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PROFESSIONAL BASEBALL ATHLETIC TRAINERS SOCIETY

IN THE SPOTLIGHT: **NEIL RAMPE, M.Ed., ATC, CSCS, LMT**

World Series Champions – Amid a Pandemic

By: Magie Lacambra, M.Ed., ATC, Gatorade Team Sports Manager



The road to becoming an athletic trainer is filled with a variety of educational courses and clinical experiences to prepare one for patient care. Nowhere in this journey is anything taught about how to deal with a pandemic, yet that is exactly what Neil Rampe had to do in 2020.

Rampe, starting his fifth spring training season as the Dodgers' head AT, joined the rest of the team at Camelback Ranch in Phoenix as planned in mid-February of last year. Everything was going according to schedule with games underway, until mid-March, with the emergence of an unknown virus, COVID-19, that brought everything to a sudden stop. Little was known about this virus and the danger it possessed, so the Cactus League and Grapefruit League were shut down and everyone was sent home until further notice, not knowing if the season would take place. Soon the entire country was in lockdown as it became apparent, we were in a pandemic.

Without any idea if baseball would resume in 2020, Rampe immediately went into preparation mode. He, along with Ron Porterfield, director of Player Health for

the Dodgers, gathered their staff (virtually) and gave the direction to get creative, think outside the box and start collecting as much information as they could regarding this virus. "There was no need to reinvent the wheel," Rampe felt. "We decided to tap into our relationships with athletic trainers of other sports to learn what they were doing." Since restrictions related to the virus varied from county to county, they spoke with their counterparts from local pro teams in LA county, the Lakers, Rams and Kings, as well as physicians from UCLA.

"Nothing was ever finished, complete or comprehensive in 2020," Rampe admitted. "One question led to five more. From March through July, we really didn't know what we were dealing with."

Due to the high rate of positive COVID tests in LA County, Rampe and his staff had to create a reintegration plan and work with LA Mayor Garcetti to bring their players back to Dodger Stadium in waves, if baseball resumed.

In May, the Dodgers started bringing players back slowly and in small groups to Camelback Ranch in

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IN THE SPOTLIGHT: NEIL RAMPE, M.Ed., ATC, CSCS, LMT

Phoenix, as well as to Dodger Stadium, depending on where they lived. They started with a single player, then groups of three players, then groups of five players doing rotations between the training room, weight room, batting cages and field. Initially, players would arrive at the ballpark dressed ready for their workout, get escorted into the facility, do their workout, and then were escorted out of the facility to ensure social distancing.

“We started with a tight leash and loosened it the more we learned and the more our processes got refined,” Rampe explained. In May and June, when the team felt they had learned more, they started to allow access to different areas of the ballpark in larger groups, as long as their process was not compromised. Wear a mask, wash your hands, and social distance were daily reminders for everyone.

Once summer training officially began, the collaboration and strength of PBATS became clear. Imagine having to identify expedited PCR testing locations and logistics, transportation and hotel for quarantine should someone on your squad test positive for every city visited during the season. PBATS members decided to collaborate on this type of information within their own city, to share with all visiting teams. “This meant there was a lot less to worry about when on the road if a home team would take care of their own city and treat visitors as if they were your own,” Rampe explained.

Zoom calls were a weekly form of communication between teams’ medical staffs to learn what each was doing in specific situations, and to talk through each city/county/state restrictions and requirements. Teams collaborated on how to navigate these issues as well as new MLB rules. “We were all drinking out of a firehose that nobody drank from before,” Rampe recalled. “In addition to our regular safety and emergency protocols meetings with the visiting team’s medical staff before each series, we also had a preempted conversation for COVID-related issues. Player safety superseded any competitive advantage.” During these meetings they would identify their isolation room, the closest PCR testing location, where guys that tested positive would go and how they would get there. Rampe credits the bond that PBATS members have, for this type of information sharing to take place.

