Cat 4 Resource Development

Group 4-079
Project Rejuvenate

Group Members

Darius Chia 3A3 (4)

Joei Mah 3A3 (12)

Joshua Ng 3A2 (9)

Chaw Liang 3P3 (2)

ABSTRACT

Project Rejuvenate is an integrated, intuitive and user friendly resource package which aims to provide student athletes (13-19) with credible information on certain common minor injuries sustained from training, how to treat and prevent them, as well as diets for sportsmen. An app has been developed to contain all the information, which has been fact checked by experienced physiotherapists. In addition, videos were embedded in the app to help the user clearly understand our explanations.

1   INTRODUCTION

As avid sportsmen, we have all experienced some sort of serious or minor injury. However, as we were coping with these injuries, we were not able to find the relevant resources to help us properly and accurately diagnose or treat these injuries, leaving us with no choice but to spend hundreds of dollars consulting a sports doctor. While seeing a sports doctor is still encouraged when injured, we feel that we should at least be able to identify possible injuries, so that we can best take care of our injuries before seeing the sports doctor, reducing the risks of worsening the condition.

Furthermore, since 90% of phone usage is attributed to ap usage compared to 10% attributed to website usage, we feel that it is more important that we focus on creating an easy-to-use app since people will more likely use an app rather than a website. We also found out that iPhones had the largest market share in Singapore. As such, we decided to focus our attention on creating an iOS app to maximise its usage potential so that student athletes can use our resource, and best identify when they have encountered a sprain even though they might feel that they only have an ache.

1.1   Rationale

As athletes, we have encountered injuries ourselves and have had to go through the process of recovering. However, there were times where we were unable to identify our pain as an injury, and passed them off as aches and continued to train. This can lead to an aggravation of the injury. These injuries can occur due to the fact that students are not getting enough rest and also because of inadequate stretching exercises and warm up.

1.2   Objectives

- To teach student athletes how to treat common injuries sustained from training, such as sprains and twists
- To cover proper warm-up and stretching techniques to reduce the risk of getting injured
- To help students ascertain when they should see a sports doctor/when the injury can be treated at home
- Give students appropriate diet advice to help them maintain peak performance

1.3   Target Audience

Our target audience are student athletes aged 13 to 19, as this is when most students will start on intensive training in various sports CCAs or external sports training. Furthermore, student athletes aged 13 to 19 may lack a professional physiotherapist to help them whenever they are injured and this will be more applicable to them.

1.4   Resources

Our resource is an iOS app which consists of all the relevant information most athletes need on common injuries athletes might sustain during training, embedded videos to teach athletes the proper dynamic and static stretching techniques, as well as diet suggestions to help student athletes maintain peak performance. Information of common injuries also includes injury prevention and injury treatments to best help student athletes when injured.

Our app will soon be up on the app store. Due to Apple's stringent policies, it usually takes more than a month for apps to be featured on the app store. Hence, we submitted the app a month before final evaluation hoping that it would have been on the app store by now. However, the process has taken a much longer time than initially expected. When our app is finally on the app store, anyone will be able to install it on their iPhones and start using our resource.

2   REVIEW

Most of the write-ups about the injuries included in the app are common injuries that our survey respondents indicated in our needs analysis. We have also included some injuries that can be sustained from training, but are not very common. We embedded videos of proper dynamic and static stretching exercises so users can reduce the risks of injuries.

3   METHODOLOGY

We decided to create an easy-to-use, accessible application for student athletes to use. The app will include information on injuries, advice from experienced physiotherapists, and video tutorials on how to treat common injuries, stretching videos etc. We created an app and not a website as according to jmango360.com, 90% of phone usage is attributed to apps. Therefore, an app for student athletes to utilise when they injure themselves is more convenient and helpful.

