

Written Transcript

On The Line Episode 2.6 “Skarkey”

Copyright On The Line. All Rights Reserved. This transcript cannot be transferred, quoted, or shared without written authorization.

Charlie Palmer (CP):

Welcome back to On The Line a podcast for today's wildland firefighters. I'm the host Charlie Palmer. We're joined again by Dr. Brent Ruby from the University of Montana Center for Work Physiology and exercise metabolism, and then we have a lot of salt in the studio today. Dr. Brian Sharkey, Professor Emeritus Brian Sharkey, which I'm not even sure what that means. I have yet to figure that out.

Brian Sharkey (BS):

You get a parking sticker. You can use the library.

CP:

There you go. And so if the name Brian Sharkey doesn't immediately cause some recognition for you as a wildland firefighter, if you just listen to the podcast for a little while, you will realize that you have been impacted and influenced by this man in many, many ways, and you'll learn about that or reacquainting yourself with that as we kind of progress with the podcast today. So let's set the backdrop a little bit. 1963, Montana Senator Mike Mansfield, introduces on the floor of the United States Senate, a cooperative work agreement between the Missoula Equipment Development Center or MEDC. Today we know it as the Missoula technology and Development Center as part of the National Technology and development program, but in 1963, Senator Mansfield introduced this agreement on the floor of the US Senate between the University of Montana and MEDC to begin research projects to improve the health, safety and performance of wildland firefighters. In 1964, Brian Sharkey was hired at the University of Montana to help execute that agreement. And so that's kind of where we're going to start from. And Brian, tell us a little bit about that process of getting that job at the University of Montana in 1964 because it's really kind of interesting how the process worked.

BS:

I was in the lab at the University of Maryland where I was a research assistant and I was working on my data for my dissertation and the phone rang and it was a call from Missoula, and wally Schwank was the director of the health and Physical Education Department out here at the university. And he had a vacancy made by the fact that the previous exercise physiology person at the university had a left late in the spring or early summer to take a job back east and he was looking for somebody. And he explained a little about the job and a little bit about the forest service work and so forth. But, uh, there was no a trip out to Missoula. There was no committee to sit down and look at you and so forth. They were eager to get somebody on contract because I can't even remember the date, but I think it may have been into July.

So after some time after calling my wife and telling her about where that (Missoula) was, we went ahead and took the job. And when I came out he proceeded to tell me what my responsibilities were and I learned more about the firefighter job, and what the responsibilities would be there. And, as an aside, he also said, and you can coach if you want to. And I thought, oh Geez, because it didn't need that on top of everything else. But, I ended up coaching tennis for a few years and finding out that the athletic department didn't schedule the tennis matches, didn't schedule the travel, didn't get us motels, didn't do anything that was all done by the coach. And so it was a very busy few years anyway, I learned about the job and the responsibilities with the forest service and began work fairly soon after I arrived to having meetings and so forth.

The following summer we got out into the field. But I wanted to tell a little bit about the people who got this thing going. The head of the MEDC forest service unit was Herb Harris and he visited with a wally Schwank. Dr. Schwab was chairman of the department and they probably were, started their conversation at a service club, like Kiwanis or one of those clubs. And it went from there to the point where they had the exercise physiologist Wayne Sinnig write the first draft of the cooperative agreement. And it became endorsed by both units. And it continues with many revisions, right up until today. Many years after it was started in 62, so that's sorta how we got into this.

CP:

That's pretty amazing man, there's a lot to digest just right in that. Brent I know you've been part of search committees at the U (U of M). I have as well. I mean that's just amazing to hear about your hired over the phone. Right? I mean they offered you the spot (BS: Yeah) over the phone to think that meticulous review of applications and resumes and then skype interviews and then fly people in for on campus in person interviews and just elaborate process,

BS:

You can see why they have the more elaborate process.

(All Laughing)

Brent Ruby (BR):

Well, or you can say they just knew who they needed and they just went out and got him. One phone call. Boom. We got our guy

BS: They saved a lot of money.

(All Laughing)

CP:

That is true. And then you started at 7,700 bucks. Is that what you...

BS:

That's pretty private information (laughing). Well I didn't mean to divulge that for human consumption, but that's been awhile.

