

Space Marathon

Lizzie Peabody: This is Sidedoor, a podcast from the Smithsonian with support from PRX. I'm Lizzie Peabody.

[MUSIC]

Lizzie Peabody: Sunita Williams grew up in Needham, Massachusetts, just outside Boston.

Sunita Williams: Which is right next to Wellesley, which, infamously, is, like, the halfway point or so of the Boston Marathon.

Lizzie Peabody: To Sunita—or Suni, as she likes to be called—, the Boston Marathon wasn't just a race. It was the backdrop for a very special day every April.

[MUSIC]

Lizzie Peabody: Flowers began to bloom after a long, cold Massachusetts winter. Bird songs returned to the trees. The snow, gone. Most of the time.

Sunita Williams: You know, you ride your bike over to, you know, where the marathon is and cheer everybody on. And this is so cool.

Lizzie Peabody: As a kid, Suni watched the hordes of runners stream past, thousands of them, dreaming, someday, running the 26.2 mile race herself. You know, in the way that you always imagine that you'll do something someday, eventually. But when she turned 17 and got accepted into the U.S. Naval Academy, she realized, "Wait a second."

[MUSIC]

Sunita Williams: "Oh my god, I'm joining the Navy. I'll never come home again. I'll never be able to run this wonderful race that I see every year."

Lizzie Peabody: So, she did the only logical thing: complained to her mom. A lot. For days and weeks and months. And then, the third Monday in April rolled around.

Sunita Williams: And my mom said, "Get in the car." And I was like, "What?" And she goes, "Get in the car. I'm tired of you complaining."

Lizzie Peabody: Suni's mom drove her to the starting line of the Boston Marathon.

Sunita Williams: And gave me a quarter. Dropped me off and said, "I'll meet you in Wellesley. And if you have a problem, give me a call."

Lizzie Peabody: Oh, my gosh! No!

Lizzie Peabody: This was the early '80s, so the race rules were still pretty loosey-goosey. Suni just started running in her high-top Converse sneakers. And, sure enough, when she got to the halfway point in Wellesley, her mom was there waiting, standing by the table where they hand out those electrolyte drinks.

Sunita Williams: And she goes, "Here, I got this. Try this. This might make you feel better." And I was like, "My shoes are terrible. I want to take these shoes off. And I think I'm done." And some guy ran up next to us and took a swig of that stuff and, and he goes, "Come on, you could finish it!" So, I took my shoes off and I ran the second half barefoot.

Lizzie Peabody: What?

Sunita Williams: And finished with him. Yeah.

Lizzie Peabody: Yeah.

Sunita Williams: Crazy.

Lizzie Peabody: Oh, my gosh. That is an insane story.

[MUSIC]

Lizzie Peabody: Suni ran 13-plus miles barefoot. She wasn't going to let anything get in the way of finishing the race she'd always dreamed of running. And this wouldn't be the last time she ran the Boston Marathon. Proving her teenage self wrong, she did it again in the '90s. And then, she qualified for the 2007 race. But there was a pesky scheduling conflict. She wasn't going to be able to run it because she was going to be in space.

Sunita Williams: And so, I was a little sad about that. I was like, "Oh, man, I qualified. I'm in pretty good running shape. And now, I'm not going to get to do it."

[MUSIC]

Lizzie Peabody: Suni is an astronaut. She was going to be on the International Space Station for the first half of 2007. And there's just no way she could run the Boston Marathon while hurling through low Earth orbit. Or was there?

[MUSIC]

Lizzie Peabody: This time on Sidedoor, we bring you a new kind of space race: the Boston Marathon in zero gravity. We'll retrace the steps, stumbles, and one epic tackle of the people who made this technological, athletic, and cultural feat possible. And how Suni took it to a whole new level.

[MUSIC]

Lizzie Peabody: That's coming up after the break.

[MUSIC]

Lizzie Peabody: Okay. I'm a runner, but I am not a marathon person. So, when I heard that astronaut Suni Williams would miss the Boston Marathon, I was like, "Whatever. Just run it next year." And I can actually hear marathoners scoffing as I say that. Because, now, I know what a big deal this marathon is, thanks to this guy.

