

## Team #13 - HCI Project Proposal

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### Understanding of the Activity and General Problem Space

Physical injuries, from sports, degenerative wear or common accidents, can be a significant burden to our daily routine. Without the appropriate rehabilitation programs and therapeutics, the recovery process could develop into an extended period for the patients to struggle in pain. Insufficient therapeutic availability in addition to the mounting costs of consultation and treatment, place significant uncertainty in front of the people who are suffering from injury recovery.

At the moment, there seems to be a mismatch between the supply of rehabilitation resources and the demand from general injury suffering patients. While it is common to visit doctors for the initial consultation, many who are injured fail to follow through on the revisits and checks. Common reasons for this absence include high cost, time consumption, lack of trust in the medical team and overconfidence in the progress of self-recovery. However, when asked about the recovery process, many recounted their experience in repeated body injuries and a prolonged rehabilitation process due to the lack of expert opinion. It appears to be the consensus that there should be an easier, faster, and cheaper way to obtain not only the expert opinions on the injuries but to monitor the progress of rehabilitation.

Expert opinions are great resources that have been traditionally hard to obtain due to the lack of sufficient medical and knowledge resources. There have been efforts from the late 1980s to construct expert systems to assist in the diagnosis of the disease and provide better theoretical grounds for the doctors. However, the early expert systems failed to comply with the growing information technology and their lack of inference ability for new knowledge acquisition made it not only hard to maintain but also expensive to access. Nowadays, however, the booming of statistical big data analytics in the revival of humanistic intelligence could provide the medical field with the technology necessary to give personalized expert opinions for everyday individual health monitoring.

### Motivation

Our team wants to explore problems in the area of sports injuries and rehab as we have a strong interest in sports. The members of our team either have prior sports injuries or know someone who does. After discussing our experiences, we discovered that problems exist for people who participate in sports recreationally and experience common sports injuries, such as ankle sprains and pulled hamstrings. Often, people who are injured playing sports do not follow the proper protocols of recovery and rehab. As a result, some people may return to activity, whether it is a sports activity or common daily activity, too soon. Reasons for this may include busy schedules, lack of knowledge and guidance, and/or lack of expert opinion

through too few doctor visits. We noticed that this is a glaring difference compared to the recovery of professional athletes who are surrounded by teams of medical professionals every day. Therefore, our goal is to narrow this gap between the rehab experience of a person who plays sports recreationally and the rehab experience of a professional athlete.

## **Potential users and Stakeholders**

The potential users are regular people like you and me. We intend to provide support to individuals during their recovery process and minimise in-person consultations with a doctor or an expert to track the progress of their recovery. Additionally, few users may find it inconvenient to visit the doctor each time for examination due to their busy schedules or other commitments in their life.

The patients undergoing recovery are the primary stakeholders in this project. Users undergoing recovering is very large userspace, and hence we have mentioned quite a few diverse user groups in our proposal. Friends, family, colleagues and others can help track the recovery and expected to interact with the patients (primary stakeholders) actively. Hence, they can be treated as stakeholders. Non-professional athletes and amateur athletes (sports) who do not have access to expert advice are stakeholders in this ecosystem as well. Doctors, physicians, physiotherapists and other experts are stakeholders in this problem space and provide insightful information about the recovery process.

We are not considering the elderly to be potential users since they are generally undergoing treatment for multiple health issues. We are also restricting the user group to individuals recovering from a single injury and are not subject to any other form of health, dietary or technology implications or restrictions.

## **Data Collection**

The data we collect will come from interview data with our potential stakeholders and also web content regarding the problem. Interviews with different stakeholders will be a very important part of our research because this problem space relies on learning from anecdotal experiences. Understanding these experiences can allow us to identify what parts of the recovery process can and should be improved.

A large sum of our research will be interviewing everyday people who have suffered physical injuries. Currently, we have not narrowed down any specific injuries, and we want to learn about as many experiences as possible to identify any common patterns among all of them. In these interviews we want to discuss the type of injury, the recovery time, the ease of the recovery process, everyday life while recovering, and the involvement of any medical professionals.

In addition to the stakeholders involved who are bearing the injuries, we want to talk to the stakeholders such as medical professionals who help heal the injury. When talking to doctors, we wish to learn about the recovery process from their point of view, the things they tell patients to do, and most importantly, how they equip the patient with as much information as possible for after the medical visit is over.

Outside of stakeholder interviews, we also expect to find a lot of information through online resources. Similar to patient interviews, we can find many stories of recovery processes online to learn more about individual experiences. We may also be able to find standard procedures for different kinds of specific injuries to understand the field further since none of us are well-versed in the medical field.

Through our data collection, we hope to be able to learn more about the recovery process for physical injuries and pinpoint common problems that occur from various experiences.