grand slam male player. Today I want to talk about the role of nutrition on match days and this is a relevant topic so if you look at this year for example on the ATP tour at the French Open in the semi-final you have Carlos Alcaraz the favorite to win the tournament, plays Djokovic in the semi-final and midway through the match starts to cramp and has some physical issues in the match and that impacts the outcome of the match. Djokovic wins that match, goes on and wins the French Open.

Couple of months later Djokovic and Alcaraz are playing each other in the Cincinnati final and Djokovic is struggling in the first set in the heat and loses a lot of energy and then manages his nutrition during the match and then turns the match around and wins in three sets. I will talk about some of my observations on how Djokovic managed that situation and then at the US Open one of the favourites to win the title, Yannick Sinner also suffered from cramps in his match and ended up losing to Zverev. So at all levels in the game how players are feeling physically, how they're managing themselves physically during the match is impacting the outcome of the match and nutrition plays a key role in that and so I'll talk about this aspect. As I think about the role of nutrition on match days I look at it as three phases. One the preparation phase before the match, how the athlete is preparing, what the nutrition plan is before the match, then during the match what can be done during the match and then the third phase the recovery after the match and how important it is to recover well to prepare for the next match.

So there are three distinct phases the preparation phase during the match and the recovery phase. As we discussed the first phase which is the preparation as a nutritionist one thing to

understand is tennis players can play matches at different times in the day. Junior players may be playing matches as early as 7 or 7.30 in the morning and professional players for example at the US Open some of the matches are starting at 10.30 at night and they're playing into the early hours of the morning.

So your match time could be any time during the day and you need to have a plan for those different times. So it's important that the nutritionist works with the athlete to create multiple plans. So for example when the athlete is playing at 8 o'clock in the morning that's a very different plan from if they were playing a match later in the evening and you need to plan that out you need to discuss those scenarios and have a plan for those different match times and what the nutrition needs to be to prepare for those matches. Players can often be playing multiple matches in the day so that's another scenario that needs to be planned. You may be a junior player may play a singles match at 8 in the morning another singles match in the afternoon and then a doubles match in the evening they may play three matches in a day and so for each match there needs to be a preparation plan in terms of their nutrition.

On match days players are often feeling nerves there's anxiety and so the nutritionist also needs to work with the player to understand what their preferences are what types of foods are going to make them feel good are going to help them to feel calm. Some players like to go on to the court feeling more full like they've you know they've eaten something substantial other players like to feel a little more lighter so every player has their preference and the nutritionist needs to work with the player to figure out what's going to make them feel good and then devise the plan based on that as well in addition to taking in the nutritional you know aspects into the plan. Understanding the physiology of the athlete here's where the testing the evaluation is very important applying the science of nutrition and this is an area that sports science has improved a lot over the last decade or so and so understanding the nutritional profile of the athlete what are their strengths what are their areas of deficiency and how do you factor that into the nutrition plan to help them achieve peak performance in the match. This is something that I lacked when I was playing you know we were given generalized advice we were told what foods to eat but nothing was really tailored and at that time there wasn't a lot of testing and so now tailoring the nutritional plan doing that testing understanding the athlete that's where the edge lies and that's where nutritionists working with top level athletes need to go to that level to help the athlete get the most out of their performance. The other factor to consider on match days is the weather and the conditions you know playing in India in the heat and humidity that's one set of conditions to prepare for but if you're playing in Europe and it's cold and it's you know totally different conditions and so tennis players are playing all over the world at you know over across many different seasons and so the nutritional plan needs to factor the weather conditions in you know what's the plan in hot and humid conditions how does the plan change when you're playing in cold conditions and so that's a key aspect as well.

So to summarize in preparation to plan for different match times planning for multiple matches factoring in both the needs of the athlete but also the psychology right what makes the athlete feel good and then also the different weather conditions these are all of the factors that go into the preparation phase and helping the athletes to consume the right amount of food and prepare well so that they have the energy that's going to sustain them through the duration of the match. During the match the nutrition becomes important for example during the Djokovic match in Cincinnati when he was playing Alcaraz he was not only when he was sort of struggling physically he was not only replenishing the liquids but also you know eating during the match

and so having solid food during the match we're seeing that much more now and so what are the types of foods that athletes can eat during the match that can give them that energy that can help to prevent situations such as cramps and so that becomes important to have that plan in place and for the athletes to have in their tennis bags you know the nutrition that they're going to need during the match. Preventing cramps preventing fatigue that's the key and so nutrition playing a role in that during the match can help particularly as the matches go long if you're playing a three set or a five set match you got to really have the energy that's going to sustain you over three plus hours some of the matches at the Grand Slams are going into five hours and so the nutrition and energy management is a key factor that needs to be managed and planned not just before the match but during the match and that can help in those latter stages of the match when the player needs to sustain the energy and perform at their highest level and so many factors have to be thought about here too if match day scenarios can be created in training analyze the player work with the player identify things that are going on in their performance while their training can give the nutritionist the insights to create the plan to have certain strategies in place that can help the player when they're competing in tournaments. The third phase is recovery so after the match what is the optimal time frame within which the athlete should be replenishing their energy that is needs to be understood what types of food what quantity of food do they need to eat to recover and how all of that is going to be managed based on you know are they playing another match in two hours or do they have you know a whole night to rest and then they're playing the match the next day so thinking through all the different situations that the athlete would be in and having a recovery plan for that becomes an important aspect of performance particularly as you're managing your performance through a tournament and you're playing multiple matches and then trying to get to that final match and having the energy and the preparation to perform at your best in the final match which is going to be the toughest match which is going to require the most out of you that's where you have to perform and so all of the factors in terms of their nutrition that go into helping them get to that final play their best and win the title that's where the planning needs to be and can help the athlete. I hope my insights have been valuable in giving you as a nutritionist all of the aspects that you need to work with the athlete on that you need to think through and create a plan that helps your athlete to succeed.

Thanks for watching the video and all the best with your studies and your course.