CP:

I think we're probably safe to statute of limitations on your opening salary is probably expired. And then to think, you hear about these Division One coaching gigs and guys making millions and millions of dollars and, and then in your case it just kind of thrown in on the side like, oh yeah, maybe you could, uh, if, if you don't agree to take the tennis coach job, we're going to disband the program. Right?

BS:

I was just trying to get along.

CP:

And so boom, you're on campus. You're trying to help execute this cooperative work agreement, conducting research projects to improve the health, safety and performance of wildland firefighters. And at that time then there was no physical fitness test or standard for firefighters. Correct?

BS:

That is correct, the jumpers had a test. (CP: Okay.)

And nobody is alive that remembers when that originated. And we've tried over the years to find out people who were involved in the process they use. But uh, so no, no tests for the rank and file a firefighter.

CP:

Okay. And so then in 1975, the step test got initiated. So if we have older firefighters, listeners, there, some folks still out there who are still operational, who probably took the step test, what can you tell us about that and how that got initiated?

BS:

Well, we were working on a test for firefighters and at the time we started work, which is in the late sixties. There were virtually no women in fire. There were a few but not many. And so we. We worked on this process, but we knew that women might become part of it. So we had a version of the step test that would work for women. Which was a bench that wasn't as tall as the one used by men and they would step up and down on this bench. And from that we would predict their oxygen intake capacity, their maximal oxygen intake. And we knew from studies that had been done around the world that people generally can't work for long periods of time at much above 50 percent of their maximal oxygen intake. And so we set the standard for the fitness test at a what was the average energy cost of a variety of jobs on fire. And that started, it was adopted in 75 and within a couple of years people were saying that we we're really missing out on something important here. There's nothing in here that looks at muscular fitness you need for strength or power or whatever.

CP:

Maybe we should take a second to review you and what the step test is because some folks maybe don't even know what it entails. It was...

BS:

A five minute test stepping up and down on this bench at a cadence that, was fairly fast but not utterly too fast. And then at the end of the test, they sat down and we took their recovery pulse rate and use that in a table that was developed from work done by Swedish physiologist in the fifties and sixties. And it predicted the, oxygen intake capacity. And without going any farther than that, because I'm sure we've lost some people along the way.

CP:

There would be a metronome that you would step and you would (BS: Correct) match your cadence with a metronome and you would go five minutes. and then you would sit for a minute. Or I think as I recall?

BS: They sat and after so many seconds they began the recovery pulse count.

CP:

Okay. I took a few of them when I. When I first started there was. It was the step test. That was what was in place. What did you learn from that? What? What stories do you have in terms of the usage of the step test as a fitness test for firefighters?

BS:

As I said it, it didn't include muscular fitness information and from that we decided we needed to explore the muscular fitness demands of the job because women were now entering into firefighting and there were certainly some men that you had to question their muscular fitness and so we. We did a field study in the summer of 78. We had 120 firefighters including Indian crews women's crews, people from the smoke jumper, hot shot and general fire crew populations, Asians, African Americans, we tried to sample our firefighter population as best we could. I can't say it was a random sample because it's pretty hard to do that out of 20 some thousand firefighters. So we use people from the West in our study and did a field study where they had to do six different field tasks including line building, carrying loads, digging and you know, scraping in various ways. Uh, that was the line building, but there were other tools used like shovel and so forth, and I won't go through all of them, but we had these tasks and then we correlated them with various fitness measures including their maximal oxygen intake or the aerobic fitness as well as their various strength measures and so forth. And then correlated the performance to these various measures. And we found that there was indeed the need for muscular fitness and a number of these jobs.

There were other things, of course, that were important, like technique of digging line. If you use a bad technique, you get tired in a hurry. But if you use large muscles of the legs and so forth, you can persist for a lot longer. But anyway, we confirmed the need for muscular fitness. But the Washington office at

adopted this step test and they were unwilling to make any changes immediately, but we started work then thinking about what the next stage of this fitness test would be and that's when we started to look down the road.

CP:

And then down the road. And if we jump ahead to that was the release in 1998 of the work capacity test or the pack test?

