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SDSU track athletes design shoe insert with 'built-in coach'

By Emily Berzonsky Newsletter Writer

Running injuries often lead to ingenuity as athletes find ways to rehabilitate and make changes to avoid future injury.

For Evan Fick, an SDSU cross country and track & field athlete and mechanical engineering student, a fibular stress fracture led to an idea for a force-sensitive running shoe insert that may reduce the incidence of lower-body running injuries.

Fick developed his fibular stress fracture during his junior season of indoor track.

"I think I put a lot more force on my left foot than my right," he said.

As Fick was rehabilitating and returning to training over the summer, he thought, "man I really wish that there was some little trainer thing that would buzz at me to help me maintain focus...something to prompt me to not heel strike."

Fick's search of peer-reviewed studies revealed a high correlation between heel striking and injuries, prompting him to focus his idea around force measurements.



Members of the Shoe Crew, posing in front of the Coughlin Campanile at SDSU, are, from left, Anna Fasen, Evan Fick and Caleb Bray. The engineering students/track athletes design a shoe insert designed to provide feedback to runners on footstrike.

Interestingly, the research showed little to no correlation between injury and pronation or supination.

When Fick returned to SDSU for the fall semester, he pitched his idea for a shoe insert that can take in data on where the runner's foot lands, their cadence, and their pace throughout a run. It would also have the ability to buzz during a run if the runner is heel striking—like having a coach built into the shoe. The insert would be Fick's engineering senior design project.

Fick reached out to track teammates and fellow engineering students Anna Fasen and Caleb Bray to collaborate on the project. The trio named the insert, "Talaria Running Form Trainer." Talaria is the name of the winged sandals made by the Greek god Hermes. It is often used today as a symbol for track & field.

The group made 12 inserts based on their second prototype to use for a study.

"We thought we'd have to advertise pretty hard to get people to participate in our study," Fick said.

Fick, Fasen, and Bray had posters drawn up, but never used them. Word about the Talaria Running Form Trainer spread through the running community at SDSU and the trio soon had more than enough runners willing to participate in the study.

The group could not complete their full study plan due to the COVID-19 pandemic. They tested the insert with two rather than 12 runners. One insert broke right away, but the other lasted for three weeks.

2021 Race Schedule

Indoor 5K Cancelled at this point Arbor Day 5K April 23 Scotty Roberts 5K May 14 Brookings Marathon, Half Marathon and Relays May 15 Longest Day 10K June 19 Beef and Eggs 5K July 10 **Predictor Mile** August 4 Oakwood Lakes Trail Run August 14 Jack 15 Road Race September 25 Bob Bartling Hobo Day 5K October 23

See **Insert Design** Page 2

President's message Reflections on a safe 2020, an exciting 2021



With the 2020 racing season complete, I would like to extend a word of appreciation.

While most races this year

were canceled or turned into virtual events, even here in South Dakota, I'm proud to say Prairie Striders was able to conduct all of its races except for the Arbor Day 5K and the I'm Ready for Summer Triathlon. Those two fell early in the COVID-19 pandemic lockdown and utilized university facilities. Shari Landmark was able to make the triathlon a virtual duathlon in the event's finale.

With the triathlon's 20-year history coming to an end, 2021 will mark the first year since 1998 that Landmark hasn't directed a Prairie Striders race. She also was the sole director of the Jack 15 in 1999-2007 and assisted in 2010-12. What will she do with her time? J

Shari, a tip of the cap for all your service and for your continued involvement in our club.

Another retiring director in 2020 is Steve Britzman. He directed the Arbor Day 5K from its founding in 1989 through 2019 and the Hobo Day 5K from its founding in 1996 through this year. Likewise, we appreciate your decades of service and continued involvement in the club.

The fact that Prairie Striders could conduct almost all of its races during the pandemic and do so safely speaks to the dedication of the race directors, who took extraordinary measures to put on safe events, and the hundreds of volunteers who came along side to make the races happen.

Of course, there would be no races without runners and the club appreciates the confidence the runners have in Prairie Striders.

What will new year bring?

As we look ahead to 2021, expect all of the club's races to go on as scheduled, except for the Prairie Striders Indoor 5K. The status of indoor track meets at SDSU are uncertain and the 5K has always been a lead-in to an indoor meet.