MLB decided to restart spring training on July 1, 2020. Each team would stay in their home ballpark, rather than the customary Arizona or Florida, and would have three weeks to prepare for a 60-game season starting July 23. As soon as these dates and parameters were announced, Rampe and staff were ready to go. “Leave your ego at the door was one of the first rules we implemented,” Rampe shared. Maintaining social

distance and following the MLB tier system that limited the number of staff in any given area, staff was repurposed to fill roles that were best for the organization. This often meant that a bullpen catcher or video coordinator would assist in preparing food.

By July 1, with the entire team in LA, Rampe and his staff felt they had already learned what not to do. “We tried to fail forward as fast as we could to hone in on our processes for this year,” Rampe shared.

The high positive COVID test rates in Los Angeles may have played in favor of the Dodgers. “Living in an area hit hard by COVID forced us to have early learnings with our policies and procedures,” Rampe admitted. “We had great leadership and a team executing their plan right away, to keep players as safe as possible.”

From the start of spring training until the last regular season game on September 27, every player and staff member had PCR saliva testing every other day, per MLB regulations, with daily screening via questionnaire and temperature checks. This increased to daily testing in the postseason. “We could not have done this without Ron Porterfield and Andrew Otovic,” Rampe said. “They came in and coordinated and executed all the daily screening, testing and associated logistics.” This routine was just one of many changes every team went through this year.

“The season was so cognitively fatiguing. Nobody has a clear idea what it took to get through the season,” Rampe shared. “In the training room we practiced social equity, constantly asking each other, how are you doing, how is your family? Staff checking in on staff. That was very important.”

“We knew we had a good enough team to win it. We just needed to not take the opportunity away from us by making good decisions,” Rampe recalled. “We had to be a good teammate. Do the unselfish thing that leads to the team’s success.” Players were only allowed in the ballpark five hours prior to first pitch, instead of the traditional six to seven hours, which forced them to be more purposeful with their time. This even extended into determining what daily treatments players truly needed versus what they may just want. Get what you need and get off the table so a teammate can get what he needs, was a new way of thinking. Removing a couple of treatment tables from the training room to allow for proper social distance was also necessary. Rampe feels fortunate to have great clinicians in Andrew Hauser, Yosuke (Possum) Nakajima, Thomas Albert and Jonathan Erb to provide medical treatment for the players while he was pulled off the floor to manage COVID issues.

Adaptability became a huge trait in 2020. Baseball is usually very routine with the day planned out to the minute. What was consistent in previous seasons, was the unknown in 2020. When is batting practice? When is the plane leaving? It became survival of the most adaptable. “We felt that the team that had the most adaptability had the best chance of being the last man standing in 2020,” Rampe said.

Rather than gathering in the meal room to eat and socialize, players would order their food choices each morning using a team app. Once their food was prepared, it was taken outdoors for players to pick up and consume outdoors. Feeding 100 people daily, while maintaining social distance and avoiding common touchpoints, was a tremendous challenge that Rampe credits team dietitian and chef, Tyrone Hall and assistant Kristen DeCesare, with executing beautifully.

The MLB Playoffs in 2020 also took on a different look. The first round of games were hosted by the higher seed, where the Dodgers hosted Milwaukee for two games. Then MLB adopted a bubble, similar to what the NBA had done to help reduce the opportunity of exposure to COVID. Four ballparks were selected as bubbles for the Division Series and Championship Series, and Globe Life Field, for the entire World Series. Having played the entire postseason on the road, the Dodgers won the World Series on Oct 27!

Generosity of Dodgers ownership allowed players to have their families with them during the entire postseason, while staff members’ families joined the team during the Division Series. All staff families had to first quarantine in a hotel in Palos Verdes before gaining access to the team plane. Having family around was invaluable to everyone. Not only was there COVID to deal with, but our country was battling social injustice and an upcoming tense presidential election. There were things going on much larger than baseball and it was important that everyone respect each other. The team was the one constant for everyone.

Staying in the same hotel from the Division Series through the World Series allowed the team to settle into their environment and get into a bit of a routine. Everyone found what daily “rituals” helped them get through the day, whether it was a walk around the hotel property, taking a swim with their kids, or enjoying a cup of coffee on their patio. Players and staff held a “Bubbleween” on Halloween for the kids, on their patios to resemble community and normalcy. Controlling the controllable and being adaptable were key attributes for the team.