BS:

Correct. And the work capacity tests and the test was kind of one we saw in the data from that field study in 78 because one of our tasks was to carry a 45 pound pack over measured course. And that certainly correlated with aerobic fitness, but it also had a muscular dimension in that the pack of 45 pounds sort of separated the men from the boys in some respects. So we were ready when the opportunity came to start developing a new test. And that didn't come until the nineties I think. And we started work on development of that test. And we use field studies with the fire crews and the women's crews. And we used older firefighters in it. In fact, one of my colleagues who worked at MTDC, Art Jukkala, we hired him after he had retired from the forest service. He was in his sixties. He was a unique character because in his fifties he had had a bypass surgery. And so we thought, well this will tell us whether older people, can do this job safely. Anyway, he helped with a lot of the work in developing the test as well. And so, at some point we had sufficient data and we were able to convince the Washington office that it was time to make a change. And as you said, the change came about 97, 98, somewhere in there. And, it is still in force at this point coming up to a time period about the, as long as the step test lasted. So I know that the folks at a forest service and other agencies or are interested in looking at other options, but I'm not sure where they are at this moment.

CP:

Okay. So that development of mid nineties getting ready to have this work capacity test release kind of coincides Brent with your arrival on campus in 1994 and kind of further developed in this relationship that you and Brian have had for what's nearly 30 years now.

BS:

That's a tortured relationship. (All laughing)

CP:

Is it? Is it just. I just feel the chill in the studio just so you know.

BR:

It's a grumpy uncle sorta... (laughing) One of the things that I was thinking about when Brian was talking is like in the seventies and Brian is suggesting they knew there was a strength component to the job, but the time course to be able to recognize, design, collect more data to demonstrate that and then put that

into practice. That's a 20 year window and so it shows the slow moving progression of change within the agency and we have certainly seen that with feeding strategies and with some of their nutritional stuff we discover something, but to get it into operations is so tedious. The other thing I was thinking about is somewhere along the line, while the step test was still in play. There were some groups that were as an alternative using a mile and a half run test and those were sort of interchangeable. Can you speak to that a little bit?

BS:

Yeah. Part of that I think was for people who, for some reason or another could not comfortably do this pack test. We wanted to have an alternative just to give another option. And that was a pretty good alternative in terms of aerobic fitness or maximum oxygen intake, but it really didn't reflect the strength component, so it wasn't used that much, but it was used for a while and it was also an alternative for the step test at one time. So, you know, it was sort of a transitional thing, but the thing that slowed things down was usually the folks in management didn't want to tackle something, you know, they always had something else on their plate and they didn't want to go through all the rigmarole introducing a new test or whatever any sooner than they had to. And I suspect that will happen again in the near future.

BR:

In that, that first season that I came on, my very first season was 97 with crews and we went through the coursework but we didn't take the work capacity test or the fitness testing until we got this fire in Lincoln. And then they mandated when you got to take the step test, otherwise you can't go into the fire camp. And I've been told that story before, but I flunked it because we'd gone out to dinner with the hot shot crew. Oh, hot shot crew. And I of course ate too much and I'm in the middle of the step tests and I'm thinking, oh no, I got blood flow going into areas that are not the muscle. And my heart rate at the end was sky high. And so I didn't pass it. But then alternatively we jumped right into the mile and a half run. And we had no trouble with. That was one very uncomfortable. But we passed.

CP:

Yeah, I know my first several years we would oftentimes opt to just run the mile and a half because you could only do one person at a time on the step test and the administrators thought that was kind of a choke point and they're like, well, just go run the mile and a half. We can get everybody done in one time and that was fine, but at the same time I'd sit and watch guys with a big old Copenhagen in and holding a cup of coffee and taking the step test at the same time that they had a system and they'd still pass. So... (all laughing)

BS:

In fact, there were a lot of systems develop, breath holding, all kinds of different things that were reasons to get rid of the step test.

CP:

Yeah. The minute that was the cheat code was that if once you got done with the five minutes, you would hold your breath and then that would, the physiological response to that would just slow your

heart rate down big time, which...

BR:

Well then you also have the potential inaccuracy of getting a manual pulse count because you weren't... They weren't wearing state of the art or even non state of the art heart rate monitors. They're counting, right?

CP:

Taking a 15 second... and then if they're off even by a couple that's magnified...

