Enhance Progression by Preventing Injuries

Danyon Lamb, Karan Narsey, Francesco Ferraioli
n9190571, n9189068, n8323143
danyon.lamb@connect.qut.edu.au , karan.narsey@connect.qut.edu.au ,
francesco.ferraioli@connect.qut.edu.au

ABSTRACT

Fitness centers (GYM) have become a major part of the younger generation's daily life although with their motivation to "get big and strong fast" [12] many are seeming to lose track of what the body can handle. This paper will be investigating a number of fitness aspects such as fitness routines, health and much more. We take an in depth look into the cause of recurring injuries through observational studies, cultural probes and questionnaires. From the results we are able to address the common mistakes made by new or regular gym users which leads to injuries.

Keywords
Gym; Injuries

INTRODUCTION

In recent years there has been a major increase in the number of people attending fitness centers, from which students are a clear standout amongst the group. Student's main motive behind going to gym is to be fit and look good although in the attempt to achieve their goals in the shortest time possible, many are overworking themselves. Straining your body whilst in the gym, leads to injuries which are more than often recurring. It can be difficult to pinpoint the cause of injuries although statistics have shown a "35 percent Increase in gym injuries" [14] caused by a part of the body being overworked.

Injuries are one of the biggest hindrances of progression especially when it comes to gym activities. Injuries not only stop them attending gym while they are injured, but many times, due to loss of motivation or even fear of getting injured again, leads to total discontinuation of gym activities. In undertaking this research we aim to find the most common reasons for gym based injuries and ultimately asses the best way to try and minimize gym based injuries and in turn enhance progression.

This paper will take an in depth look into the way people handle their gym/daily routines throughout the week and how this takes effect on their body. This will cover a variety of different aspects (looking from the finer details to the big picture) for e.g. whether the participant is stretching before workouts. Majority of the results will be found through a number of research methods which include questionnaires, observational studies and diary studies. A number of participants will be chosen for each of the research methods which will assist with averaging out the results to provide a thorough analysis of all the issues.

In addition this report will also briefly investigate some of the current technology available in the market to assist gym users and whether they are having a positive or negative effect. These findings will later be compared with some of the future technology used to assist users with reducing the chances of unnecessary injuries.

METHODS

Questionnaire

Questionnaires are one of the most commonly used research methods. It is a research instrument which contains a range of questions related to the purpose of the study. The questions could require the user to answer with written responses or even multiple choice depending on the detail required. In this case the purpose of the questionnaire was to get a good understanding of the people who are undergoing resistance training for e.g. how old are they, how long have they been attending gym, why they do weight training and many more questions. Using this research method will be highly beneficial to pinpoint which users are having the most problems (injuries) during training.

From Figure 1 it is evident that majority of the target audience was under the age of 25, university students. Studying both male and female university students, we were able to understand their motives of going to the gym. We found each of the uni students had very similar motives for e.g. getting fit and stay healthy while also maintaining a consistent social life with other gym partners. To prevent injuries and support their bodies throughout the week, we noticed majority of the gym students were supporting their healthy life with

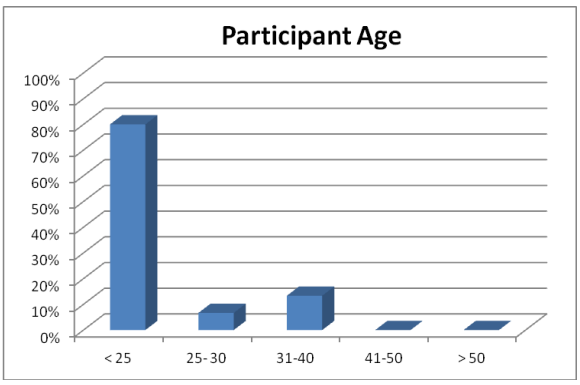


Figure 1 – Age of gym participants

Dietary enhancements. This would assist them with muscle recovery, allowing them to make the most out of each gym session, roughly every day. Throughout the data we've received we were able to identify many faults throughout a student's gym routine such as body straining as a result of everyday gym sessions.