3.1   Needs Analysis

A needs analysis was conducted to ascertain the relevance of our project. We created a google form to find out if student athletes knew how to prevent and treat their injuries. More than 80 student athletes indicated that they did not know or somewhat knew how to prevent and treat their injuries. This feedback confirmed the feasibility of our project. Many student athletes also listed their common injuries
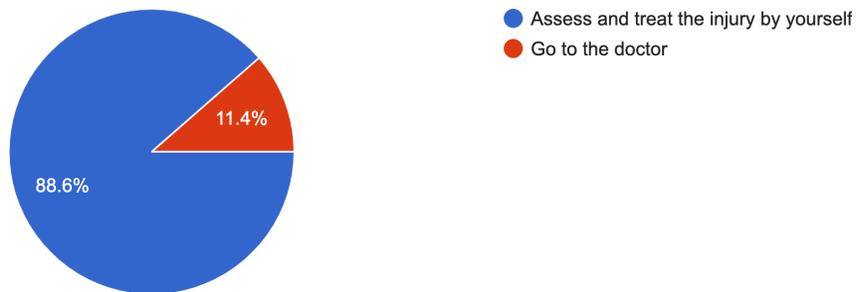
3.2   Survey Results

Do you know what measures to take to prevent injuries and/or treat injuries?
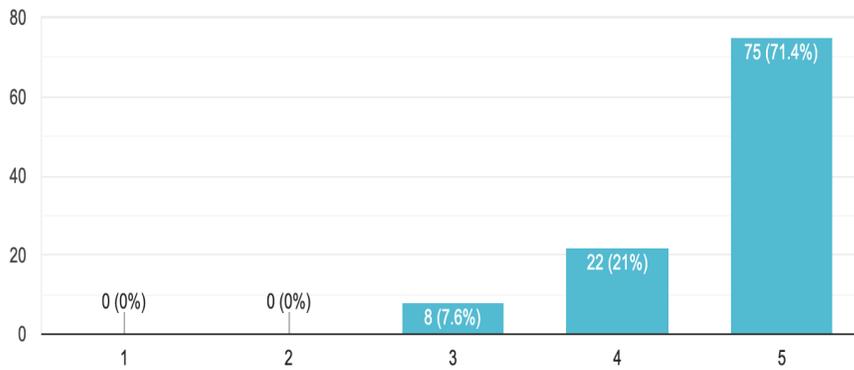
105 responses

- Yes
- No
- Somewhat know

36.2%

12.4%

51.4%
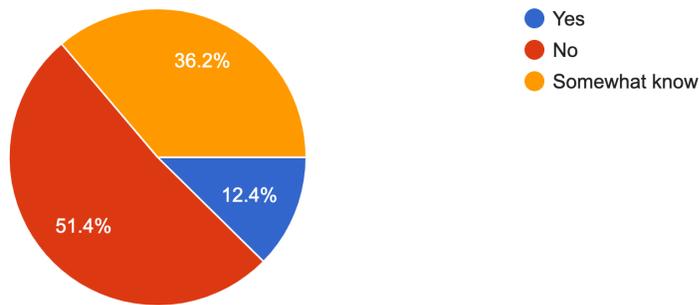
Which of the following best describes what you do immediately after you sustain an injury?

105 responses

- Assess and treat the injury by yourself
- Go to the doctor

11.4%

88.6%

Would a website with information and videos be useful and effective at teaching how to treat and prevent injuries?

105 responses

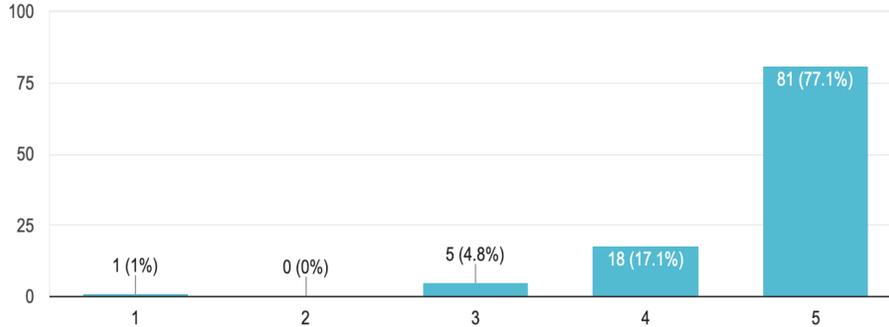|	
80	
60	75 (71.4%)
40	
20	22 (21%)
0 (0%) 0 (0%) 8 (7.6%)	
1 2 3 4 5	

Would an application with information and videos be needed and effective at teaching how to treat and prevent injuries?