Another scheduling change is the Frostbite Frolic, which is our annual social event and awards presentation. This year we hope the frost is out of the air by the time our frolic is held. We're planning a group run based at Wooden Legs Brewing Co. in downtown Brookings.

This will be the kickoff for group runs on the first Monday of the month from April through September.

The date for our kickoff run is still being finalized, but it will posted on our webpage.

Another change is the Turkey Day 5K will again become a Prairie Striders event. The Brookings Swim Club had organized a run for several years, but dropped the event the last two years. The Striders held informal runs the last two years, but in 2021 we will partner with the Fellowship of Christian Athletes for a more organized effort.

The club's officers for 2021 will be same as 2020. Elected at our Dec. 1 meeting were Dave Graves, president; Nancy Scholl, vice president; Jay Larsen, treasurer/membership director; Trevor Penning, webmaster. The one-year terms to begin in January.

Any member is welcome to participate in the monthly meetings, which have been held on Zoom since the pandemic. To join in the noon gatherings, send an email to run@prairiestriders.net and a link will be sent to you.

In between newsletters and meetings, keep up with Prairie Striders on the web (prairiestriders.net) and on our Facebook page.

Insert Design: The beginnings of a product

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"The insert was easy to utilize and once attached to the shoe its presence was unnoticeable," the tester said. "I would love to purchase one if it were on the market because the insert made running more exciting and motivated me to exercise."

Fick, Fasen and Bray founded a company, Shoe Crew LLC, around the Talaria Running Form Trainer. They hope to produce a commercial product within two years and market it for \$120—right around the cost of a pair of new running shoes.

The group placed fifth in the April 2020 Governor's Giant Vision entrepre-

neurial college student business competition with an online presentation of the Talaria Running Form Trainer and second at December's Brookings Student Business Plan Competition. Fick also won first place at the Old Guard Oral Presentation Competition where he gave a 15-minute oral presentation on the idea and device.

Fick, Fasen and Bray are May 2020 graduates. They will continue to collaborate from their homes to improve the insert and create a third prototype. They intend to analyze the data from the second prototype and to put their prize money from competitions towards

more high-end, durable components and patenting costs.

They are also collaborating to build a website. Anyone interested in the product will soon be able to follow along at

https://www.shoecrewonline.com.

Fick, Fasen, and Bray give special thanks to their faculty advisors: Anna Bearss, cross country and track & field graduate assistant and experienced runner, Bradley Bowser, assistant professor of biomechanics, Tim Hanson, assistant professor of electrical engineering, and Stephen Gent, associate professor of mechanical engineering.

World age record set in Brookings Half Marathon

By Dave Graves Newsletter Editor

Salvador Wirth had a surprise for his teammates on the Annandale (Minn.) High School cross country team when he got back from a Sept. 12 trip to Brookings.

He told them he had just become the world record holder in the half marathon for 13-year-olds. Wirth completed the Brookings Half Marathon in 1:16:11 to easily beat the former standard of 1:18:53. He said he didn't tell his teammates before making the 180-mile trip to Brookings for his attempt at the record that had been held by an Australian.

His teammates were surprised and "gave me a round of applause at the next practice," Wirth reports.

Wirth attempted the record after running a virtual half marathon in July in 1:18 and discovered it would have been an age record had it been an official event.

Of course, in this era of COVID-closed, there weren't many events for Wirth to choose from to take a stab at the record. The family chose Brookings over Savannah, Ga. Wirth was happy about the choice. "All the spectators were cheering us on but not yelling obnoxiously ... The volunteers were extremely nice," Wirth said.

Equipped with a GPS watch, Wirth knew mile splits needed to average 5:52 to break the mark, which is kept by the Association of Road



Sal Wirth, of Annandale, Minn., crosses the finish line of the Brookings Half Marathon Sept. 12 as the clock flashes his time of 1:16:11, which is a world record for 13-year-olds.

Racing Statistics.

"I led the race up to about the first mile and then (marathon winner) Brandon (Sage) and (Brookings High School cross country coach) Chris (Gruenhagen) passed me. My watch had a 5:45 pace at that time and I kept it at that for most of the race. I caught up to Chris around mile 9 but I could see him for most of the time before that.