Peter Sagal: I am Peter Sagal, and, for 25 years—and it's impossible for me to say that without slipping into, like, a stereotypical old man voice—for 25 years, I have been hosting, "Wait Wait... Don't Tell Me" on NPR.

Lizzie Peabody: Peter is also an avid runner and author of the book "The Incomplete Book of Running." He's run 16 marathons, including the Boston Marathon multiple times.

Peter Sagal: I grew up as an unathletic child. There's an old saying: Those who can't play sports run and those who can't run run long. And that was certainly true in my case.

Lizzie Peabody: Now, to me, 26.2 miles is 26.2 miles. I mean, a marathon is a marathon is a marathon, right? But Peter says the Boston Marathon is different.

[MUSIC]

Peter Sagal: The most important thing about the Boston Marathon is that, for a long time, it was the only marathon that you couldn't just sign up for and go run. You had to qualify. Still do. I mean, the, the way it's usually talked about is, like, the amateur's Olympics.

Lizzie Peabody: The Boston Marathon is also the country's oldest marathon, dating back to the late 1800s. In 1896, Greece hosted the first modern Olympics, and the U.S. running team went and competed in the marathon there. And when the team manager, John Graham, returned to his home of Boston, he was like, "That was pretty cool. We should do something like that here." The following spring, in 1897, he and a few other people organized the first Boston Marathon.

Peter Sagal: It starts pretty much 26 miles due west of the finish line in downtown Boston, in the town of Hopkinton. It's always been that way. I guess, when they set it up, back in the 1890s,

they were like, "Well, we're going to run 26 miles. Let's just go 26 miles that way, turn around, and come back."

Lizzie Peabody: And that's what they did every year. For decades and decades. For 70 years, thousands of men would run 26.2 miles from Hopkinton to Boston. Until 1964.

[MUSIC]

Bobbi Gibb: And I saw these guys go by. And it's just amazing. I mean, the strength and the endurance. And then, their footsteps were so quiet. It was amazing. Just quiet. *Tap, tap, tap, tap, tap.*

Lizzie Peabody: Bobbi Gibb was in her early twenties the first time she witnessed the Boston Marathon. And it made a big impression on her.

Bobbi Gibb: I felt like, "Ah, these are my people. This is my tribe. They understand what it's like to run here on planet Earth, one foot after another."

Lizzie Peabody: Bobbi had been running since she was a child but never in races.

Bobbi Gibb: I used to run through the woods with about six neighborhood dogs. I felt most alive and most like myself when I was running, especially in the woods.

Lizzie Peabody: For Bobbi, running was not about competition. It was about escape.

[MUSIC]

Lizzie Peabody: Growing up as a girl in the '50 and '60s, she felt completely hemmed in by expectations for women.

Bobbi Gibb: My mother would tell me this endlessly, "Now, dear, why are you studying math and physics? You know, there's no opportunities in science for women. Why don't you study typing to have something to fall back on until you get married?"

Lizzie Peabody: Bobbi felt most free when she was out running in the woods. For hours and hours, just her and the dogs. So, when she found out there was a 26.2-mile race she could compete in, she started training. And in 1966, when she was 23 years old, she registered to run the Boston Marathon. But instead of receiving a bib number in the mail, she got a letter back.

Bobbi Gibb: It said that women—and I quote—"are not physiologically able to run marathon distances. The longest race for a woman is a mile and a half. Sorry. You're not allowed to run."

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Lizzie Peabody: "Not physiologically able," the letter said. Bobbi had run 40 miles at a time. She knew this was not true. And yet, at that time, in the 1960s, people still believed that women were too delicate for strenuous sports.

[MUSIC]

Peter Sagal: They didn't let women ski jump for a long time, because they were afraid their uterus would fall out.

Lizzie Peabody: Oh, my gosh. No.

Peter Sagal: Yeah. Usually—. It usually is like how, you know—. "What, what will it do to American motherhood if we allow women to run marathons?"

Lizzie Peabody: Yeah. I think that the, the belief was that women could only run one and a half miles physically.

Peter Sagal: Right.