Observational Studies

Observational studies is one of the many research methods used to collect information and data. "This type of research draws a conclusion by comparing subjects against a control group, in cases where the researcher has no control over the experiment". [15] There are many reasons to undergo this form of research method but in this case a regular gym user will be required to go about their normal routine whilst a researcher will note down any key observations. Using this method will help to identify anything the participant is doing wrong whilst going about their regular gym routine. This would include aspects such as not warming up or warming down, not doing an exercise correctly and looking at whether they are evenly distributing their weight workout areas. Such observations will assist with identifying the where they are most likely to have an injury and its cause.

We decided to choose our observational study participants from the questionnaires which included an experienced, half experienced and not experienced users. From the observational studies we found that there was a decrease in form and technique as the week progressed. With this decrease in form we noticed that the students were feeling fatigued and sore in many parts of their body. By the end of the week, their bodies were put under intense stress which would put them on the verge of causing an injury as a result of being overworked.

Diary Studies

Diary studies is a very powerful technique used in the area of user experience research. Its main purpose and objective is to capture information from participants as they undertake and live through a particular experience. When undertaking diary studies, the participants take home the diary and are requested to fill the information out, whatever the diary requests at the instructed times. In the case of researching injuries from gym activities, diary studies can assist in discovering how the participants feel, how their bodies feel after a day at the gym. The diary will cover a week of the participant's gym experience in which they will describe how they feel throughout the day, especially before and after gym. Using this method it will then be possible to assess how a human body copes with regular exercise and the times where the body feel more tired and thus will be more prone to injuries.

We decided to use the Diary studies in conjunction with the observational studies. We gave the participants of the observational studies, the diary to take home for the period of the observational studies. We found that, as we observed, they could feel their bodies hurting throughout the week due to the intense workout and as a result their form and technique decreased. The fatigue increased throughout the week, especially in the body parts they were focusing on for the previous days. It was interesting to see how inexperienced participants would exercise body parts even though that was the body part that was feeling fatigued. Also, it was clear that the experienced participant was aware of his body's threshold and was able to organize his week to satisfy his needs whilst ensuring he was not putting too much stress on his body.

RESULTS

Muscle Soreness

Muscle soreness after working out is one of the most widely discussed topic amongst university students who attend gym [1]. The debate whether muscle soreness is good or bad is **ongoing** and users are left with their question unanswered. For this reason, we found that a lot of users would not think much of muscle soreness and would continue to attend gym even if their muscles were hurting.

The problem with muscle soreness is understand the underlying reason for the muscle to hurt. The main objective of attending gym and lifting weight is to, in actual fact, do damage to the muscle, **and tear** the muscle [8]. The damage and tears inflicted on the muscles causes the muscle to be sore. This soreness is normal and in some ways, good, as it implies that the workout is having an effect on the muscles. The issue however is that, as explained, the soreness also implies that the muscle is torn and in need of recovery. For this reason, the muscle is not able to function at its full capacity and ultimately increases the chances of injury if the muscle was put through stress during a workout.

Based on our research alone, in particular the diary studies, it was clear that gym users would continue to attend gym even when experiencing muscle soreness. Using the diary studies in conjunction with the observational studies, we were able notice the fact that the users would also undertake a workout that **focused** primarily on the muscle that was

experiencing soreness. This was very surprising to see and was a clear sign of a vulnerability to injuries.

Muscle soreness cannot be avoided when attending gym and working out, but it's not difficult to avoid allowing it to make a user more vulnerable to injuries. Simply organizing the workouts through the week in a distributive manner can certainly aid in avoiding injuries due to muscle soreness. Distributing the workout evenly implies separating workouts which target particular muscle group as much as possible [4]. Always allowing at least one day recovery for the muscle group focused is essential. We found that this was not done very well at all, especially by the inexperienced users.

Another method to assist the avoidance of muscle soreness causing injuries is to speed up the recovery process. The most widely used and probably most effective method is through the use of dietary enhancements like protein shakes. Protein assists the body with muscle recovery and protein shakes provide the users with an easy and quick way of supplying the body with the protein it needs to recover the torn muscles. We found that a lot of the gym users who participated in the questionnaire took dietary enhancements after their workouts.

Warm up / Warm down

After researching and comparing the data we have received from the health recap diary and observations, we are able to explain and pinpoint many faults in the **user's** sessions to prevent muscle injuries. As evident in figure 2 and 3 majority of the gym participants did not warm up and warm down before or after their workout routines. By not completing a warm up the user was automatically putting their muscles on the back foot.