“If you asked any MLB athletic trainer involved in the 2020 season, they will tell you it was an absolute roller coaster, emotionally, mentally and physically,” Rampe stated. “They would tell you they felt like they went through a 200-game season instead of a 60-game season. We condensed a 162-game season’s worth of

resources into a 60-game full-court press with less manpower.”

The postseason of 2020 was clearly different than any before. No home-field advantage due to limited or no fans at a neutral site. No celebration or parade. Not one single bottle of champagne was popped throughout the Playoffs. Although the Dodgers managed to stay clear of any positive team COVID tests all season, the one positive test 30 minutes before winning the World Series, resulted in team COVID testing for an additional three weeks. This one positive test also required extensive conversations between the Dodgers and local public health officials to allow their team plane to return from Dallas and land at LAX.

Rampe hopes that the asterisk next to this World Series refers to the tremendous difficulty of it all, rather than because it was a shortened season. Rampe admitted that he did not exhale, relax and enjoy being World Champions until Thanksgiving Day.

“2020 will go down in history for so many reasons. I am very proud to be a part of the 2020 World Series knowing that being the last team standing signified more this year than a normal year because of what 2020 was,” Rampe reflected.

Workload and Recovery – A Team Approach

By: Jacob Newburn, MS, LAT, ATC, Assistant Athletic Trainer, Texas Rangers Baseball Club

Recently there has been increased popularity in the use of recovery modalities in athletics to help athletes better prepare for subsequent bouts of work in training and competition. However, without fully understanding workload, it is difficult to assess how much recovery is necessary and which modalities are most effective in a team environment.

In 2020 we were faced with a new challenge in sports – the uncertainty of when competition would return. Many athletes' seasons were cut short or delayed, resulting in them training remotely to remain "ready." Some of our players were left without access to weight rooms, fields, bullpen mounds, and even good quality baseballs to throw. As clinicians, we could not actively monitor their work and had to rely on what they told us. Ultimately, when teams finally gathered to restart their seasons, it was clear that players were at different levels of preparation for the season. We had to navigate increasing workloads safely while maximizing recovery during the quick ramp-up in Spring Training 2.0 and the shortened season.

How Do You Calculate Workload?

Innings limits and pitch counts are two of the most well-known methods utilized in baseball. [Pitch Smart](#) outlines pitches thrown and required rest days that have been implemented in youth baseball programs nationwide. In professional baseball, we use additional methods to more accurately quantify workload such as Motus sleeves, radar guns, heart rate tracking and Rating of Perceived Exertion (RPE) surveys. For pitchers, there are multiple factors including pitches thrown, innings pitched, number of game appearances and differences in daily throwing variability (e.g., number of total throws, throwing intensity, long toss distances, flat grounds and bullpens) that can affect daily workload.

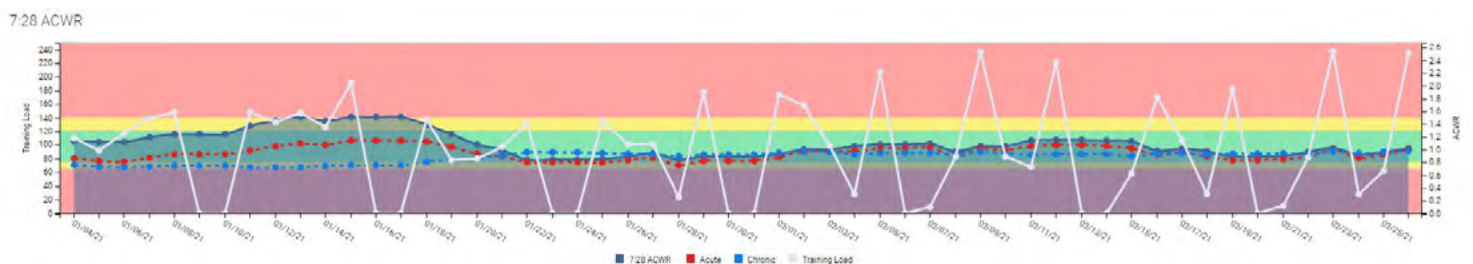
Furthermore, an individual's height, weight, throwing mechanics, elbow torque, shoulder torque and hip-shoulder separation have been correlated to injury and could be considered when devising individual workload calculation.