Lizzie Peabody: Safely. Yeah.

Peter Sagal: Exactly. Because, otherwise, Lord knows what would happen.

Lizzie Peabody: Lord knows. Those ovaries would just ...

Peter Sagal: Pop. Pop like ...

Lizzie Peabody: Like, like popcorn.

Peter Sagal: Exactly.

Lizzie Peabody: Yeah.

Peter Sagal: But you could hear them. You could them at mile two. *Pop, pop, pop, pop*. Oh, God. That's gross.

Lizzie Peabody: A German doctor, in 1898, wrote about the dangers of women exercising in this way, saying ...

Speaker 5: Violent movements of the body can cause a shift in the position and a loosening of the uterus, with resulting sterility, thus defeating a woman's true purpose in life: the bringing forth of strong children.

Bobbi Gibb: Women were thought of as weak. They were weak in body, weak in mind. Emotional creatures that were incapable of rational thought.

Lizzie Peabody: So, when Bobbi got that rejection letter from the Boston Marathon, the one saying she, as a woman, wasn't capable of running that far ...

Bobbi Gibb: I crumpled that letter, and I threw it across the floor and realized it's now more important than ever for me to run because, I figured, if I could show this misconception about women wrong, I could throw into question all the other misconceptions about women.

[MUSIC]

Lizzie Peabody: She decided then and there that she was going to run the Boston Marathon in 1966, whether the race organizers liked it or not. But she didn't have a way to physically get to the race. She couldn't afford a cab. So, she did the only logical thing.

Bobbi Gibb: I said, "Mom, don't you see this is going to help to set women free? You're not happy." And so, I could see that her lips started to tremble, and a little tear came to her eye and. And she said, "Okay, get the keys."

Lizzie Peabody: And as she drove her to the race, Bobbi says her mother told her something she had never said before.

Bobbi Gibb: She said, "Well, I've always admired your freedom and, and your spirit. But I felt I was doing the right thing to try to force you to conform to the norms for your own good." And then, she says, "Thank God I failed."

[MUSIC]

Lizzie Peabody: Bobbi still had to figure out how to get into the race without being detected. She had thrown on her brother's Bermuda shorts and a baggy hooded sweatshirt as a disguise.

Bobbi Gibb: And then, I saw where the starting line was, and I found a little clump of bushes.

Lizzie Peabody: She crouched behind the bushes.

Bobbi Gibb: The starting gun went off. I jumped into the middle of the pack, and we all started running. And, very quickly, the men behind me figured out I was a girl, studying my anatomy from the rear. I have to give them credit. It took them about three minutes. And, and so, I could

hear them. They, they got going, "Is that a girl? Is that a girl?" And so, I, I turned around and smiled and laughed. And they, "Oh, it is a girl."

[MUSIC]

Lizzie Peabody: Bobbi was sweating what the men would do. Would they blow the whistle on her? She was also just actually sweating a lot.

Bobbi Gibb: So, I said, "If I take off this sweatshirt"—I was getting really hot—"they'll see I'm a woman and then I'm afraid I'll be arrested or they'll throw me out." And the guys said, "We won't let them throw you out. It's a free road."

[MUSIC]

Lizzie Peabody: Bolstered by the support of the runners around her, Bobbi was running free. And even though she had blisters—because women's running shoes didn't exist yet—she felt great.

Bobbi Gibb: I even took my shoes off at one point in the race. But I finished ahead of two-thirds of the pack.

[MUSIC]

Lizzie Peabody: When she crossed the finish line, the governor of Massachusetts shook her hand. Her historic run made headlines across the world.

[MUSIC]

Bobbi Gibb: It was, like, a pivotal moment. And it changed the way people thought about women. Like, a woman had done the impossible. She might as well have flown unaided to the moon.

Lizzie Peabody: The headlines said things like "Shapely Blonde Housewife Runs Marathon." But Bobbi turned the tables, saying, "If a shapely housewife can run a marathon, anyone can." Of course, not just anyone can run it in three hours and 21 minutes. Bobbi was fast. The next year, a second woman ran the Boston Marathon, but it wasn't any easier for her. In fact, her race became notorious.