105 responses

List some common injuries you face while playing sports

105 responses

Strain

Sprain

Ankle sprain, knee injury, back ache

sprain

Muscle pull

Sprains

Wrist sprain

hamstring strain

Muscle strain

What is your sports CCA? (If you are not in a sports CCA, you can put a sport that you frequently participate in)

105 responses

Track and field

Basketball

Football

Soccer

Netball

Gymnastics

Canoeing

Tennis

Badminton

3.3 Development of Resources

We collated and compiled a list of common injuries, dynamic and static stretching techniques, and some diet advice. We then added all these to our app so users could view common injuries and know what to do when faced with these injuries. We embedded

videos of proper dynamic and static stretching exercises to help users reduce the risks of injuries.

3.4 Pilot Test

A pilot test was administered to 25 student athletes. We showcased our application and gathered their feedback in the form of a google form. Recommendations from the student athletes were incorporated into the fine-tuning of the application. Generally the feedback was positive and they all said the application was very functional and informative to them. This was crucial as we wanted our application to be useful to student athletes.
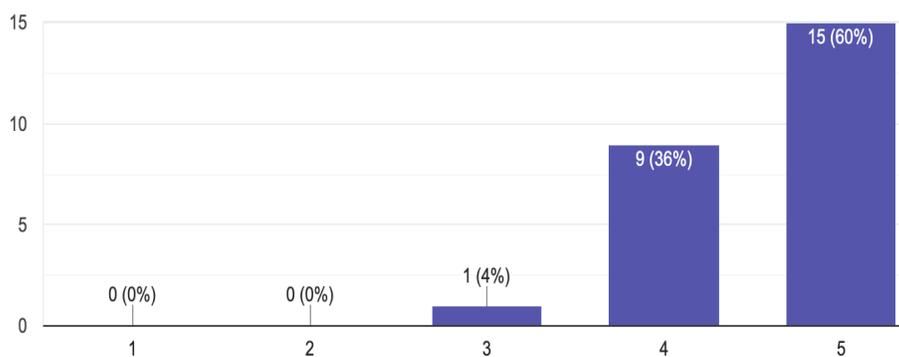
How functional is our app?

25 responses
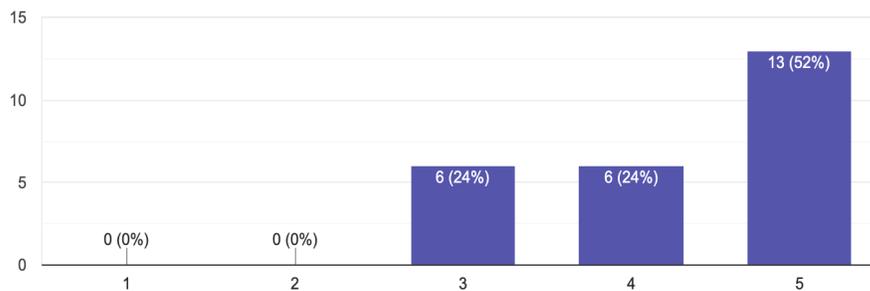
How informative is our app?

25 responses

What do you like about our app?

25 responses

A lot of information

useful information

Informative, cool design

iOS, useful

in-depth explanations of what happens during a strain or

it is very easy to use

Very straight to the point, and it helps me get the information i need

relevant information about injuries

Easy to use

What do you think we should improve on?

25 responses

Include more common injuries

use more pictures

More pictures more appealing

I was hoping for more information about other injuries like fractures and dislocations

Nothing

Add more pictures

few pictures, + app UI is very basic

Consider adding more pictures or making the app look more professional

make the app more attractive

4   Outcome and Discussion

Although feedback received was mostly positive, we decided to add a few more injuries and more pictures. We also made the app more friendly to use by slightly tweaking the app UI.

LIMITATIONS

1. Not all injuries could be listed in the app even though we tried to make it as comprehensive as possible
2. The User Interface of the app is slightly lacking. However, the app is fully functional.