For position players, total number of swings, throws, ground ball and/or fly ball reps, in-game sprints, games played and number of at-bats can be tracked over time. More recently, there has been emphasis on calculable metrics such as swing speed, exit velocity, running speed and in-game running volume that can help determine workload. However, with both pitchers and position players you must remember that all athletes are different and their bodies each have different reactions to work.

Where Does This Leave Us?

It is worth noting that no study, to date, has definitively declared any single methodology for calculating workload to be the best. Therefore, any method of calculating workload can be valuable if the staff works together to maximize their time and resources in determining and consistently applying it with athletes.

By observing the numbers of swings, throws and sprints, or simply tracking the amount of time spent on the field, we can standardize how we track daily activity. Monitoring workload over time, regardless of manner, can be used to calculate "acute work" (work done over the last week) and "chronic work" (work done over the last month) for individual players. These metrics can then produce an Acute-to-Chronic Workload Ratio (ACWR). The staff can then track this ACWR to observe if there are large spikes or dips relative to workload that may affect performance in the day(s) to follow. For example, heavier acute workloads can cause spikes, and days off



from activity can cause dips. The ACWR can be used to help maintain an even workload or to progressively increase workload safely without applying too much work acutely, possibly resulting in injury. As research in this area progresses, we may learn more about how to optimize which metrics we input into the ACWR to further prevent injury and improve performance. In the meantime, we can utilize ACWR to help us be more targeted in our application of recovery modalities based on daily tracking.

How Do We Recover?

Multiple modalities currently on the market purport to help aid in athletic recovery. Passive recovery tools such as pneumatic compression devices (e.g., Normatec and Rapid Reboot), electrical stimulation (e.g., H-Wave and Marc Pro), percussion massage guns (e.g., Theragun, Jawku and Hypervolt), cryo-chambers, infrared saunas, whirlpools, nap stations, float pods and massage therapy are all common recovery modalities the players use on a daily basis between and after training and game sessions. Active recovery methods such as stretching, heart-rate zone training, meditation and breathing exercises can be utilized to help players feel rejuvenated. On days that acute workload spikes, passive recovery methods can be beneficial to limit energy expenditure while allowing physiological recovery processes like increased blood flow and lymphatic drainage to occur and limit inflammation.



When workload is not as high, active recovery allows athletes to restore their bodies without dropping the acute workload too low. Layering passive and active

recovery methods can help an athlete to feel their best for their next bout of competition or training.

Additional factors that affect recovery include sleep and nutrition. Optimizing sleep patterns, diet and supplementation can help the body heal and recover on a daily basis. The body requires adequate amounts of sleep in order to utilize many of the natural processes that help with recovery. The normal population requires on average seven to eight hours of sleep per night, but athletes often require upwards of nine or 10 hours of quality sleep per night in order to fully restore their bodies. Furthermore, dietitians can recommend adjustments to caloric and carbohydrate intake to match training and competition demands. They can also offer food selection to enhance desired adaptations, and even provide necessary supplementation and functional food recommendations that help to restore the body.

In conclusion, we must always remember that recovery is an individual approach. What works for one athlete may not work for another, and what is initially effective can become less effective over time. Because of the wide-ranging nature of workload tracking and the multifaceted, personalized nature of recovery, it is necessary to have continuous communication among your staff and with each player. Each staff member on the team is an integral part of the process. Coaches must help to monitor and moderate on-field activities (e.g., throwing, hitting, defense). Strength coaches will need to modify workouts to meet individual daily needs (e.g., mobility, flexibility, stretching, strength training, power training, sprinting, low-intensity work). Dietitians help with prescribing individualized nutrition plans specific to caloric needs.

The medical staff can compile all of this information and then formulate the appropriate recovery plan for each individual to help them restore their body. In a team atmosphere, it is necessary to work together to monitor an athlete's workload and utilize recovery modalities to keep them performing at their highest level.