Peter Sagal: There's a famous photograph of these, like, men in hats, these race officials, running on and trying to literally wrestle her off the course, because women weren't allowed to run marathons. They were outraged.

Lizzie Peabody: You might have seen this photo. It's black and white. There's a fairly crowded field of runners, all men, but in the center is a woman in sweats, a race bib pinned to the front

of her sweatshirt. Behind her, a man in a sport coat and tie is lunging after her, reaching out to grab her. Her head is turned around, looking back at him.

Kathrine Switzer: And I was looking right in his face. You know, he was this close. And I, I thought, "This is the fiercest face of any man I've ever seen." He was out of control. I was so scared.

Lizzie Peabody: This is Kathrine Switzer, the woman in the photo. Unlike Bobbi Gibb, she had officially registered for the race, using her initials K.V. instead of Kathrine. The men running alongside her were supportive. But the race director, Jock Semple, was infuriated to see a woman wearing an official race bib. That's why he chased her.

Kathrine Switzer: Grabbed me by the shoulders, flung me back, and just tried to pull off my bib number and screamed at me, "Get the hell out of my race and give me those numbers."

[MUSIC]

Lizzie Peabody: But Kathrine wasn't alone. She was running the race with her boyfriend, a former all-American football player. He came running up.

Kathrine Switzer: Went through the crowd. Came with a cross body block that was unbelievable in its execution. Took out the official only and sent him flying.

Lizzie Peabody: Wow.

[MUSIC]

Kathrine Switzer: I went, "Ah!"

[MUSIC]

Kathrine Switzer: Because he hit him very hard. You could hear the crunch. And my coach screamed, "Run like hell! Run like hell!"

[MUSIC]

Lizzie Peabody: Kathrine finished the race. And when newspapers ran the story the next day ...

Kathrine Switzer: It was not, "Girl runs marathon. Isn't that amazing?"

Lizzie Peabody: Newspapers published the photo of her boyfriend body-checking the race official with the headline, "Who Says Chivalry is Dead?"

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Kathrine Switzer: "She shouldn't be there and had to be saved."

Lizzie Peabody: Oh, my gosh.

[MUSIC]

Lizzie Peabody: But Kathrine says, thanks to this photo, race director Jock Semple did more for the women's running movement than she ever could.

Kathrine Switzer: Because he created one of the, the best pictures of the women's sports movement. Even the women's rights movement. You know, that is a classic picture. In fact, Time Life Photos says it's one of a hundred photos that changed the world.

Lizzie Peabody: And it did. The following year, three women ran the Boston Marathon. The year after that, five. Then, in 1972, under mounting pressure from women runners like Kathrine Switzer and Bobbi Gibb, the Amateur Athletic Union officially allowed women to run the Boston Marathon.

Kathrine Switzer: Eight of us registered, eight of us showed up on the day, eight of us ran, and all eight of us finished.

Lizzie Peabody: It was the beginning of a new era for women.

[MUSIC]

Lizzie Peabody: 41 years after Bobbi ran that Boston Marathon, Suni Williams was preparing to run the same race in space. But how, exactly? Exercising in zero gravity has some unique challenges, the first of which is equipment.

[MUSIC]

Jennifer Levasseur: I think we like to think that everything that goes into space is somehow cooler and distinctive. But, in reality, it all is essentially comes from Earth still. So, it is a modified version, usually, of what we have on Earth.

Lizzie Peabody: It's just Earth stuff with more Velcro strapped to it?

Jennifer Levasseur: Absolutely. Or it has some bungee cords.

[MUSIC]

Lizzie Peabody: That's Jennifer Levasseur, a curator of space history at the Smithsonian's National Air and Space Museum. She says the first space flights were super short, a matter of minutes. Getting into orbit and back was enough of a challenge without thinking about calisthenics along the way. But by the time NASA was preparing to send astronauts to the moon, these space flights were getting longer, and scientists were discovering a human body in zero gravity changes quickly.

[MUSIC]

Jennifer Levasseur: Your muscles won't be required. Your heart doesn't need to pump as strongly, because it doesn't need to circulate the blood as intensely as when it has to go all the way to your feet and come all the way back up to your heart. Bone density, over certain very long duration missions, has certainly become a big issue, as well.