As they hit the first exercise in the gym, their muscles are stiff therefore creating a higher chance of injury and preventing the user to receive maximum gains from their work out. (Muscletalk.co.uk, 2014). This was also the same case warming down, not allowing their muscles to efficiently warm down, which causes them to ache the following day. Observing all three users we were able to put a chart together of data that show how many times in total all three users warmed up and warmed down on the five day observational period.

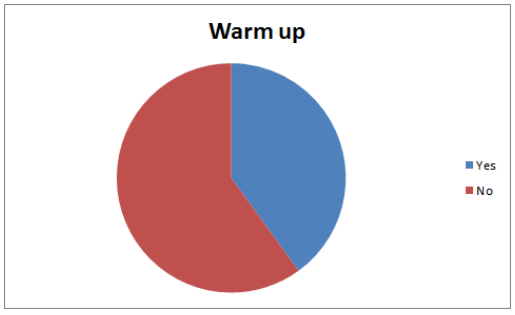


Figure 2 – Gym participants (warming up)

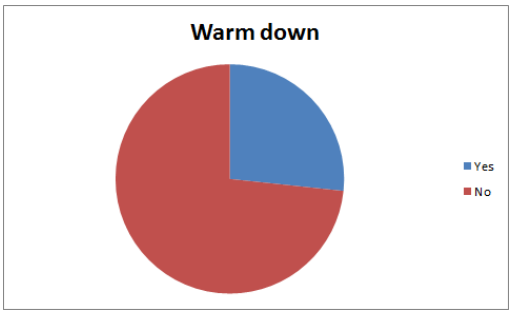


Figure 3 - Gym participants (warming down)

As explained on Muscle Talk, the warm up and cool down is essential to a gym session to prevent a "fast track to injuries" [16]. If the user completed a warm up routine before they started their heavy lifting session that would not only find it easier with heightened contractile speeds, but allow the user to complete more throughout the workout without getting sore.

Technique

When we first started researching the area of gym based injuries, we knew technique was going to be a major cause and a problem that will need to assessed. Especially amongst adolescents and young adults, trying to put on muscle mass takes high importance (Faigenbaum, 2010). Mass building is achieved through tearing down muscle tissue and this can be achieved through lifting heavy weights [11].

We found that university students who attend gym, show a strong enthusiasm to the idea of building mass and when we undertook the observational studies, we found that they would reach for heavier weights than they could manage. When working out, it is not simply about pushing out the reps, but it is very much about doing them well and with the right technique [7].

Technique is crucial, not only for getting results, but especially for avoiding injuries [4]. Undertaking an exercise with improper technique is a major factor in increasing vulnerability to injuries [11]. When using excessive weights when exercising, keeping proper form becomes a difficult task, even for experienced users. Our observational studies shows that even the experienced user, when using heavy weights, would find it difficult to keep proper form. Improper form increased as experience decreased, also due to the fact of the inexperienced user's ignorance to their own body's limits.

Another major issue that we found, especially with inexperienced users, is the use of machines in workouts. Machines at the gym make an exercise look easier and almost safer and therefore, may inexperienced users make use of them more than the experienced ones. Machines assist the movement, removing stress from stabilizing muscles, thus making it seem easier. However, studies have shown that machines and in particular the smith machine, has been the cause of many gym related injuries [3]. Free weights, whilst they appear to a bigger vulnerability to injuries than machines, if undertaken using the proper technique, is certainly a safer approach to weight training [4].

According to our research, technique was poor and this was especially due to the fact that many of the university students aim to use heavier weights and don't understand that proper form not only aids in avoiding injuries, but ultimately assists majorly in muscle development.

Supportive Gear

To support the users through a long gym session, many athletes use supporting gear to help assist them and prevent injuries. Observing our users, we noticed especially with the experienced users, that they were attempting to lift some very heavy weights without any supporting gear. When lifting weights over 80 kg it can be very straining on the muscles and one small error can create a lifetime of injuries. Supporting gear such as wrist wraps and lifting straps are specifically designed to support the wrist through heavy lifts, giving extra protection on the user's wrist.