Shoulder Stretch Routine

By: Matt Lucero, ATC, LAT, Head Athletic Trainer with the Texas Rangers

Demonstrated below are basic shoulder stretches that we like to do with some of our throwers as well as rehabbing players in our organization. Keep in mind that there are several additional techniques available, and we typically stretch the tissue that is in need rather than stretching just for the sake of stretching. It's important to proceed stretching shoulders with a proper evaluation or screening to identify target tissue. For example, if we find a shoulder to be very loose or "sloppy" we may be less inclined to add ROM or laxity to an already loose shoulder. By contrast, we do not want to create imbalances in a tight shoulder without an appropriate plan.

I encourage you to take note of technique, including stretcher hand placement and body positioning. It is also important to communicate with your athlete during the stretch as well as recognize the compliance of the tissue you are addressing. I am a big fan of adding light contract/relax work with most of my stretches, so feel free to explore the possibilities.

All stretches demonstrated below are described for the right shoulder.



Figure 1A



Figure 1B



Figure 1C



Figure 1D

Supine Internal Rotation (Figure 1A)

For the right shoulder, place right hand anterior to GH joint to control anterior humeral head translation. Your left hand can gently push on back of wrist while elbow is at a true 90 degree angle. I like to use my right knee for support. As with all stretches, push until slack of tissue is taken up and athlete communicates sensation.

Supine Internal Rotation with Distraction (Figure 1C)

This is a popular stretch for overhead athletes who tend to have tight posterior capsules. I prefer to use my left arm to hook under the elbow of the athlete and leverage it on my right arm to help with distraction. (If you find this uncomfortable, you can hook with your right arm and rotate athlete with your left.) After distracting the shoulder, I apply pressure on the back of the wrist to internally rotate the shoulder.

Supine External Rotation (Figure 1B)

My preferred method is to rotate the shoulder into ER by rotating the humerus with both hands.



Figure 1X

Figure 1X shows a common method that I like to avoid due to unnecessary stress on the ulnar collateral ligament.

Internal Rotation with Horizontal Adduction (Figure 1D)

With my right hand the lateral border of the scapula is stabilized. With my chest against the back of the athlete's arm I apply light pressure across the player's body in a slightly upward direction (think distraction). This will help avoid any pinching sensation the athlete may have.

I then follow up with pressure on the back of the wrist, rotating the shoulder internally.



Figure 1E



Figure 1F



Figure 1G



Figure 1H



Figure 1I

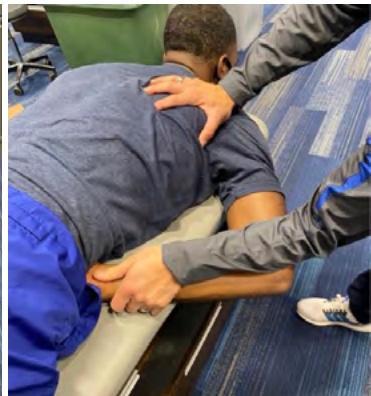


Figure 2A



Figure 2B



Figure 2C

Shoulder Flexion (lat/inferior capsule) (Figure 1E)

With my right hand I stabilize the scapula at the lateral border. I then use my left hip against the athlete's arm/elbow to take the arm up into abduction. Note my left hand pushing the humerus inferiorly to avoid any pinch. Athlete can push against your hip to add the contract/relax component.

A nice alternative to this stretch is using your left hand to externally rotate the shoulder by applying light pressure at the forearm.

Latissimus Dorsi Stretch (Figure 1F)

With athlete supine, grab both hands or wrists. Have athlete bend knees with feet on table and rock knees side to side. This will provide a nice dynamic latissimus stretch.

Neck Stretch (Figure 1G) / Forearm Stretches (Figures 1H, 1I)

I like to finish my supine series of stretches with a quick neck stretch. My right hand spreads the proximal neck into the lower occipital region and my left hand applies some shoulder depression. I can alter head position with my right hand to change the stretch and I can also add in some quick myofascial work in the area.