Lizzie Peabody: This was a problem. NASA was planning to send astronauts to the moon, a trip that could take upwards of two weeks. So, on Apollo 11, in 1969, NASA gave astronauts a little piece of exercise equipment to help keep their muscles toned, something called the Exer-Genie.

[MUSIC]

Jennifer Levasseur: To somebody who grew up in the days of Jane Fonda and looking back and seeing what's called an Exer-Genie used by Apollo astronauts, it, it just sounds so quaint and cute and funny. And it, it kind of evokes that when you see a picture of it.

[MUSIC]

Lizzie Peabody: The Exer-Genie was not some highly engineered piece of space equipment. It was something a businessperson would throw in their suitcase so they could exercise in a hotel room.

Jennifer Levasseur: There aren't gyms in hotels back in the '60s. And so, how do you travel with your exercise equipment? And this is one of the solutions.

[MUSIC]

Lizzie Peabody: At the Smithsonian's National Air and Space Museum, we have the Exer-Genie that made Neil Armstrong's arms so strong. It kind of looks like a jump rope with a tightly coiled spring in the middle. And on the bottom of the spring are a couple straps to put your feet into.

Jennifer Levasseur: You could do exercises, you know, similar to jumping jacks, similar to bicep curls, and things like that.

Lizzie Peabody: NASA loved the Exer-Genie not because of its Jane Fonda stylishness—although what a bonus—but because it was compact and great for resistance training. But by the 1970s,

NASA was planning to send astronauts to space for months. Each day, they'd be losing bone density and their heart muscles would be getting weaker. They needed an aerobic workout. So, when NASA launched the Skylab space station in 1972 ...

Jennifer Levasseur: The solution in that case was quite simple. Why not just take a standard exercise bike and bolt it to the floor?

Lizzie Peabody: Eventually, NASA got crafty with exercise equipment. In the 1990s, when the International Space Station launched, many astronauts were runners, and they wanted a treadmill on their space station. And NASA was like, "I don't think we can get away with strapping a \$400-treadmill to the most expensive thing ever built." I mean, that would just look tacky. But they also had some physics to worry about.

[MUSIC]

Jennifer Levasseur: So, if you've ever run on a treadmill—and I do this three times a week, so I know and I've felt this myself—is that, as your foot impacts that treadmill, there is a vibration and, and a sound. That vibration will then affect the rest of the spacecraft.

[MUSIC]

Lizzie Peabody: These vibrations could ripple all the way through the space station. If you have multiple astronauts running on the treadmill every day, that can actually change the space station's orbit.

Jennifer Levasseur: Even if it isn't very measurable, you don't want to have to compensate by firing your thrusters to keep yourself in position, because fuel is limited.

[MUSIC]

Lizzie Peabody: So, NASA created a treadmill that sits on a shock absorber, isolating the vibrations from the rest of the space station. It's called the Treadmill with Vibration Isolation Stabilization System. Or TVIS, for short. That's the machine that was on the space station when Suni decided to run the Boston Marathon in 2007. NASA had given her the okay. The Boston Marathon made a special exception for her to run it more than 200 miles above everyone else. Now, she just had to do it. But it's hard enough to run 26.2 miles on Earth. Can the human body handle running that many miles in zero gravity? Nobody had ever done it before. So, how would it go for Suni? We'll find out after the break.

[MUSIC]

Speaker 8: Good morning and welcome to Boston, Massachusetts, where a fierce Nor'easter threatens the 111th running of the Boston Marathon.

Lizzie Peabody: The morning of the 2007 Boston Marathon brought some of the worst weather in the history of the race. 30 mile per hour winds. Near freezing rain.

Peter Sagal: My main memory of that race was just being miserable the whole time. We were so cold and so wet.

Lizzie Peabody: Peter Sagal was also running the Boston Marathon that year. The weather was so bad that the race was nearly canceled for the first time ever.

Speaker 8: Race officials have only, just this morning, made their final decision to hold the marathon.

