



THE RECOVERY PROCESS

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The recovery process is one of the most challenging and diverse areas in the National Basketball Association (NBA). Every strength and conditioning coach is in search of the most effective and efficient programs that will provide their athletes with the best opportunity to recover fully. There is no end-all be-all program when it comes to recovery, therefore coaches rely on multiple variables to give their athletes the best chance to recover fully. Many processes and applications are used for recovery programs but there are certain factors that must be taken into consideration before determining the optimal course of action.

One of the most important factors is an athlete's ability to buy-in and create a routine the athlete will adhere. The psychological aspect is another important factor. For instance, if an athlete is accustomed to utilizing a particular recovery method, the psychological benefit for utilizing that specific method may be effective for that athlete. Older methods may not be the most effective means of recovery in all situations, but the psychological benefit may enhance the overall recovery process for that athlete in particular. Another important factor in the recovery process is an athlete's health and/or physical limitations. Some methods, such as static stretching, may not be appropriate for an athlete with a muscle strain, similarly inappropriate would be foam rolling a contusion.

Recovery is a never-ending process through the NBA season. Starting from voluntary workouts in August/September, all the

way to the playoffs in May/June, the ability for the athletes to recover is extremely important because the NBA schedule is grueling; some teams even play five games in seven nights (back-to-back games, off day, game, off day, back-to-back games). An example of this can be seen in Figure 1, which provides the 2015-2016 schedule for the Detroit Pistons. The second week of December provides an example of five games in seven nights. Oftentimes, the recovery process has to be able to provide athletes with the ability and opportunity to recover in less than 24 hours. The following will break down the NBA season and provide considerations for developing an effective and efficient recovery process to account for the grueling NBA schedule.

TRAINING CAMP

The first part of the NBA season is the pre-training camp timeframe. This is a critical time to develop and implement, as well as experiment, recovery techniques for all athletes to determine what may be the best option for each athlete. As part of pre-training camp voluntary workouts, a useful flowchart tool to determine athlete readiness and recovery for each session can be seen in Figure 2. At the end of this flowchart is a box identifying a checklist of recovery methods. Using this structured system (Figure 3) for readiness and recovery, all athletes must complete a minimum of three recovery methods from this checklist following training sessions and practices. Figure 3 provides a checklist of recovery methods, which include stretching, rehydration, foam rolling, and various types of therapy. Not listed as part of the recovery checklist is inversion therapy and dynamic compression

devices (2,12). The unmonitored part of recovery is very critical because it relies upon an athlete's compliance; this is the home recovery process, which consists of continued rehydration, refueling, and most importantly, rest (7).

The recovery program and methods will be put to the ultimate test during training camp when "two-a-day" workouts take place over two to four days, dependent on the organization. Following the morning session, a major emphasis is placed on passive recovery, refueling, rehydrating, and inversion therapy, whenever necessary. This allows the athlete's body to recover sufficiently by reducing fatigue and enabling the body to ramp back up for the second session (15). After the completion of the last session of the day, all recovery methods are emphasized with dynamic compression and contrast baths and cold/hot showers receiving the most emphasis to help reduce delayed onset muscle soreness (DOMS) (3,11,14).

PRE-SEASON

After "two-a-days" and training camp, the schedule normalizes during the pre-season, which is quite similar to the regular season schedule. Practice and home game recovery programs are identical to that of training camp. Some recovery methods will not be available during travel, such as contrast baths or cold-only baths, which can be limited due to opposing team facilities. Therefore, a major emphasis is placed on static/assisted stretching, foam rolling, and rehydrating and refueling. Recovery following away games is critical because the time between game completion and flight departure is when rehydration and refueling has to achieve optimal levels (1). The "anabolic window of opportunity" is the theoretical time after training where muscle adaptation may be optimized. The most touted benefit of nutrient timing is that it can potentiate increases in muscle protein synthesis (9). Whether participating in a game or resistance training, it is often recommended that athletes consume protein immediately following their activity in order to reach a positive protein/nitrogen balance, which helps to build and repair muscle (16). After the flight, the athletes begin the resting stage; whether it is in the form of naps on the way to the hotel or sleeping once they get to the hotel (sometimes rest can occur on the flight as well). In order to facilitate optimal rest, timing for refueling and rehydration should occur before the resting stage. This is done to allow athletes the chance to use the bathroom while still awake so that they may have a better chance for REM (rapid eye movement) sleep, which is also extremely important for recovery (7).