BS:

This might be a good time to talk about the whole research and development process.

CP:

Let's go for it.

BS:

Wherever we we're developing something. The first thing have to do is identify the problem and you do that with input from the field as well as your own insights and what the literature, the research literature tells you about things. But, uh, the next step is to kind of search for options. You know, in the case of a test, we found our option of the Pack test from a, uh, a field study of 120 firefighters and then did further development with that. After we do that, we try to evaluate it in the laboratory and then eventually in the field and in the case of the Pack test, you know, after laboratory testing and of what the energy cost of the thing is and so forth. The field studies were to look at how it did in measuring the fitness of firefighters and then predicting their performances. And eventually you get to the point where you have to disseminate once it's adopted, you have to disseminate this information and I don't mean just by writing an article for a journal or a magazine article or whatever, but we have to disseminate it to the firefighters and potential firefighters and to the people that are going to administer it and all this sort of thing. And that, that requires publications that requires... Nowadays a lot of stuff on the web. But in those days we had publications, you know, like, uh, a booklet called fitness and work capacity that explained the testing and it, it came out in 1977. It was revised in 1997 to go along with the new test. And then in 2009, it was revised again and it should be available online somewhere. But anyway, the idea of disseminating this information, it is a part of the research and development process. And so that's the process we used and I'm sure they continue to use in terms of developing new approaches to something, whether it be nutrition, hydration, or whatever.

CP:

And then once you've done the science and, and built the case in the supporting evidence, then I know you've mentioned it, it also moves that into a political process in terms of just being eventually adopted. That's the slow part.

BS:

Yeah. That's where you need people that will help you out. People you've cultivated over the years, uh, people in Washington office, it was always great to have a right head in Washington office in safety and health with the forest service or with some of the other agencies as well because, uh, that had a lot to do with how quickly something went forward.

BR:

That description. That's sort of the scientific process description. And you can superimpose that on any research process that you do. But with this group, what we have found and Brian describes the same thing, is that I can't sit in the lab or my office and say, here's a good question and then pave forward with that process. It has to start with discussions within the

agency, specifically with males and females on the actual line. What are your needs, what are the problems that you see? And maintaining that conversation is something that I've tried to do over the whole time I've been involved, which is 20 years now, but maintain that conversation, keeps that scientific process fresh. So that you are not just attacking pet problems that you as the researcher feel as an issue, but you're serving the actual firefighter and what they know are the issues because they'll tell you.

CP:

exactly and part of that discussion then is this idea from some crews on the type one side primarily that the work capacity test is not an adequate enough of an assessment for what they do. So what's next? What would that look like, and you've described the process both scientific and political, but what would that look like if we were to move past the work capacity test, say for a type one resource?

BS:

Speaking personally at the time we instituted the pat test in the late nineties, I was perfectly happy to establish a higher standard for the type one firefighter, particularly the hot shots because they didn't have any other tests like the smokejumpers did and that would be based on measurements on firefighters. I mean, whenever we measured the hot shots and smoke jumpers, we had maximal oxygen intake values averaging in the mid 50's, 55 or so. And the standard that we started with for the step test was 45 for the typical firefighter for the rank and file firefighter. So it would be easy to set a higher level on whatever test you have for the type ones, but every time we'd bring that up, the folks in Washington will say, well, maybe someday, but not right now. So that's been going on for 20 years or so. And uh, I'm sure that, uh, the folks at MTDC are exploring options at this moment, but you still have to bring the Washington office along with you. So that's part of the job.

BR:

Yeah, that definitely complicates it because it's got to be an assessment tool that pretty much anybody can deploy. It doesn't require a massive amount of training to be the test administrator, the crews and whoever the safety officers are going to have to run that test and also running multiple people through in an efficient time frame, so that's why I know we keep going back to things like pullups, pushups, sit ups and load carriage, but and yes, those may or may not fully represent the job, but they do a really fine job of describing the individual where they are right then and there and they're large muscle group activities. and they are objective and so that could be a place to start and to know MTDC. They've explored some of those assessment tools and certainly the military has used those successfully to screen out individuals.

