DESIGN RESEARCH REVIEW

INJURY TRACKING FOR AMATEUR ATHLETES || SECTION AC

SUMMARY OF KEY FINDINGS AND TAKEAWAYS

Through our interviews thus far, we were able to learn about how athletes determine injury severity, as well as their views towards workout and injury tracking. In general, our student athlete participants used prior experience when facing injuries, preferring not to go to the doctor or physical therapist unless absolutely necessary. This attitude was supported by the coach that we interviewed, who explained that athletes usually have a hard time admitting that they are injured since it would mean taking a break from their exercise. Both of the athletes used devices to track workout stats, but did not track injuries at all, saying they would consider one if it was easy to use. They did recognize the potential benefits of tracking injuries. We have two more interviews scheduled for tomorrow, but our interviews so far have helped us better understand the attitudes and behaviors of athletes in relation to injuries.

DESIGN RESEARCH PARTICIPANTS

PRIMARY PARTICIPANTS: ATHLETES

ALLIE

Allie is an athlete who is a senior Electrical Engineering major at UW. She has been doing multiple sports since she was young, including the main focus of our study, running. She ran in her high school's cross country team, but is not currently part of a team. Recently, she has focused on training and competing in half-marathons at a rate of around one per year, though the frequency of her activity varies from running several times a week to going weeks without running. Allie described her experiences with both major and minor injuries, describing how she handled both shin splints in high school and college and tearing her ACL in high school. Allie currently does not track her injuries, but she enjoys using a Garmin watch to track other aspects of her workout. We interviewed Allie in the Husky Union Building (HUB) at UW on October 11th.

JOE

Joe is an athlete who is a junior Informatics major at UW. Though not primarily a runner, Joe partakes in a range of cardio activities ranging from soccer to basketball. He recently ran in the Portland marathon where he finished with a time of 3 hours 40 minutes. In his life as a runner, he has yet to sustain any serious injuries. Apart from minor ankle sprains and soreness from a lack of stretching, he has largely been able to stay healthy. However, Joe has experienced a wide range of other injuries from soccer and basketball and has thus developed a lasting relationship with his physical therapist. In deciding when an injury is severe enough to seek out medical attention, Joe usually waits around a week and monitors if the injury gets any worse during that time. While resting, Joe tries to avoid repetitive strain against the vulnerable area, but will play through the injury if his team needs him. Joe doesn't track his injuries, but does use Strava on his phone to track his runs.

CHLOE

On October 17th, we plan on interviewing Chloe, a recent University of Washington (UW) grad who rowed on the Women's Rowing Team. As part of her team workouts, she cross-trained by going on jogs and runs, and had easy access to coaching and physical therapy through her team. Thus, we hope that she will give us a perspective on how

injuries can affect athletes in similar, but related, sports, and how access to formal training and physical therapy can influence them.

SAMANTHA (COACH)

Samantha has worked as a running and triathlon coach for over a decade. She has served as the cross country and track and field distance running coach for a nearby high school on the Eastside for the last 6 years. She considers herself a semi-elite athlete and highly proficient coach. Her perspective helped us understand the role of a coach as it relates to injuries. In addition, as a semi-elite athlete who is now in her 60's, she offered valuable insights about how injuries have impacted the careers of many athletes whom she knew, and which types of athletes were most likely to get injured. She was enthusiastic about the idea of an injury tracking application; she feels that it would be well-received and helpful for many people. Samantha was interviewed over the phone on October 15th.

DWAYNE (TRAINER)

Dwayne is an Assistant Athletic Trainer for UW's Men's and Women's Rowing Teams who works with Chloe. He serves as both a strength and conditioning coach and physical therapist for the Women's Rowing Team, helping athletes recover from injuries. We will be interviewing both Dwayne and Chloe together at Dwayne's office on October 17th, in the hopes that it will facilitate idea generation.

DESIGN RESEARCH THEMES

One common theme was that our participants prefer to depend on their past experiences and knowledge to determine if further medical treatment is necessary for an emerging injury. Unless an injury is unusually painful, persists for an abnormally long period of time, or is otherwise out-of-the-ordinary, they would generally decide to not go to the doctor and try to treat it on their own. This sentiment was supported by our interview with Samantha, who noted that many athletes don't want to admit that they are injured, and dedicated athletes especially dislike taking time off to heal. Because of this, she sometimes has to use nonverbal cues, like posture or amount of social engagement, to determine the actual severity of the injury. This barrier is an obstacle that we will likely have to overcome, especially if there is a social aspect to our application, where privacy and maintaining appearances could become an issue. On the positive side, providing features that supplement an athlete's existing knowledge – such as helping them to predict the onset of stress injuries or draw correlations between injuries and their recent workouts – would be a natural way to build on this habit of self-treatment.

Another theme was that athletes prefer to use automatic tracking methods that are integrated with their workouts as they are happening. Both the smartwatch that Allie uses, and the Strava app that Joe uses are able to automatically track workout stats, requiring minimal effort outside of the workout schedule. Although they used different apps with different devices, the core idea of automated workout tracking was appealing to both of them. The common theme of using workout trackers gave us the idea to integrate our injury tracking system with existing workout data that athletes are already collecting from systems like FitBit, Garmin, and Strava. Ensuring that athletes can quickly and easily add their injury information to this existing data will be incredibly important to make the app appealing.

