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## Timberwolves Turn to Technology for Efficient Workouts

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9/14/2010 6:46 PM ET By [Kyle Stack](#)

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Leave it to one of the [NBA's](#) most frenetic offensive teams to field a groundbreaking study that uncovers how much energy its players expend.

The [Minnesota Timberwolves](#), who finished the 2009-10 regular season third in Pace Factor (an estimate of team possessions per 48 minutes), teamed with New Orleans-based trainer Mackie Shilstone last season to discover how they could help four of their players manage key weight issues.

In becoming the first NBA team to participate in this type of study, they learned their players' true caloric output during practice, shootarounds and games and the number of miles they ran during those activities.

The study's roots sprouted in December 2009 when the [Timberwolves](#) visited New Orleans to play the [Hornets](#). Timberwolves president David Kahn approached Shilstone, whom Kahn knew from his [Indiana Pacers](#) days when Shilstone worked with [Jonathan Bender](#), and cited his interest in helping several players alter their weight management -- specifically for forwards [Kevin Love](#) and [Nathan Jawai](#) to shed pounds and forward [Corey Brewer](#) and center [Ryan Hollins](#) to maintain, and possibly gain, weight.



"We had some people on our ball club who need that body mass work," Kahn said. "Corey is very slight. It's a chore for him to keep on weight."

To understand how to manage those weight issues, Shilstone, who directs "The Fitness Principle with Mackie Shilstone" at East Jefferson General Hospital in Metairie, La., had to find the players' daily energy output. Researching the topic gave him no information on record as to what was available on NBA player caloric expenditures. That spurred his idea to assign each of the four players to wear a pedometer on his shoe during all basketball activities.

The quarter-sized device tracked the number of steps each player took by delineating between whether they were walking or running. Up to 14 days of information could be stored on a device which was typically clipped to a shoelace but sometimes had to be attached to the laces with athletic tape to prevent it from falling off the shoe. Shilstone's team and the Timberwolves training staff accessed the pedometer's data by plugging it into their computers, then logging onto their privately-accessed website to view the information. Each pedometer was given a serial number to differentiate among the four players.

"We could take a guy like Corey Brewer and what was striking was a young man who was 188 pounds, over a 28-day period, was running an inordinate amount," Shilstone said before noting that Brewer ran roughly 76 miles over that time frame. "He was literally running his weight off."

The 76-mile figure might seem far-fetched but it's representative of the energy required of NBA players. Shilstone, with consent from the Timberwolves, provided data to FanHouse which documents Corey Brewer's energy expenditures during one week in mid-March. Despite averaging just 28 minutes per game during four contests in the seven-day stretch, Brewer accumulated over 20 miles on his legs during the week. And all of that came during five days since two days that week were off-days. Mind you, this activity level was after Shilstone's team and the Timberwolves had leveled off Brewer's work once they learned how much more energy he was expending versus what they previously thought when the study began.

MARCH		WEIGHT	STEPS	MILES	ACTIVE MIN	CALORIES	GAME	MIN. PLAYED
14			7,678	3.83	119	477	@ SAC	20
15			4,964	2.47	69	317		
16			10,148	4.91	129	614	@ PHX	27
17			8,230	4.1	97	513	@ UTA	32
18			0	0	0	0		
19			11,018	5.49	149	686	@ LAL	33
20			0	0	2	0		

Mackie Shilstone

*An example of the activity data charted by Mackie Shilstone's team last season.*

Understanding precisely how much energy the players expended each day helped Shilstone's team and the Timberwolves training staff make dietary and training alterations to better serve the player's needs. For instance, the nutritionists employed by each staff collected menus from the restaurants players would frequent on the road, including at the hotels the team stayed in, and highlighted the healthiest options for them.

"I wasn't too strict on their calories," said Julie Fortenberry, a sports and lifestyle nutritionist who works with Shilstone at East Jefferson General Hospital. "I wasn't picking many fried foods or empty calories. I was giving them calories that would benefit them ... from an energy performance standpoint or muscle building, like lean protein."

Fortenberry explained the challenge wasn't so much in getting players to eat healthier as it was in knowing when to eat. Practices and games would go by without players eating consistently before or after, the latter of which hindered their body's ability to recover the next day. Body recovery is paramount in a league like the NBA, which has a grueling 5 1/2-month regular season where teams play as much as five times per week. For players like Brewer or Hollins, eschewing a post-game meal was detrimental to their ability to maintain their weight.

The players were encouraged to consume sports drinks like Gatorade with protein powder 15-to-20 minutes after a workout. "That's the most important time to recover for tomorrow's energy," Fortenberry said. Eating a meal 2 1/2-to-4 hours before a game with a snack an hour before game time was also instituted.

Just as important as the dietary changes were the ways in which training exercises were adjusted. Timberwolves head athletic trainer Gregg Farnam refined exercise routines to suit the needs of each player.

Brewer and Hollins would at times require less cardiovascular work and post-practice time in the weight room; adding muscle mass was the first priority. "They'd cut back activity levels to certain points to help their bodies recover and rejuvenate themselves," said Farnam, who worked closely with Shilstone on the study.

For Love and Jawai, it was all about supplementing their practice work with more cardiovascular work afterward. A workout on a stationary bike or an elliptical machine would usually take place after practice and additional cardio work be performed later that afternoon or evening if Love and Jawai felt energetic enough to do so.

Monitoring post-practice or post-game activity had additional benefits in understanding a player's resting metabolic rate. Shilstone explained the importance of discovering that information.

"How many calories does an NBA player burn in a game?" Shilstone said after noting that NBA players had never had their metabolic rates tested on a consistent basis. "You might say 860 calories but it's not just the effect of the 860. It's the metabolic increase when the game is over when they're still rampantly burning calories. What we had to do is give them sports drinks before they went to bed." That helped replace some of the energy lost when their body was still working hard even after their physical activity on the court had ended.

There were obvious benefits to understanding more about player health but the study wasn't initially appealing to everybody. The players weren't thrilled about wearing the pedometers as the study got off the ground.

"Players don't want to do anything that's going to take them out of sync," Farnam said. "It took awhile to get them used to wearing it but once they did they understood why they were doing it."

Farnam's role was to monitor activity levels during practices, shootarounds and games and to advise players on what supplements they could take. He'd assess data every day and would review charts Shilstone's staff sent him, which had daily, weekly and monthly data analysis, from calories burned to miles ran.

Farnam had no hesitation in stating that the team would be open to continuing this study if it determined their



Mackie Shilstone

*Each of the four players in the study wore a pedometer, which tracked their movement information for up to two weeks.*

players still needed weight assessment. Kahn claimed the study was "eye-opening" in regards to discovering how much energy they expended on a daily basis. Taking part in such a study was vital, Kahn added.

"I am a big believer that with the ages of all the players in our league these days, player development is a critical component," Kahn said. "We're a very young team and with a very young team, you have to be willing to explore every avenue and every resource necessary to help these players grow."

Shilstone explained that the overriding importance to this study is finally having information on player's calorie levels. As training and dietary programs in sports become more sophisticated, Shilstone emphasized this study would change the way that people look at the caloric requirements of players. Now, the Timberwolves can run free with the comfort of knowing precisely how much energy their players are producing.

**Read More:** [Timberwolves Interviews FanHouse Exclusive Corey+Brewer](#), [David+Kahn](#), [Kevin+Love](#), [Mackie+Shilstone](#), [Nathan+Jawai](#), [pedometers](#), [Ryan+Hollins](#)

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