"As I passed him, he cheered me on. He told me to catch Brandon (Riehm, a family friend and half marathon winner). I could see Brandon most of the race but he was quite aways in front. By mile 11, I could tell I was getting closer to him and I thought I might be able to beat him. He pulled ahead around mile 12 after looking back and seeing me.

"The finish came up quicker than I thought it would because of the fog. When my watch indicated 1/10th of a mile left, I still couldn't see the finish. When I turned down the final stretch in the park, I gave it my all and was pretty confident I had the pace I needed to achieve my goal," Wirth said.

Wirth, who appropriately had bib No. 313, "felt pumped up when I crossed the line because I knew I had broken it (the record)."

Wirth said he hadn't been consumed about breaking the record, but admitted, "The last week, I started to get some nervous feelings about it. I think it gave me butterflies in my stomach."

Those butterflies sprouted Mercury's wings for the race.

Beating the Association of Road Racing Statisticians mark for 13-year-olds is one thing. Getting it officially recorded is another. While the course is certified, the race also must be certified by the U.S. Association for Track and Field and then by statisticians group along with proof of age and proof of not using a banned substance.

Bien honored by physicians group

Brookings Marathon director Matt Bien has been recognized by the American College of Physicians as a Master, an honor given to Fellows who distinguish themselves in their contributions to the field of medicine.

Bien, an internal medicine physician with Avera Medical Group-Brookings, has served in Brookings since 2000, when he completed a residency in Wisconsin. Profession contributions include serving on state committee of the American College of Physicians since 2009, including governor from 2015 to 2019.

He also is an associate professor with the University

of South Dakota Sanford School of Medicine and served as acting assistant dean of medical student education in 2013-14.

Also at the Oct. 10 annual meeting of the South Dakota chapter of the American College of Physicians, Bien was recognized as the group's volunteer of the year for his work with the marathon. Through chairing a race committee and organizing more than 300 volunteers, he spends more than 100 volunteer hours per year on the effort.

Brookings Marathon Former Jack standout wins in near-record time

By Dave Graves Newsletter Editor

In 50 runnings of the Brookings Marathon, it has been staged in five months—April, May, June, July and November—but never before in September.

The 51st running of the Brookings Marathon was Sept. 12, postponed from May 16 because of the COVID-19 pandemic, and it was a race to remember for more than just the unique date and health-mandated restrictions.

Former SDSU Jackrabbit standout Brendan Sage, 25, flirted with an event record in his second lifetime marathon before finishing with a winning time of 2:24:44, the fourth fastest time in race history. In the half marathon, 13-year-old Sal Wirth set a world age record with his time of 1:16:11 (See separate story Page 3.)

Race director Matt Bien noted, "Brendan averaged 5 minutes and 32 seconds per mile over the entire 26 miles. Just four seconds faster per mile, he would have set a new Brookings Marathon record."

The record is held by Randy Fischer, who ran a 2:23:29 (5:28 pace) in 1979. He also holds the race's third fastest mark, winning the 1981 race in 2:24:35. The 1980 winner, Mike Dunlap, holds the second fastest time when he won the 1980 race in 2:23:34.

Starts hitting wall at Mile 18

Sage's time wasn't necessarily unexpected. It was his stretch goal before the race. After all, in his inaugural marathon, the Arizona Rock 'n' Roll Marathon in January, he won the race in 2:20:58.

At Brookings, Sage, of St. Michael, Minn., was one minute ahead of pace "for quite a while. The mental and physical 'wall' slowly crept in somewhere between miles 18 and 20 as evident in the splits," he said. After a 5:18 mile at Mile 17, his next split was 5:29. By Mile 21, his split was up to 5:37. Mile 23 was 5:59—a creep for a runner of Sage's ability.

"Although my calf muscle was a little tight from the gun, I wouldn't say I was cramping. My body (hips and hamstrings) was slowly tightening up and it became a battle to simply finish strong. I have a strong belief that not being in the weight room since my last marathon training cycle was partially to blame for this," he said.

Gyms were closed down because of the COVID-19 pandemic, but so were schools. So the math teacher at Parnassus Preparatory School in Maple Grove, Minn., had more time for long runs. Getting in strength training was a different matter

A determined finish

Sage didn't show wear when he sprinted toward the finish line.