Sunita Williams: It was going to be, like, cold and rainy and windy. I was like, "Oh, I'm so sorry for all you guys. Thanks for doing it."

[MUSIC]

Lizzie Peabody: Up on the International Space Station, there was no rain or fog. Or gravity. The temperature was a pleasant 78 degrees for Suni Williams.

Sunita Williams: So, I had a little extra pressure on myself that I was going to have run it, because all these poor people on Earth that were running in this terrible weather.

Lizzie Peabody: The morning of April 16th, 2007, while her compatriots were shaking their legs out in the freezing rain, Suni got onto the Treadmill with Vibration Isolation Stabilization System—the TVIS—and prepared for her race.

Sunita Williams: So, I had my clothes and I had a couple of towels. I had a bunch of water bags, I had filled up some orange juice and stuff like that all ready to go, like, Velcro-ed to the wall, right next to the treadmill.

[MUSIC]

Lizzie Peabody: Functionally, the TVIS is like a regular treadmill, but it's super narrow because space is limited in the space station. The tread to run on is just a little wider than a foot.

Sunita Williams: It's narrow. Yeah. So, it made you have to sort of run a little bit funny to make sure that you didn't come off the siding.

Lizzie Peabody: Wow. Like running on a balance beam, sort of.

Sunita Williams: Yeah.

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Lizzie Peabody: There's a screen on the front of the treadmill, just like ones on Earth. With the race set to begin any minute, Suni typed in her name and her distance: 26.2 miles. And then, she strapped on the harness.

Sunita Williams: The harness is like a backpacking harness.

Lizzie Peabody: Like a backpacking harness, it has a waist strap.

Sunita Williams: And then, from there, it's connected by, essentially, like, bungees.

Lizzie Peabody: These bungees are attached to the sides of the treadmill. So, every time you push off the ground, they pull you back down, simulating gravity. And you can adjust the tension to simulate more or less gravity. So, you end up bouncing along almost like you were running on earth. What does it feel like to run on it?

Sunita Williams: Every single time that I got my harness on connected and stood up, just for a moment, I was like, "Ugh." Because you hadn't felt that, that pressure ...

Lizzie Peabody: Yeah.

Sunita Williams: ... of gravity pushing you down for, you know, 22 hours of the day until the next day. Like, ugh.

Lizzie Peabody: Yeah.

Sunita Williams: I would equate it, though, to getting up in the morning at 4:30 and going, "Ugh, I don't want to go out and run." But then, when, as you as soon as you get out there, you're okay and you're on it and you can do it.

Lizzie Peabody: Back on Earth, in the cold rain, runners like Peter Sagal were preparing to start the race, as well.

Peter Sagal: I found myself a relatively dry place to sit and I was just staying still, because I didn't wanna lose my place in this relatively dry spot underneath some shelter. I was just sitting there and waiting. And finally, it was, like, time to go and try to get myself over to the starting line. And the first step I took, I went ankle deep in a cold puddle.

Lizzie Peabody: Ugh.

Peter Sagal: So, now, I have a wet shoe and a sock.

Lizzie Peabody: The race was off.

[MUSIC]

Lizzie Peabody: The 2007 Boston Marathon was broadcast live around the world. One of the people providing commentary for TV viewers was none other than Kathrine Switzer, the woman from the famous 1967 photo. And she helped to keep Suni's space race front and center.

Kathrine Switzer: We took live footage of her in space, on WBEZ TV, in Boston, as we were doing the commentary of the race. So, we'd have the men's race and the women's race in boxes over here and then we would have Sunita.

Lizzie Peabody: And this happened exactly 40 years after Kathrine's historic running of the Boston Marathon.

Kathrine Switzer: And I was thrilled to see her running in space. And she wasn't just the first woman to do it. She was the first person to do the marathon in space.

Lizzie Peabody: On Earth, the crowd of runners made their way toward Boston, passing all the classic stages and landmarks on the course. Things like the Scream Tunnel.

Peter Sagal: And you hear this noise, the sort of high-pitched noise, which, as you get closer, you realize is people yelling, just women, because you have reached the Wellesley Scream Tunnel. The course goes right through the campus of Wellesley.