Starting off at the gym can be a new concept to many people, especially if you have no previous experience. As we observed our under experienced user has entered the gym already at a disadvantage by the footwear the user was wearing. Considering it was leg day, the under experienced user attended the gym in a pair of vans, which does not support the leg or ankle in any specific way. There are many injuries that are associated with user's feet and ankles specifically to non-fitted shoes / incorrect shoe style such as ankle problems, flat feet and even knee injuries. To ensure that our users are at maximum potential at the gym we ensure that all users are wearing the right equipment fitted to the job.

To prevent injuries in the future the users should be wearing and using the correct support equipment to ensure they receive the maximum potential in a gym session and prevent injuries.

DISCUSSION

Related Work:

In recent years there have been a number of fitness technologies available in the market. Much of the reason behind such inventions is due to the increase in fitness interests amongst the younger generation. With the younger generations constant motivation to get lean and fit the companies such as Samsung and apple are having a field day far too often. Such technologies include Fitbit, jawbone, Samsung gear, g watch and many more although one of the major concerns is whether these technology products really work.

It has been found that when two fitness trackers are worn, they each provide different data/statistics for the same activity done for that day. The results are vastly different which resulted in the "the New York Times suggesting you may even be better off with an old-school pedometer" [13]. There are certainly a lot of changes that need to be made to these fitness devices in terms of the functionality although this requires a lot of thought and time.

Further Work:

Over the next few months researchers will continue to investigate this problem further through current methods whilst incorporating new methods to develop a greater understanding. This will include the likes of focus groups and object based methods. Parts of our research also included fitness technologies and after thorough research it was found that many of the technologies were not accurate. For this reason we decided to develop a few abstract ideas which included a wristband which would track the heartbeat and inform the user when it is getting to a point which they would not be able to handle, informing them to stop and take a break. Another device include a foot tracker which would be inserted into the shoe tracking the number of steps whilst running and informing the user once they have reached their goal.

CONCLUSION

Our analysis was primarily focused on the university students. Many different conclusions would have been drawn if the results were based on students and adults. For this reason we decided to stick to a specific target audience which made it easy to compare and come to conclusions. The main focus was to identify the cause of injuries to university students who attended gym. There were a range of challenges that were faced along the way, as every student would have a different approach to gym, in terms of what they were looking to achieve. In addition some students were experienced and many were inexperienced. It was much easier to identify faults amongst the inexperienced participants for obvious reasons.

From our results, compiled through the multiple methods used; we found majority of the students were making simple errors throughout their regular routines. Some of the common points we noted along the way included not warming up, warming down, incorrect technique and many more. Much of the injuries caused to the participants was a result of these small errors. There were a few other factors which played a part towards the injuries for e.g. not evenly distributing their weight workout areas.

In conclusion we have provided users with all the results to provide a better understanding of where they are going wrong. It must be noted that the results are based on gym students and not just regular sports players as the data will potentially differ. Despite the differences in data the new technology will be suitable for all users and can potentially reduce the chances of injuries for all athletes. We hope through our thorough research gym students can consider all parts of their routine and complete them in the correct manner.

REFERENCE LIST

1. Brady, T. A., Cahill, B. R., & Bodnar, L. M. (1982). Weight training-related injuries in the high school athlete. The American journal of sports medicine, 10(1), 1-5.

2. Faigenbaum, A. D., & Myer, G. D. (2010). Resistance training among young athletes: safety, efficacy and injury prevention effects. British journal of sports medicine, 44(1), 56-63.

3. Gallo, R. A., Reitman, R. D., Altman, D. T., Altman, G. T., Jones, C. B., & Chapman, J. R. (2004). Flexion-distraction injury of the thoracolumbar spine during squat exercise with the smith machine. The American journal of sports medicine, 32(8), 1962-1967.

4. Hamill, B. P. (1994). Relative safety of weightlifting and weight training. The Journal of Strength & Conditioning Research, 8(1), 53-57.

5. IDEA Health & Fitness Inc (2010) Strength Training–Related Injuries On The Rise.American Journal of Sports Medicine (2010; [38], 765–71). Retrieved September 6, 2014 from http://www.ideafit.com/fitness-library/strength-training-related-injuries-on-the-rise

6. Kerr, Z. Y., Collins, C. L., & Comstock, R. D. (2010). Epidemiology of weight training-related injuries presenting to United States emergency departments, 1990 to 2007. The American Journal of Sports Medicine, 38(4), 765-771.