I will also add pronator/flexor, supinator/extensor stretches from this position (Figure 1H, 1I)

Prone Internal Rotation Stretch (Figures 2A & 2B)

In prone position, place the athlete's hand (palm up) just superior to the ASIS. With my right hand I first attempt to stabilize the scapula from abduction. With my left hand I hold the athlete's wrist in place and apply downward pressure with my forearm against the athlete's forearm. Occasionally you will find an athlete is too flexible for this position. In this case I can adjust the placement of the athlete's hand onto his or her back (Figure 2B).

Scapular Mobility (Figure 2C)

In the same prone position as the previous stretch you can attempt to grab the medial border of the scapula and move it away from the midline. You will likely find that some athletes have their scapula pinned down, and getting any significant leverage may create some challenges with this stretch.

Nutrition for Recovery in Baseball

By: Meagan Nielsen, MS, RDN, CSSD, LDN, USAW Dietitian and Bridget Sopeña, MS, GSSI Senior Scientist

Let's just come out and say what we already know: The baseball season is LONG. It seems inevitable that come mid-season, many players will start to feel "off" in one form or another. Fatigue may creep in and these players want to know how they can continue to feel good, throw hard and remain injury-free for the rest of the season. Because of the long duration of a typical MLB season, it is important to complement medical care and recovery modalities by focusing on proper recovery nutrition in order to keep players on their "A-game." Meals and snacks prior to games help to fuel performance, whereas a proper post-game fueling routine will support recovery prior to the next game. Performance staff are often tasked with post-activity nutrition on top of providing athletes with medical and recovery care; therefore, setting basic and practical nutrition goals is key. Focusing on the 3 Rs of recovery (refuel with carbohydrates, repair with protein and rehydrate with fluid) will help to support your players' recovery and keep them performing longer.

REFUEL: CARBOHYDRATES

The stored form of carbohydrate in muscle, known as glycogen, is the first to be used for energy during a baseball game. When those fuel stores become depleted without being restored through foods and fluids, this may lead to decreases in performance.¹ The brain and central nervous system also depend on carbohydrates as a fuel source. When deficient in carbohydrate, the athlete may begin to feel fatigued and can lack concentration; therefore, reaction time and performance will suffer.² Given that these are all attributes to making plays on-field or reviewing film before the next game, it is imperative that athletes select quality carbohydrates for their recovery plate. "Quality" carbohydrates refer to sources that provide superior nutrients and fiber versus the more refined sources that lack substance. See Table 1 for dosage, sources and benefits.

The amount of carbohydrate each player needs post-game will also depend on their field position. For instance, pitchers and catchers who are involved in every play for multiple innings will likely have a greater need to refuel than their fellow teammates who may not have seen as much action. A general recommendation for carbohydrate refueling is 1 gram per kilogram bodyweight.¹ Rather than focusing on the exact gram amount that each player needs, help them to visualize

their plate. For example, the starting and closing pitchers and catchers who performed more should aim to fill about $\frac{2}{3}$ of their plates with carbohydrate choices, while the lower-action teammates can aim for $\frac{1}{4}$ of their plate being carbohydrate. Additionally, a practical way for players to get some quick-acting carbohydrates is to consume a "team shot" of tart cherry juice at the end of the game. Tart cherry not only provides energy, but it also has been shown to deliver antioxidants and anti-inflammatory properties via anthocyanins and flavanols.³ It may also help to promote a calming effect to enhance sleep quality, which could offer additional benefits after night games.

Table 1

NUTRIENT	DOSAGE	QUALITY SOURCES	BENEFITS
Carbohydrates	1g/kg BW 2/3 of recovery plate for multi-inning pitchers/catchers 1/4 of recovery plate for all other players	Brown rice, whole wheat pasta, corn tortillas, fruit, vegetables, beans	Replenish glycogen Support demands of training and recovery