IN-SEASON

The recovery process is implemented for off-days and practice days with resistance training. On scheduled off days, some athletes will come to the facility to seek treatment for ailments or maintenance. They may also engage in restorative activities that include hot bath, pool therapy, yoga/Pilates, and massage therapy (4,8). Active recovery options include light cardiovascular activity, bodyweight exercises, or light resistance training (less than 55% of 1-repetition maximum) (15). Promoting blood flow and range of motion during the recovery process allows athletes to bounce back more true to form when combined with passive recovery

(11,15). It is valuable for strength and conditioning coaches to collect information through athlete monitoring systems to allow them to dive further into the recovery process by assessing each athlete's diary information as well as the entire team. By looking at the team's fatigue, energy, and stress, strength and conditioning coaches can get a better indication of the type of recovery most needed from physical, mental, and/or emotional aspects. It can be valuable to couple the diary information with resistance training and game results (wins and losses) to try to find trends.

As the regular season begins to close out, more recovery methods are implemented in order to maximize performance through the playoffs. For the teams that do not make the playoffs, the recovery process starts by building the foundation for a successful and productive off-season training program.

OFF-SEASON

The off-season recovery process tends to be broader and longer in duration because there are little to no demands placed on basketball. Participating in basketball and strength and conditioning activities during the off-season is at the discretion of the athletes. This allows the recovery process to be longer than it would be during the season. The physical demands of the athletes are far less during this time of the year even though their training may have more intensity and volume than during the season. The combination of training and competition during the season is far more rigorous than during the off-season. As the off-season begins to close (end of August) and the pre-season (mid-September) approaches, the duration of the recovery process will start to shorten to simulate the upcoming season.

CONCLUSION

The recovery process is an on-going, evolving, and important factor influencing athletes' performance in the NBA. Whether it is new modalities, technology, or modifications to existing methods, this process is one that can only be mastered by looking at all aspects of recovery; which includes mental, emotional, and physical recovery. Strength and conditioning coaches can obtain the latest, trending application of recovery, but at the end of the day, if the athletes do not buy-in, the recovery process for them will become a challenge. Educating the athletes about all the recovery methods will allow them to take ownership and make the decision to choose what he or she is most comfortable with, and assist the coaches in determining what will work optimally for that athlete in a psychological aspect.

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ABOUT THE AUTHOR

Anthony Harvey is in his 2nd year as the Head Strength and Conditioning Coach for the Detroit Pistons National Basketball Association (NBA) team. Previously, he spent two seasons as the Assistant Strength and Conditioning Coach for the Orlando Magic NBA team. He is responsible for the design and implementation of programs to address the Piston's need for strength, power, conditioning, and overall performance. Harvey earned his Bachelor of Science degree in Health Science Pre-Physical Therapy at Florida Agricultural and Mechanical University. He holds certifications with the National Strength and Conditioning Association (NSCA) as a Certified Strength and Conditioning Specialist® (CSCS®) and Registered Strength and Conditioning Coach (RSCC), as well as Performance Enhancement Specialist (PES) and Corrective Exercise Specialist (CES) through the National Academy of Sports Medicine (NASM).

FIGURE 1. EXAMPLE OF AN NBA SCHEDULE (DETROIT PISTONS, 2015-16)



DETROIT PISTONS 2015-16 SEASON SCHEDULE

OCTOBER/NOVEMBER						
25	26	27 ATL 8:00	28 UTA 7:30	29	30 CHI 7:30	31
1	2	3 IND 7:30	4	5	6 PHX 9:30	7
8 POR 9:00	9 GSW 10:30	10	11 SAC 10:00	12	13	14 LAC 3:30
15 LAL 9:30	16	17 CLE 7:30	18	19	20 MIN 8:00	21 WAS 7:30
22	23 MIL 8:00	24	25 MIA 7:30	26	27 OKC 8:00	28
29 BKN 6:00	30 HOU 7:30					

FEBRUARY						
	1 BKN 7:30	2	3 BOS 7:30	4 NYK 7:30	5	6 IND 7:00
7	8 TOR 7:30	9	10 DEN 7:30	11	12 ALL-STAR WEEKEND	13 ALL-STAR WEEKEND
14 ALL-STAR WEEKEND	15	16	17	18	19 WAS 7:00	20
21 NOP 3:30	22 CLE 7:00	23	24 PHI 7:30	25	26	27 MIL 8:30
28 TOR 6:00	29					

DECEMBER						
		1	2 PHX 7:30	3	4 MIL 7:30	5
6 LAL 6:00	7 CHA 7:00	8	9 MEM 7:30	10	11 PHI 7:00	12 IND 7:30
13	14 LAC 7:30	15	16 BOS 7:30	17	18 CHI 8:00	19
20	21	22 MIA 7:30	23 ATL 8:00	24	25	26 BOS 7:30
27	28	29 NYK 7:30	30	31 MIN 6:00		