BR:

Yeah. I have a colleague who works with structural firefighters and our data and wild land firefighters and military pretty much shows that if people score well on one muscular fitness tests, that they're highly correlated with performance on other muscular fitness tests. So it would be a matter of selecting one or two of them and wouldn't be a very difficult task. But, uh, I would still also want to raise the VO₂ or the oxygen intake, a standard for the type one folks as well. But, uh, that's, you know, that's being explored. I know.

CP:

And if you were to do that off of the current pack test, you could add more weight. You could add an incline, you could shorten the amount of time to completion. What are your guys' thoughts on that?

BR:

Well, the, the, the incline is a good idea, but it's a tough one to administer. Its not everybody has the right incline. It'd be very difficult to that. In fact, they got rid of the smoke jumper pack test of a where they carry 110 pounds. They got rid of the vertical portion of that because it wasn't easy to administer it objectively around the country. Steve Gaskell thinks there's ways to do that. And, uh, so I'm sure that that's been discussed with the MTDC but it hadn't been verified to the point where you could, you could just say, you know, do the Pack test faster than 45 minutes, which any type one firefighter does, there in the mid to high thirties and, would predict a pretty high VO₂ off of that performance. But that means that they're starting to jog a little bit. And, uh, so we're trying to avoid doing that, because, it might not be a good image for the rest of the people who have to pass the pat test, get involved in trying to do that and get in trouble with injuries an, or worse.

BR:

Yeah, the pack. This is, I know it gets harassed here and there and we've certainly talked about that quite a bit on some of these other episodes, but it does such a good job of pinpointing the exact repeated demands of the job. And it's never, it wasn't designed to be a performance test. It's not like a mile and half run. So if you want to measure aerobic fitness, simply reintroduce the mile and a half, run and make a cutoff that says, here's the aerobic demands, here's the Pack Test. It says you can do the load carriage at the metabolic loads that we've demonstrated over and over, including the new 2018 paper by Joe Saul and MTDC and us that in 30 or 150 subjects, they show repeatedly that that metabolic

demand to the load carriage ingress to the line mimics the pack test very, very close to that. And so if you had to keep the Pack test the way the Pack test is, add the mile and a half run and then add some strength components. It'd be funny for Brian to see that because he would probably think, well Geez, why don't, or what are you going to put the step test back into play as well? We'll put a pack on and do the step test, but it's going to be really hard to develop a shuttle run or a resistance training or something with elaborate equipment that becomes less and less practical.

CP:

So let's shift gears here a little bit and you two were in this kind of mentor, mentee relationship. Brent, when you came in, Brian was still there and mentoring is so important. Just overall and I think most jobs could probably do a better job with mentoring. Are there new folks I know as a first year firefighter I was just extremely fortunate to have a crew boss that really kind of took me under his wing and did his best to teach me as much as he could, the finer points that nobody else had taken the time to show me things that still resonate with me today. And so for you to how about a little discussion here of Brent, what it was like to be mentored by this guy and Brian, what it was like for you to mentor this guy across from you.

BR:

This is really funny because we have not ever sat down and had this discussion. So you're hearing it first. It's fascinating to me because I've always thought of mentorship roles as being quite formalized as in somebody comes in and somebody is assigned, you're this young person's mentor and that person comes in and says, okay, I am your mentor. Here's how things are going to roll and yeah...

CP:

Probably with no training or experience in how to do this.

BR:

I mean academics are classically undertrained from most of the important parts of their job and so....

CP:

That's a secret... (Laughing)

BR:

I know I'm Sorry (laughing). And so when I came, Brian was only going to end up at the university in a part time role for just a few more years and I came in guns ablazing trying to get things rolling in a lab that needed severe reconstruction like when he entered and instead of coming in and saying, "hey Brent, here's how you should do things in this job, because this has worked for me over the last 30 years." He would simply come in and just drop these little comments or ideas, little seeds. That would just say, "hey, here's this. Check it out." And of course me being the. "*I know everything because I'm a brand new faculty member out of graduate school*" and be like, "oh, that's cool. Okay, I'll think about that." I put those seeds, tuck them away, and then they just start sprouting all over my office and I'll be like, God, that's great! That's something I really need to pay attention to and so mentorships that are subtle like that, as opposed to mentor roles that are much more," okay, I'm going to check you every

day and you're going to need to meet these demands and check all these boxes". I really appreciated that part of Brian because he mentored me in a way where he probably didn't even know what he was accomplishing.