"I wasn't feeling great, but I pride myself on giving it all I've got in the finish of any race, regardless of the distance. I strongly believe it's a mentality that one can always implement, no matter how good or bad you feel," he said.

One difference between his win in Phoenix and his win in Brookings was the field.

"After about a half mile (in the Brookings Marathon), I was alone with the biker the rest of the way. I quickly decided to go out on pace to set the record and test myself if I could hold on. The first mile was still conservative, 5:36. I didn't want to let myself get too far behind course record pace though," Sage said.

Accustomed to running solo

How difficult was running at a record pace without another runner to pace him?

"I had the confidence of a high 2:20 marathon, along with many long runs, going into this. I wasn't too worried about keeping the pace on my own. I train on my own and did a few solo 24-mile long runs.

"I kept consulting my watch to determine if I was still on pace or not, but ultimately went off of feel for the first half of the race while I prayed a handful of rosaries to keep my mind busy. I wasn't holding myself back or trying to speed up at any time. I felt pretty good for about 15-16 miles, so I went a comfortable pace knowing I was putting money in the bank for the end of the race," Sage said.

The fact that Sage wasn't able to cash in that check at the end of the race didn't leave Sage too disappointed.

"I wasn't too attached or focused on the course record. More so, I wanted to complete another marathon and work towards gaining confidence in pushing myself even further in the future. The course record was a goal I could shoot for, but doesn't change much at the end of the day. My effort was about the same whether I ran 2:23 or 2:24.

"I was notified of the fourth fastest time, which is neat to hear. My focus was getting another sub-2:30 solo effort in. That alone has made me the happiest. The course record/top four time is a nice addition to the performance," Sage said.

Future goal — Olympic Trials

His long-term goal is to increase his training and mileage for the California International Marathon in December 2021.

"The event is well-known for being a hot spot for Olympic Trials-qualifying performances. I'm confident that even if the current standard of 2:19 is changed, then I will still qualify at some point in the future," he said.

As for running a near-record time in the community where he trained from 2013 to 2017, Sage said, "It was fun to run through every part of town and hear and see fans throughout all of it. There were several current and former Jackrabbits out on the course kindly cheering me on. As usual, the support of the Brookings community was on full display."

Race director Bien noted, "With Brendan's performance and the world record by 13-year-old Salvador Wirth, spectators witnessed some historic running."

Member Spotlights

Editor's note: Member Spotlight is a regular feature in the Pacesetter. If you, or someone you know, would like to be featured, please contact Dave Graves at 605-627-5718 or run@prairiestriders.net.



Brady Diercks



The Derricks at Hobo Day 2019: Leeann and Brady with newborn Hattie (under covered car seat), Lucy and Liam.

Age: 35

Residence: Brookings

Occupation: Manufacturing Management, Larson Manufacturing

Family: wife-Leeann, son-Liam (7), daughters-Lucy (5) & Hattie (1)

Years as a Prairie Strider member: 0

Why you're a member:

I've enjoyed Prairie Striders events over the last 5+ years and want to support the club.

What you enjoy about running:

I enjoy the simplicity, the sense of accomplishment after a workout or race, and the fact that if done appropriately, running can be a lifelong activity.

Favorite running memory:

Being the top finishing male of the 2017 Jack 15 (with what looks to be a record slowest winning male time!).

Your favorite Prairie Striders race:

Although I question my decision around mile 9, the Jack 15 is my favorite Prairie Striders race.

Favorite workout:

My favorite running workouts would have to include some interval work.

Your running goal:

Continuous improvement of race times from 5K to half marathon distances!

Barb (Wehde) Swenson



Barb Swenson holds the plaque she won for being the top female in the Ranch Run 10K Trail Run in Omaha, Neb., in 2012. **Age:** 32

Residence: Afton, Minn.

Occupation: Financial Advisor

Family: Nathan Swenson (hus-

band)

Years as a Prairie Strider

member: 8

Why you're a member:

Sharing in the community of running! Welcoming new introductions to the sport, and the wisdom of experienced runners. It's wonderful to see encouragement, support, and growth.

factoring in distances, surface, workouts, nutrition, and recovery. Yet, it all comes back to a pair of shoes and enjoyment.