MARCH						
		1	2 SAS 8:30	3	4	5 NYK 7:00
6 POR 6:00	7	8	9 DAL 8:30	10	11 CHA 7:00	12 PHI 7:00
13	14 WAS 7:00	15	16 ATL 7:30	17	18 SAC 7:30	19 BKN 7:00
20	21 MIL 7:30	22	23 ORL 7:30	24	25 CHA 7:30	26 ATL 7:30
27	28	29 OKC 7:30	30	31		

JANUARY						
					1	2 IND 7:00
3	4 ORL 7:30	5	6 BOS 7:30	7	8	9 BKN 7:30
10	11	12 SAS 7:30	13	14 MEM 8:00	15	16 GSW 7:30
17	18 CHI 3:30	19	20 HOU 8:00	21 NOP 8:00	22	23 DEN 9:30
24	25 UTA 9:00	26	27 PHI 7:30	28	29 CLE 7:30	30 TOR 6:30
31						

APRIL						
					1 DAL 7:30	2 CHI 8:00
3	4	5 MIA 7:30	6 ORL 7:00	7	8 WAS 7:30	9
10	11	12 MIA 7:30	13 CLE 8:00	14	15	16 PLAYOFFS BEGIN

 HOME GAME AWAY GAME

ALL GAMES ARE LISTED IN EASTERN TIME

FIGURE 2. ATHLETE READINESS FLOWCHART

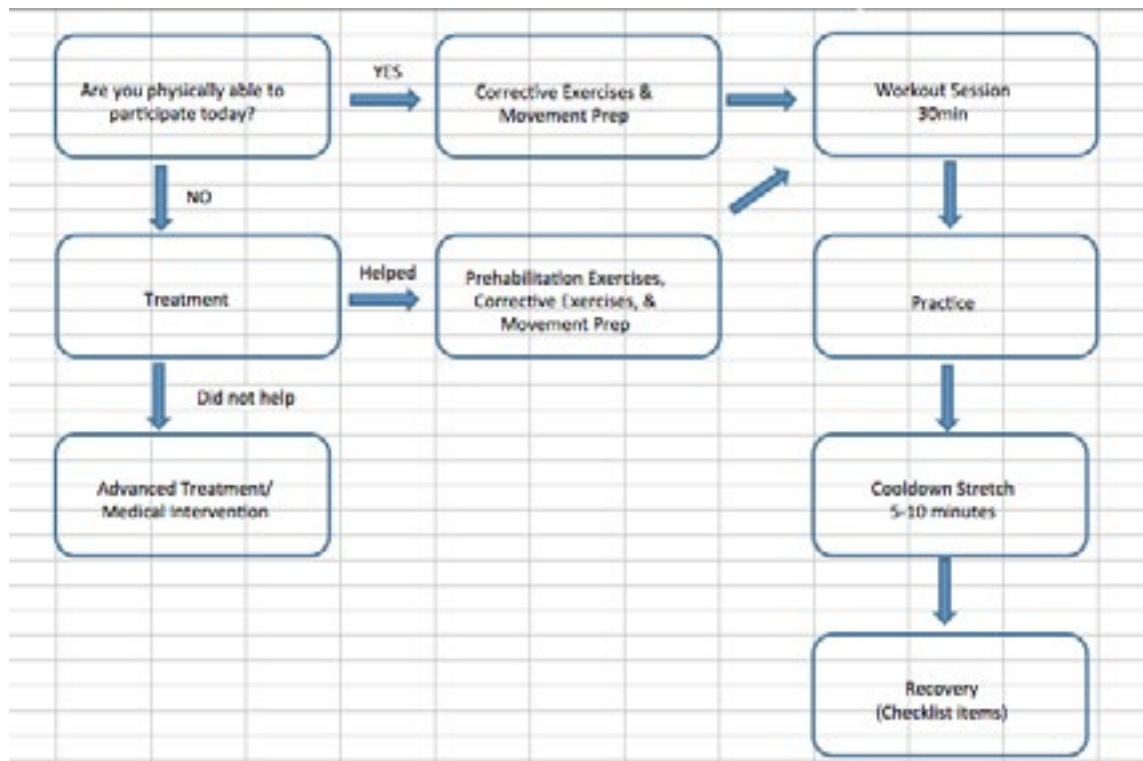


FIGURE 3. RECOVERY CHECKLIST

Foam Roll (11,14)

Protocol: 1 set of 30 – 90 s hold

Areas to target most often: IT band, groin, quadriceps, gluteals, piriformis, low back, latissimus dorsi

Ice Therapy (5)

Protocol: Apply ice 15 – 20 min

Areas to target most often: Knees, ankles, shoulders, wrists

Cold Shower/Hot Shower (3,15)

Protocol: Contrast 30 s hot and 30 s cold for 5 – 10 min

Hydration/Recovery Drink (1,17)

Protocol: Consume a minimum of 40 – 80 oz of water (depending on individual bodyweight)