What would we have done differently?

We could have done a better job with our UI design to make it more visually appealing. However, our app is very functional and is very simple to use.

POSSIBLE FURTHER WORKS

1. Collaborate with ActiveSG to make a more refined final product that can be used for a wider range of age groups.
2. Continuing to make the app more visually appealing to attract more users.

5   Conclusion

Project Rejuvenate had been an ambitious idea that started before the 2020 year. Throughout this project, we were faced with many challenges. These include the inability to meet up due Covid-19. However, throughout this situation, we were able to make the necessary adjustments and arrangements to ensure that we were able to get accurate information, and complete our app. Through the use of Zoom meets, we were able to consult our physiotherapists to ensure the accuracy of obtained information, and able to administer our pilot test to potential users to receive feedback so as to improve our product. Critical thinking, creativity and perseverance was needed when we were creating the app as we wanted it to be presentable but also user-friendly. This project has been really meaningful for us as we were able to achieve our goal to help student athletes.

6   References

Achilles tendinitis - Symptoms and causes. (2019 September 17). Mayo Clinic.
https://www.mayoclinic.org/diseases-conditions/achilles-tendinitis/symptoms-causes/syc-20369020

Nunez, K. (2019 September 11). *What You Need to Know About Hamstring Tear Injuries*.
Healthline. https://www.healthline.com/health/hamstring-tear

Cherney, K. (2018 July 23). *How to Heal, Protect, and Strengthen a Strained Calf Muscle*.
Healthline. https://www.healthline.com/health/pulled-calf-muscle

ACL injury - Symptoms and causes. (2019 March 30). Mayo Clinic.
https://www.mayoclinic.org/diseases-conditions/acl-injury/symptoms-causes/syc-20350738#:%7E:text=An%20ACL%20injury%20is%20a,basketball%2C%20football%20and%20downhill%20skiing.

Chew, E. *Ankle Fracture: Symptoms and How to Care for It*. Healthxchange.sg.
https://www.healthxchange.sg/fitness-exercise/sports-injuries/ankle-fractures-treatment-rehabilitation

Duer, T. (2016 June). *Hamstring Strain (for Teens) - Nemours KidsHealth*. KidsHealth.
https://kidshealth.org/en/teens/hamstring-strain.html

Donohue, M. (2019 September 2). *Runner's Knee*. Healthline.
https://www.healthline.com/health/runners-knee#causes

Torn meniscus - Symptoms and causes. (2019 November 15). Mayo Clinic.
https://www.mayoclinic.org/diseases-conditions/torn-meniscus/symptoms-causes/syc-20354818

Fortunato, K. (2014 July 19). *3 Fruits and 3 Vegetables Athletes Must Eat*. STACK.
https://www.stack.com/a/fruits-vegetables

Leal, D. (2020 April 14). *How Does Beet Juice Improve Athletic Performance?* Verywell Fit.
https://www.verywellfit.com/how-does-beet-juice-improve-athletic-performance-

4123855#:%7E:text=Drinking%20beet%20juice%20raises%20nitric,improved%20cardiorespiratory%20endurance%20and%20performance.

Cronkleton, E. (2018 August 17). *IT Band Stretches, Strength Exercises, and More*. Healthline. https://www.healthline.com/health/it-band#causes

Rest Ice Compression and Elevation (RICE) | Michigan Medicine. (2019 June 26).   Michigan Medicine.   https://www.uofmhealth.org/health-library/tw4354spec#:%7E:text=As%20soon%20as%20possible%20after,the%20injured%20or%20sore%20area.

Importance of Stretching for the Young Athlete. (2017 March 13). CHOC Children's. https://blog.chocchildrens.org/importance-stretching-young-athlete/

Cronkleton, E. (2019 July 29). *How and When to Include Static Stretching in Your Workout*. Healthline. https://www.healthline.com/health/exercise-fitness/static-stretching#safety

Plack, L. (2019 April 9). *Static and Dynamic Stretching: Tips for Athletes*. Hospital for Special Surgery. https://www.hss.edu/conditions_dynamic-static-stretching.asp