Favorite running memory:

Seeing young athletes achieve their goals! It was while helping coach high school girls varsity XC in Rochester, MN. The look on their face when they knew they crossed the finish line, and seeing they crushed a milestone time!

Your favorite Prairie Striders race:

I can't pick one! I have great memories of the Arbor Day 5k as my first race, to the packed streets of the Hobo Day 5k, and teaming up for the Jack 15!

Favorite workout:

Hills on hills. $8-10 \times 1$ min hard uphill, recover on the down.

Your running goal:

Still chasing the 5k, but can't let go of anything trail 50k.

What you enjoy about running:

The simplicity. You can make it as complex as you want;

Newest Life Members

Prairie Striders welcomes its newest life member: Jacob Mills, of Brookings. Any Strider can become a life member by sending a \$100 check to Prairie Striders at Box 504, Brookings, SD, 57006.

Treasurer Jay Larsen reports that 105 of the club's 257 members now hold life memberships.

Cayo puts name in Jack 15 top 5 list

The fifth fastest time in the 58-year history of the Jack 15 road race was recorded Saturday, Oct. 3, 2020, when SDSU senior Chase Cayo covered the 15.2-mile course in 1:18:14.

Cayo, who still has eligibility for the outdoor track season, easily beat 60 other contestants. His average mile pace was 5:09. He was alone as soon as the runners left White on their trek to the Campanile in Brookings. Cayo, of St. Michael, Minn., said Coach Rod De-Haven had him shooting for 1:20, but with no wind and overcast skies he was able to exceed that.

Cayo, who finished fourth in the 2019 Summit League cross country meet in 2019, had the fastest Jack 15 time since the race's glory days in 1979-

the race record with a 1:14:54 in 1980, when a 10 mph NNE wind benefitted ior won by more than eight Striders Running Club. runners. Second on the list is 1979



Chase Cayo, 24, stops his watching after finishing the Jack 15 in 1:18:14, the fifth fastest time in the race's 58-The decorated Dick Beardsley holds year history. The South Dakota State University senminutes.

champion Clyde Wold with a 1:17:24. Third place is held by 1980 runner-up Warren Eide with a 1:17:29. Fourth place goes to 1979 runner-up Fred Carnahan, whose 1:18:13 is just one second in front

A couple former teammates who were expected to challenge Cayo-Brendan Sage and Kyle Burdick—had registered for Saturday's event but did not compete.

Race co-director Dave Graves noted 2020 was one of the fastest fields in recent years. There were eight finishes below 1 hour, 40 minutes (6:35 pace); twice as many as last year.

The women's division was won by Eva Gut, 37, of Sioux Falls, in a time of 1:47:00. She finished 13th overall. Second went to Brianna Kreutner, 23, of Brookings, in 1:59:11. Third-place finisher was Erika Zink, 43, of Watertown, in 2:03:12.

The Jack 15 is sponsored by Prairie

The overall top 10:

	1					
1	Chase Cayo	M	24	Brookings	SD	1:18:14
2	David Ecker	M	20	Sioux Falls	SD	1:26:39
3	Marty Wennblom	M	41	Rapid City	SD	1:30:18
4	Jeremy Van Veen	M	41	Aberdeen	SD	1:32:58
5	Nathan Schwab	M	39	Sioux Falls	SD	1:36:34
6	Thomas Stambaugh	M	60	Nevis	MN	1:37:06
7	Tim Fryer	M	39	Hendricks	MN	1:38:34
8	Ben Devlin	M	32	Sioux Falls	SD	1:38:47
9	Chris Riley	M	34	Spearfish	SD	1:41:01
10	Gregory Mulderink	M	25	Watertown	SD	1:44:01



Tim Fryer, 41, of Hendricks, Minn., didn't have any trouble social distancing in the Glacial Lakes 20K at Newton Hills Oct. 24. He finished first in 1:28:35, 30 seconds ahead of Brian Labenz of Clarkson, Neb. Prairie Striders member Fryer finished seventh in the Jack 15. Two other Striders finished in the top 10 at Newton Hills. James Niehus, 48, of Hendricks, was third (1:45:10) and Andy Carlson, 37, of Brookings, was seventh (1:56:28).

In the 50K, Eva Gut, of Sioux Falls, female winner of the Jack 15, was fifth overall and the first place woman. Owen McElroy, of Watertown, was seventh.