Lizzie Peabody: Oh, my gosh.

Bobbi Gibb: I got to Wellesley College, and the women went crazy, because it's a woman's college. And they're screaming and jumping up and down.

[MUSIC]

Lizzie Peabody: Bobbi Gibb remembers going through the Scream Tunnel during her run back in 1966. And to be clear, it isn't exactly a tunnel. It's a section of the course lined with women on either side of the road, holding signs.

Bobbi Gibb: One woman's going, "Ave Maria! Ave Maria!" And it was like —.

Lizzie Peabody: Oh, my gosh.

Bobbi Gibb: At, at that moment, we all knew that things were never going to be the same.

[MUSIC]

Lizzie Peabody: The Scream Tunnel falls right around the halfway point in the race. And that's when things started getting harder for Suni.

Sunita Williams: That's when it just started to really be a little bit painful for my thighs. I was getting sore. So, I was like, "Okay, I better start drinking stuff."

Lizzie Peabody: She wasn't running in the rain, but she was still getting soaked.

Sunita Williams: Evaporative cooling, you know, like when you're getting the wind blown off you and you're, you're drying, that doesn't happen. You're just getting wetter and wetter and wetter.

Lizzie Peabody: Oh, gosh.

Sunita Williams: I mean, it's just like a—. You're just like a sponge. You're like—-. You're—-. My fingers were all wrinkly when I would get done running, like—.

Lizzie Peabody: Oh, my gosh. Because your sweat doesn't drip off of you?

Sunita Williams: No.

[MUSIC]

Lizzie Peabody: The next big landmark in the race, after the Scream Tunnel, is the infamous Heartbreak Hill.

Peter Sagal: Everybody thinks it's called Heartbreak Hill because it's so serious and deadly. It's not that much of a hill. This is Boston. This isn't the Rockies.

Lizzie Peabody: Peter says the problem with Heartbreak Hill is where it comes in the course, around the 20-mile mark.

Peter Sagal: And that's what most people think of when they think of the wall in marathon running. And the wall is this sort of mythical, sort of real phenomenon where you kind of just run out of gas.

Lizzie Peabody: I asked Suni if she had created a Heartbreak Hill for herself on the treadmill.

Sunita Williams: Oh, I didn't do that to myself. I was like, "This is bad enough as it is."

Lizzie Peabody: Suni was running out of gas figuratively. Kathrine remembers feeling the same way during her historic run 40 years earlier.

Kathrine Switzer: I went over Heartbreak Hill. And by that time, you're on fumes.

Lizzie Peabody: But something happened at this point in the race for Kathrine. She forgave the race director who chased her.

Kathrine Switzer: There's an expression of marathon that you go through an entire lifetime. And I've run 42 marathons. Every single one of them has given me an epiphany. And this one gave me a lot of epiphanies.

Lizzie Peabody: Wow.

Kathrine Switzer: And, suddenly, I realized it's not his fault. He's, he's a product of his time. It's up to me to change his mind. I know I can do this.

[MUSIC]

Lizzie Peabody: Back on the International Space Station, five miles from the end of the race, with hardly any fuel left in her tank, her harness chafing and her thighs on fire, Suni got a jolt of motivation.

Sunita Williams: The pivotal part was actually when those guys woke up.

Lizzie Peabody: The TVIS was in the Russian area of the space station. And around mile 20, the cosmonauts sleeping in the station woke up and popped their heads out of their quarters. Once they realized Suni was approaching the finish line, they started cheering.

Sunita Williams: Oleg—I will never forget—he, he, like, sliced up some oranges and then he was, like, tossing them at me. And, and then, I was—. So, I was catching them and then you know, trying to eat them while I was running and stuff like that. He's like, "Oh, this is sort of fun." And, and so, he's throwing, throwing fruit at me.

[MUSIC]

Lizzie Peabody: The mileage crept up. 22 miles. 24. Her crewmates cheered her on, hurled fruit at her head. And then ...

[MUSIC]

Sunita Williams: There's pictures of me with my hands up in the air. I was, I was just, like, screaming, like, "Yes!" I also said, "Nobody touch the computer until we take a picture!"