REPAIR: PROTEIN

Muscle protein is constantly being broken down and utilized by the body during exercise and throughout everyday life. Unlike muscle glycogen, amino acids, which are the building blocks of protein, are unable to be stored in the body for later use. Due to this, protein sources must be consumed by the athlete to replenish their muscle and lean body mass.¹ Upon learning this, there seems to always be that one player on the team who then overeats protein at his meals. Unfortunately, in this case, there is such a thing as "too much of a good thing." A growing body of research is finding that the body can only utilize about 0.25-0.30 grams/kilogram body weight of protein from a meal⁴ and excretes any excess intake via urine. It is imperative to encourage the players to break up their protein intake to smaller meals or snacks every 3-5 hours throughout the day, rather than one large portion post-game. This not only will allow for a constant stream of amino acids to be absorbed into the blood and delivered to the body throughout the day, but it also allows adequate plate space for the other nutrients needed in a post-game recovery meal. The actual amount of protein needed by each athlete will vary based on their body weight and composition, but in general, each player should be

encouraged to fill about ¼ of his recovery plate with protein. Complete protein sources, which contain all of the essential amino acids that the body does not make itself, will be ideal to support muscle growth and maintenance. Be sure to provide lean proteins that are grilled, baked or boiled rather than breaded, deep-fried and/or smothered in heavy sauces. See *Table 2* for dosage, sources and benefits.

Table 2

NUTRIENT	DOSAGE	QUALITY SOURCES	BENEFITS
Protein	0.25-0.30g/kg BW ¼ of recovery plate	Poultry, beef, fish, eggs, tofu, whey protein powder	Supports muscle protein synthesis

REHYDRATE: FLUID

Dehydration during practice and games may not only negatively affect performance, it may also delay recovery from a previous game. As little as 2% dehydration is associated with impaired performance in stop-and-go sports⁶ such as baseball. Performance measures such as skill, agility and running have been found to be negatively affected and players also have increased feelings of fatigue as they accumulate a body water deficit. This is especially important when competing in hot and humid conditions, and for the players who are more active and/or wear more gear in-game, such as pitchers and catchers.

Rapid post-game rehydration is especially important when there is a short timeframe between the end of the game and the start of the next (e.g., double-headers or going from a night game to day game the following day). During this limited recovery time, defined as less than 12 hours, 150% fluid replacement is recommended.⁵ A drink volume greater than sweat loss must be ingested to restore electrolytes and fluid balance. However, when recovery time is extended, body-water balance is typically achieved with ad libitum food and fluid consumption during post-game recovery meals.⁵

Because sweating rates and sweat electrolyte concentrations vary from player-to-player, customized fluid replacement strategies are recommended. It is also important to note that rehydrating with fluids that contain electrolytes can provide benefits over water alone and are important for retention, thirst stimulation and electrolyte replacement.⁷ Another option for improved electrolyte consumption while rehydrating is to consume salty foods with water.

Refer to Table 3 for hydration assessments and rehydration techniques and recommendations.

Table 3

OCCASION	ASSESSMENT TECHNIQUE	DEFINITION	RECOMMENDATION
During Game	Change in body mass	Pre and post body mass in minimal clothing Retest in various intensities, durations and environmental conditions	Avoid >2% dehydration Consume beverages with sodium for replacement and thirst stimulation
Post-Game (recovery)	Change in body mass	Difference between pre and post body mass	150% fluid replacement (24 oz for each 1 lb lost) Consume beverages with sodium and/or snacks/meals with sodium to replace losses, stimulate thirst, retention

Source: Sawka, M.N., L.M. Burke, E.R. Eichner, R.J. Maughan, S.J. Montain, and N.S. Stachenfeld (2007). American College of Sports Medicine position stand. Exercise and fluid replacement. *Med. Sci. Sports Exerc.* 39:377-390.

KEY TAKE-AWAYS

- Refuel your players post-game through quality carbohydrate sources to replenish glycogen and support the demands of training and recovery.
- Repair your players' muscles via quality protein sources to support muscle protein synthesis.
- Rehydrate with 150% fluid losses based on the individual player's body weight change from pre- to post-game.

CONCLUSION

Encourage players to focus on the 3 Rs of recovery: Replenish with carbohydrates, rebuild with protein and rehydrate with fluids. By providing the guidance and nutrient-dense options after each game, the players may learn to enjoy new foods while also improving their recovery throughout the season.

The views expressed are those of the authors and do not necessarily reflect the position or policy of PepsiCo, Inc.

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To provide the members of PBATS and other healthcare providers with an insider's view of the life and work of PBATS members, and facilitate the membership's sharing of knowledge about the care and prevention of baseball related injuries.

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