As we have two interviews coming up tomorrow, more connections may be drawn between those new participants and the ones discussed in detail here. Whether they support or contradict our current findings, these will likely further influence our design choices

WHO IS GOING TO USE THE DESIGN?

Our design will target individual athletes, specifically runners and walkers, though the design may still be of interest to other athletes who crosstrain in those areas. Based on our research, one of the groups most prone to injuries is inexperienced and less conditioned athletes. As a result, we will likely focus on amateurs who are not part of a team and have little access to professional coaches and physical therapists. Those who do have access to such resources may still wish to use the platform; however, we are not designing specifically for them.

WHAT TASKS DO THEY NOW PERFORM?

Currently, our participants track data relating to their runs with external apps such as Strava or devices such as Garmin watches. However, when our interviewees suffer injuries relating to their physical activities, they do not utilize any tools to track and record their injuries. Instead, they use a more holistic approach in gauging the severity of the injury and tend to wait a couple days to see how the injury progresses.

WHAT TASKS ARE DESIRED?

One thing our participants desired is an easy way to track injuries, believing that it is important, but not having enough time to use any of the existing platforms. They also desired a way to help prevent injuries; our challenge in this task, should we choose to pursue it, is to come up with a design that helps athletes but does not infringe upon the legally ambiguous area of giving medical advice.

HOW ARE THE TASKS LEARNED?

Both of our participants desired to track their workouts and physical activities. This, combined with their personal preferences, eventually led them to the apps and devices they currently use. Similarly, our design should be easy to pick up and integrate into existing workout plans and preferences. For example, integrating existing tools, such as smartwatches and apps like Strava, into our design would help users familiarize themselves with it and ease the transition.

WHERE ARE THE TASKS PERFORMED?

The workout tracking methods our participants used were both real-time, i.e. while the participant was working out, though the details differed. The Garmin wristwatch automatically tracks stats like distance and pace based on GPS and time spent running, while the Strava app has a combination of manual and automatic tracking features. Both of them (particularly Strava) require some configuration before and after the workout, but the primary focus is on use during the workout. Our design should similarly merge with the users' existing methods as seamlessly as possible.

WHAT IS THE RELATIONSHIP BETWEEN THE PERSON AND DATA?

The primary relationship between our participants and data was through workout data, which they used to keep track of their progress. Sample uses ranged from pacing themselves during workouts to using the data to gradually increase or decrease intensity. In terms of injuries, both of them rely more on qualitative data, preferring to use their knowledge from previous experiences to determine whether they need further care. In addition, as neither of them track injuries, they have little relationship with injury data beyond physical therapy, though that doesn't mean that this can't be changed.

WHAT OTHER TOOLS DOES THE PERSON HAVE?

Both our participants have access to devices and 3rd party applications, which they use to keep track of their athletic activity. However, their specific methods differed greatly, as one uses an automatic tracker via a smartwatch, while the other uses an athletic social app via a smartphone. Accommodating these preferences presents a challenge for us to solve.

HOW DO PEOPLE COMMUNICATE WITH EACH OTHER?

Both of our student athlete participants were part of team sports in the past, including ones related to running like Cross Country. One of our participants also uses Strava, a social app for athletes, which may imply that social media is of importance to him. However, neither of our participants explicitly talked about communicating with other people in relation to running. In contrast though, the coach and athlete Samantha argued that the social part of a race - talking about what went wrong, for example, or what goals were accomplished - can be one of the most exciting aspects, and that it's fun to compete and share tips and stories amongst peers. Depending on our future interviews and research, we may or may not decide to incorporate a social facet into our design. This may also depend on any 3rd party applications and devices we choose to integrate.

HOW OFTEN ARE THE TASKS PERFORMED?

Workout tracking depends on the workout schedule of the athlete, and hence fluctuates depending on the person. Any design that we come up would hopefully do the same. Our research so far has shown that regardless of the method or device used, quick and simple ways of tracking that integrate well with existing workout plans are appealing. Athletes interviewed indicated that they used their existing tracking systems consistently during their runs.

WHAT ARE THE TIME CONSTRAINTS ON THE TASKS?

The time spent recording an injury varies, but generally does not take a very long time, depending on the method or application used. However, with regards to self-tracking in general, it is important to make the task as easy and automated as possible as to avoid becoming tedious. For example, Allie mentioned that she knew she should be keeping track of her aches and pains, but didn't feel that she had the time to keep a journal.

There are also constraints on frequency of tracking. If an athlete waits too long after working out to log information about their session, they may end up with inaccurate data. On a similar note, frequency is another constraint. An athlete gets far more value out of tracking every workout rather than a subset, so consistent data entry is important. For an athlete to receive advice or insights related to their data, it would be important that they can do so before their next workout (e.g. within the same day), so they can use these insights to inform their decisions about how much to exercise.

WHAT HAPPENS WHEN THINGS GO WRONG?

Generally, errors are caused due to software or hardware errors, such as a smartwatch that's out of battery or is imprecisely collecting data, or human errors like forgetting to use an app. Both of these can result in inaccurate data collection or none at all. For the former, we can try to design a system that is simple to maintain. For the latter, it'll be important for us to give a strong incentive or reason for users to continually and consistently use our design. Integrating our design with existing applications the users are already familiar with and enjoy using may help in this regard.