He was my go-to mentor. I was the only exercise science person on the entire campus and I was that for like four years is a pretty lonely situation to be in as a new faculty member, because you're teaching 18 credits and you're trying to have a new baby and another one on the way and it was just an intense period of time. So I very much appreciated his subtle capacity to direct me in the right way.

BS:

Well, I always looked at it as if we had to do areas that needed to be looked at and uh, somebody new like yourself came along with the capabilities that would fit that nicely. And so just mentioned what we're interested in doing and if you were at all interested, there'd be some modest amount of funding there that would help get that off the ground. And it worked out pretty nicely with some, very high quality studies that you performed recall the hydration study using the doubly labeled water and, work on immune function, which was really kind of an exciting project to look into how firefighters immune function can be improved with some simple steps that didn't cost a whole lot of money and, were effective things that had been proven to a certain extent by the military and studies you did there reinforced that. So I, I didn't really think about mentoring. It was just that I was part time at the university at this stage, and part time with the forest service and so we had projects with the forest service needed to be done and you were a guy to do them. And so that, that's mentoring as far as I'm concerned.

BR:

The other part that's really funny that sticks into my mind is as a graduate student, I didn't know I was going to end up at Montana. I just assumed... I didn't know what to assume. I just was nose to the grindstone doing stuff and Brian had a student that I connected with very closely when I was at New Mexico, Gig Lead better and he did his master's here and Brian was very much involved with his world here. And so, Gig knew Brian quite well. I got introduced to Brian at a 1998 an ACSM (American College Sports Medicine) meeting, American College of Sports Medicine Meeting. That's the first time I really met Brian. Then I saw Brian and do a talk at the southwest, ACSM meeting, and a lot of his talk was the work that he'd done with firefighters and sort of the field research world and also research to influence policy direction, superimposing the research method into the world of the firefighter. And I thought, wow, I hadn't really thought of that! I mean most of the time you just think about your little laboratory world, but it didn't really resonate. It just was like, wow, that, he does it a different way. And then when I ended up applying for the job and coming here, it was just awesome to be able to start thinking that I had never done really any field research. But when Brian and I went to a conference, we decided to ride the train from Whitefish to Minneapolis. And on the way back we talked about a grant proposal. That was a new investigator award that the army had and the focus was to look at the male and female responses to environmental stress and stress on the fire line. And so that. That really set the stage for the next what would be I guess my next 20 years. And that's another great mentor role because a mentor is also got to be able to say, here's an idea, let's hammer this out, drinking beer on the train, making notes and plotting a course ahead which, I, that will forever be in my memory. Parts of that train ride and how influential that was.

CP:

One of the neat perks of being in Higher Ed is you get the opportunity at times just to get involved with other groups or other organizations just because you have some subject matter expertise and you know at least a few things about a few things and Brian, one of those for you was some involvement with the US ski team. What can you tell us about that process and being involved with high end athletes just in a different venue?

BS:

That relationship or that an involvement came about? I had just published a book and the ski team coaches liked it and invited me to come to a clinic to give a talk and at that time we started talking about related issues. A research on skiing and factors related to the success in cross country skiing and so forth and so on. Things that I knew very little about. And then they invited me to become part of what they called the Nordic Sports Medicine Council. It included physicians, nutrition specialist, biomechanics expert, a sports psychologist, which was one of our graduates. Reiner Martin's was the sports psychologist or coming in at that time and I got involved with exercise physiology. And we had this council where we would work on various things individually but also got together to talk about directions we should be taking and a research projects and so forth. But the key thing was we had a liaison with the ski team, that liaison in 1980, I guess was a, uh, or soon thereafter became Steve Gaskell. And, Steve ended up somewhere after that getting a job at the University of Montana. And I think he came in 1999 and, uh, got involved in firefighter research as well. But, uh, so that's, that's how I got involved with them. And we, we did studies in our lab, we did testing on skiers. They would bring the team into town, we'd house them at our house and some others we conduct testing in the lab which included arm and leg and combined arm and leg testing as well as body composition and some other measures. And then we take the data from this November testing. We'd go down to West Yellowstone where they were staying in a bigger motel down there and we would go over the results with the coaches and with the individual athletes and we'd also go out and ski a lot. And, so that's how I got to know Steve, but it's also, it was a period where we worked with the ski team ended up going to the Olympics. Well first we went to the training site in Australia in October of that year, before the 84 Olympics and then to Sarajevo for the Olympics. And, I got to see how things ran at that level, but it was a great period of time and meeting. Steve was one of the highlights. Steve came up one summer and we were going to talk about program ideas and so we decided to talk about it on my sailboat and, we were sailing land and then from there we drove up to Glacier National Park and decided after that evening we just took a short run into Avalanche Lake and back and one should not be running on that trail. But, uh, we did. And then the next day we, we went up past Sperry Chalet, which has burned down since then and, over gunsight pass and down the other side, some 18, 19 miles, I forget the distance, but with Steve leading the way and me trying to keep up. It was a challenge! But anyway, had a lot of good times there. So in a 99 we were looking for somebody for the faculty and he fit the bill just perfectly at the right stuff as they say. And it took a while to get the committee to recognize that and, take a look at him. But once they did, they hired him and he, as I said, he became involved in a firefighter work from then on.

CP:

Steve, one of our faculty members just retired here a couple of years ago. I was involved with The Black project from early moments. Then that's an amazing model. So you're talking about something that it's almost 40 years old at this point, but to include physiologist and nutritionist and sports psychologists, physicians, there's people, there's high end organizations that don't do that today.

BS:

And the ski team doesn't. I don't think I, if they do, I don't think it was at it well organized. But the important thing I guess is just to have that kind of expertise backing up your skiers. I mean we had a, you know, all kinds of people who were looking into the various things, but over the years that has fallen off and they've had some recent success, which is a good thing. Back in the eighties they had Bill Koch and several other very fine skiers. And they did okay, but not as well as they could've because there they're the coordination of some of the medical issues. We had a guy on a relay team who had a, some sort of a breathing allergic type of reaction in a relay. And so the team which could have come in maybe third came in fifth or sixth and uh, you know, sort of disturbing that there was nobody there that had the medication he needed to help him out and he had somehow forgotten it. Athletes do that sort of thing. But, uh, anyway,

BR:

Be interesting to look at a council like that for the world of the firefighter. We don't have any. There's no such thing.

BS: Yeah!

BR:

That's a really cool model. I mean, because we have people like me, the hippie university type on that very much on the outside working to, to make things better for them. And we have people on the inside like MTDC and there is some coordinated efforts. But to put together a formalized council would be really powerful.

CP:

Yes. Brian, I'm going to put you on the spot here. How many books have you written?

BS:

Uh, to try to answer that. You have to realize that sometimes you do complete revisions of a book. And so I decided if I do a complete revision, I'm going to call that a new book (all laughing), but, um, so the number, it's about a dozen, but, uh, you know, some of them are major revisions of a book that take almost as long as the new book. It used to be a good thing to do back when they didn't have electronic books and all kinds of ways. They'll take one chapter from one book and a chapter from another book and so on. And so the whole idea of writing textbooks and or other kinds of books, uh, is not as

appealing as it used to be. And they give you less at a royalty as well.

CP:

And at one point you wrote five books in five years, is that correct?

BS:

Yeah, it ended up being seven and seven I think. But, that was right before and after retirement. So I had a lot of free time.

CP:

I read a thing, and this is early on in your career, you're a young professor, you've got a family, young kids, you're starting to lab or coaching tennis, you have huge responsibilities with your academic courses and all these different things that are going on. And yet you could devote three hours a night, five nights a week for years to work on writing books. So where, does that motivation come from? What do you tap into to be able to create that amount of time and space?