Lizzie Peabody: Oh!

[MUSIC]

Space Marathon

Lizzie Peabody: Suni had become the first person to run a marathon in space. And not just any marathon. The Boston Marathon. Wicked hard core. Just 41 years after the first woman ran it on Earth.

Bobbi Gibb: That's why I ran the race, was so that Sunita could run a marathon in space. Because I wanted the women who came after to be able to fulfill their dreams, as she has done in the most amazing way.

Kathrine Switzer: She's taking us to a new level, therefore inspiring the next generation of scientists, athletes, and game-changers.

[MUSIC]

Lizzie Peabody: Suni says there are a lot of similarities between running a marathon and going to space. You've got to set your sights on something that you know will be hard. You'll want to quit, but you have to keep going. These are lessons she's learned from running that she applies when she's in space.

[MUSIC]

Sunita Williams: Particularly the spacewalks because, you know, a marathon could be, you know, five, six hours of running, and your spacewalks average about six hours. And so, you just need to know how to do that marathon, dig deep at the 20-mile mark, and go, like, "Okay, I can keep going. I can push through this."

[MUSIC]

Jennifer Levasseur: It is a marathon for a reason, and it is considered, you know, difficult for a reason. It stresses the body in ways that are not normal for us to do in our daily lives. And so, it's very similar to say the entire process of just being in space.

[MUSIC]

Lizzie Peabody: With humans planning to return to the moon this decade and NASA looking to land astronauts on Mars in just two decades, we need to learn how to do more than just survive in space, but to endure, to be able to look at the long journey in front of us and persist, all the while remembering that what seems impossible—unthinkable—can become achievable. Space travel is not a sprint. It's a marathon.

[MUSIC]

Lizzie Peabody: And your uterus will not fall out.

[MUSIC]

Lizzie Peabody: You've been listening to Sidedoor, a podcast from the Smithsonian with support from PRX.

[MUSIC]

Lizzie Peabody: If you want to see the actual Exer-Genie that made Neil Armstrong's arms so strong—say that five times fast—we'll share a picture of that in our newsletter. We'll also include pictures of Bobbi and Kathrine's historic runs, including some of those headlines from back in the day. You will want to see these. You can subscribe to our newsletter at si.edu/sidedoor.

[MUSIC]

Lizzie Peabody: And if Washington, D.C., is within your orbit, come check out the newly renovated Smithsonian's National Air and Space Museum.

[MUSIC]

Lizzie Peabody: For help with this episode, we want to thank Jennifer Levasseur, Bobbi Gibb, Sunita Williams, Peter Sagal, and Kathrine Switzer.

[MUSIC]

Lizzie Peabody: This episode was made possible with funds from the Smithsonian American Women's History Initiative, a program of the Smithsonian American Women's History Museum. To learn more, go to womenshistory.si.edu or join the conversation using the hashtag #SmithsonianWomensHistory on social media.

[MUSIC]

Lizzie Peabody: Our podcast is produced by James Morrison and me, Lizzie Peabody. Our associate producer is Nathalie Boyd. Executive producer is Ann Conanan. Our editorial team is Jess Sadeq and Sharon Bryant. Tami O'Neill writes our newsletter. Episode artwork is by Dave Leonard. Fact-checking by Adam Bisno. Extra support comes from PRX. Our show is mixed by Tarek Fouda. Our theme song and episode music are by Breakmaster Cylinder.

[MUSIC]

Lizzie Peabody: If you have a pitch for us, send us an email at sidedoor@si.edu. Or just say hello. We really just love mail.

[MUSIC]

Lizzie Peabody: If you want to sponsor our show, please email sponsorship@prx.org.

[MUSIC]

Lizzie Peabody: I'm your host, Lizzie Peabody. Thanks for listening.

[MUSIC]

Bobbi Gibb: One guy said, "This is a one-off deal, right? You're never going to run another marathon." And I remember, at 20, turning to him and say, "Someday, you're going to read about an 80-year-old lady who drops dead in Central Park while out for a run." And I said, "That's going to be me. I'm running forever."

Lizzie Peabody: Wow. You said that at 20?