Secondary protocol: Consume 20-oz protein drink

Contrast Bath (Cold Tub/Hot Tub) (3,6,15)

Protocol: Alternate between cold and hot water immersion every 2 – 3 min for a total of 12 – 15 min

Secondary protocol: For cold tub only; 12 – 15 min

Pool or Water Therapy (4)

Protocol: 10 – 15 min of supervised recovery exercises in pool

Secondary protocol: Must utilize rehydration protocol while in the pool (40 – 80 oz of water)

Stretching (7)

Protocol: Determine optimal stretching method for athlete based on recovery goal (static vs. assisted)

Areas to target most often: Lower body – hamstrings, groin, gluteals, IT bands, quadriceps

Upper body – pectorals, latissimus dorsi, shoulders, abdominals, low back, trapezius, arms, low/upper back

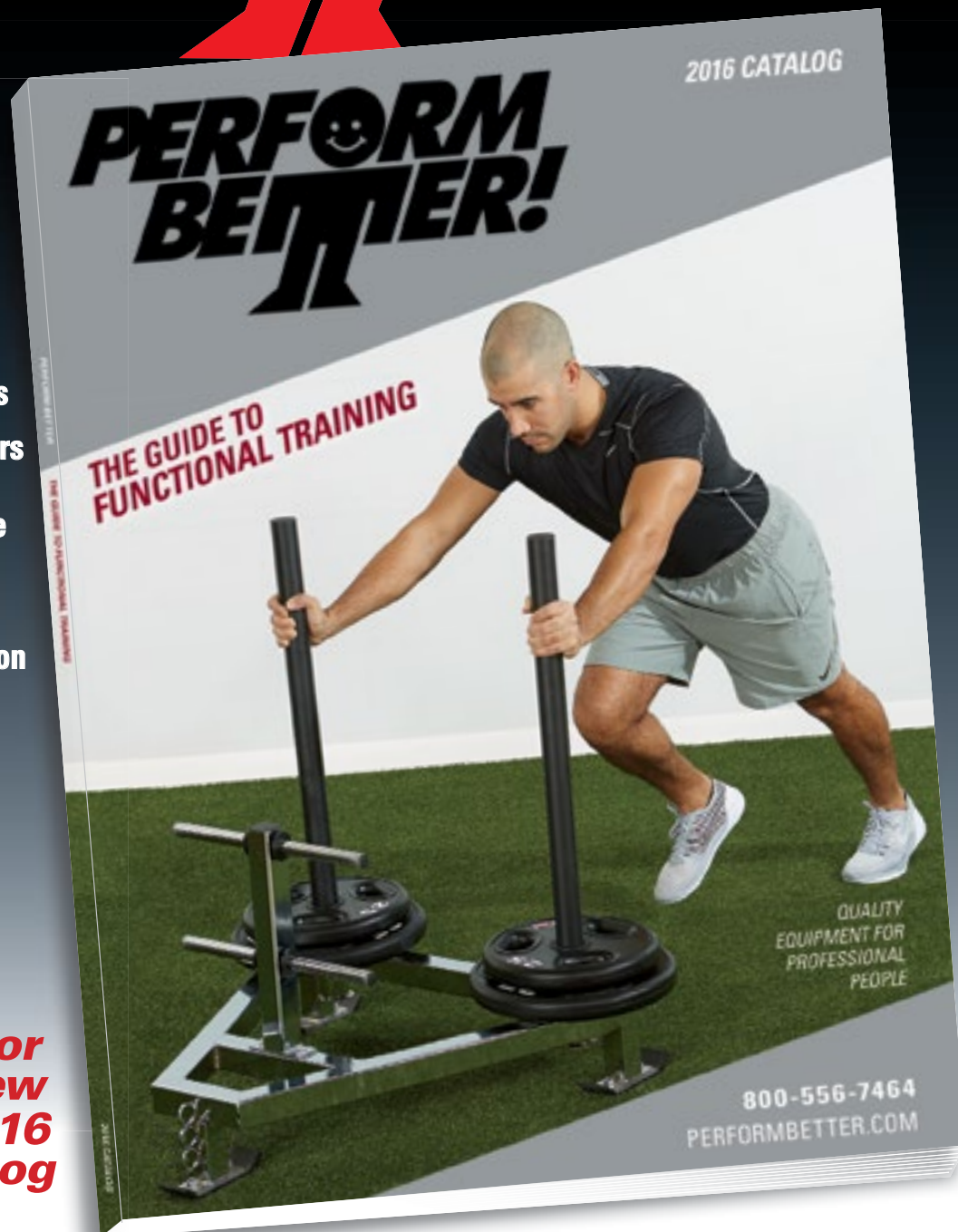
Secondary protocol: Upper body static stretch using bands, stability ball, and wall

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