BS:

Um, at the beginning, I'm not exactly sure, but I enjoyed it though. I enjoyed conceiving of a thing and getting the publisher to want to do it. And then after that I enjoyed, you know, outlining chapters and thinking through how you would present this information to people and so forth. So I just enjoyed it. And then the thing that made it more likely, uh, over the years was that the first graduate student to finish when I was here was Reiner Martins and Reiner. After so many years of teaching at the University of Illinois, he started a small publishing company in his garage and he convinced me to redo a book with him. I had done a book with a local publisher and then in 1979, I expanded it about three and a half, four times and uh, did a book with him and that book was very successful and it helped his company get rolling. He eventually quit the University of Illinois and he was president of the largest sports medicine and Exercise Science Publishing Company in the world. And it still is. He's now retired and traveling the world, taking pictures and, , if you want to see as pictures go onto MartinsGallery.net, I think it is. And you will find his gallery and you, can see Africa or wherever you want to go. He's been there.

CP:

His company being Human Kinetics. If you've ever had a college course that has anything to do with exercise or fitness or physiology or nutrition and you kept any of your books, chances are there's an HK on the spine of the book.

BS:

And we have a room at the university. HK gives us all their new books every year and they go into that room and there it's a resource for people that want to find things that have been thought over and put in print and in addition to that, of course D.r Martin says contributed to Department of Affairs in some ways and hopefully will continue something, but...

CP:

Martin Sharkey Library we'll have...

BS:

We'll have to pass this on to him... (laughing)

CP:

Brent what do you have, as fascinating is this is. Let's do our best to summarize and wrap things up.

BR:

Well, I think the thing I like so much about these stories is when you boil it down to the objective data, it's undeniable what the job demands and those job demands. Brian discovered through early testing, both Brian and his predecessor showed the metabolic demands to be what essentially the packtest is. Those have been backed up by other groups like the group in Australia that we've talked about and then just this year, the paper that we worked on with Joe Solve shows the very same thing. So the job is the job is the job. It doesn't matter if it's the sixties, the seventies, the eighties, the nineties or this new century. Although the music has changed dramatically. The world of the wild land firefighter is remarkably consistent and so we can learn from that historical data and then pile on top of that, some new techniques to measure new things and some new techniques to monitor these crews so that we can make the job continually safer as we move into a new era. So that to me is the most profound linkage to the work that we're doing now compared to the work that's been done 50 years ago. And that is phenomenal. I mean when I... I'm so proud of the lineage that the University of Montana has essentially starting with Brian in sixties and Brian came and retired. We had an overlap of a few years and then he left and I continued. And so when you look at that lineage and then we have Steve and other groups coming into that. But that's, to me, that's a, I'm super proud of that. That I got to be part of that.

BS:

I think I had one thing to that and, when I knew I was trying to retire, the forest service was able to put together a job search to find somebody who could work their way into the job. We didn't expect to go out and find a PhD, who was eager to come. We wanted somebody with experience and fire who had worked in fire research. And so with that job description, we interviewed candidates largely from the University of Montana Master's program who had worked in fire research with Brent and the end result was hired Joe Dimitravich. And so there's a kind of a continuation there that ties it all together at that end of the thing, you know, with the forest service. Because if we didn't have that, it could easily drift all over the place, but the way it is, I think it's focused and it's getting the job done.

BR:

Yeah, absolutely.

CP: And Joe got his PhD then at u of M, and so you've got somebody with a terminal degree in the

expertise and the knowledge and the skill sets to kind of continue your legacy in your work. Brian, what do you have to kind of finish things out for us?

I think I just did.... (all laughing)

No, it's been a great period of, to have that. I always felt like a in my career things... I didn't have to go looking for things. They came to me and the forest service work came to me. The ski team came to me, you know, publishing came to me. I didn't have to go hunting it out so much and uh, uh, it, it was nice. Now I'm at a stage where I have to go find things and it's a, it's a lot harder.

CP:

Yeah. You also can create your own opportunities. So I think you've done a lot of that. Brian, thanks for joining us today in...

BS:

My pleasure!

CP:

...in the Mike Matthews rattlesnake studios. Brent, as always, thanks for taking the time.

BR:

Excellent!

CP:

...and we will catch you next time On The Line.

Outro:

you've been listening to on the line, a podcast for today's wild land firefighter, our audio engineer's Mike Matthews, production assistant Joey Moore. And your host, Charlie Palmer. Thanks for listening and we hope to connect with you again in the future. On The Line.

Copyright On The Line. All Rights Reserved. This transcript cannot be transferred, quoted, or shared without written authorization.