7. Jones, B. H., & Knapik, J. J. (1999). Physical training and exercise-related injuries. Sports Medicine, 27(2), 111-125.

8. Mazur, L. J., Yetman, R. J., & Risser, W. L. (1993). Weight-training injuries. Sports Medicine, 16(1), 57-63.

9. Nationwide Children's Hospital. (2010, April 16). Weight training-related injuries increasing. ScienceDaily. Retrieved September 6, 2014 from www.sciencedaily.com/releases/2010/03/100330115925.htm

10. PracticePulse (2014) Weight training injuries. Retrieved September 6, 2014 from http://activelifephysio.com.au/phy/sports-related-injuries/weight-training-injuries

11. Reeves, R. K., Laskowski, E. R., & Smith, J. (1998). Weight Training Injuries. Physician and sportsmedicine, 26(3).

12. STRONGLIFTS, (2011). 13 Kick-Ass Tips to Get Big and Strong Fast. Retrieve September 6, 2014 from http://stronglifts.com/how-to-get-big-and-strong-fast-tips/

13. Inc.com, (2014). Why You Stopped Using Your Fitness Tracker. Retrieved September 7, 2014 from http://www.inc.com/kimberly-weisul/why-your-fitness-tracker-isnt-great-yet.html

14. Men's Fitness, (2014). Five Most Common Gym Injuries. Retrieve September 7, 2014 from http://www.mensfitness.com/training/five-most-common-gym-injuries

15. Shuttleworth, M. and Shuttleworth, M. (2014). Observational Study - Research Without Manipulation. Explorable.com. Retrieve September 8, 2014 from https://explorable.com/observational-study

16. Muscletalk.co.uk, (2014). The Warm Up and Cool Down. Retrieve September 8, 2014 from http://www.muscletalk.co.uk/articles/article-warm-up-cool-down.aspx

Appendices

Appendix 1 – Questionnaire Samples

GYM students
for Development and injury prevention

Questionnaire

Demographics information	
Location:	Snap Fitness
Male or female:	☒ Male ☐ Female
Age:	☒ < 25 ☐ 25—30 ☐ 31—40 ☐ 41—50 ☐ > 50
Nationality:	Australian
Experience (how long have you been going gym)	☐ Less than a month ☐ 1-6 months ☒ 1 year ☐ 2 years ☐ 3 years +

Usage information	
Do you train by yourself or with others?	☒ Yourself ☐ others
What's your motive to go GYM?	To get big
Do you take any form of Dietary enhancements on listed days?	☒ Yes ☐ No If yes specify which dietary enhancements: Protein Shakes

What Parts of the body do you work out throughout the week?	Arms, shoulders, chest, back, legs, abs
Do you wear any supporting gear?	☐ Yes ☒ No If yes, which one?
Have you had any previous injuries?	☒ Yes ☐ No If yes, what happened and are they reoccurring? Shoulder injury. Yes, reoccurring
Do you stretch before and after your workouts?	No I don't

GYM students

for Development and injury prevention

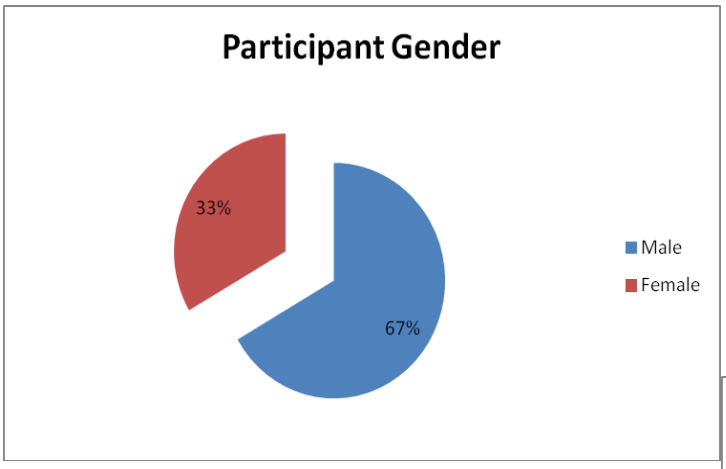
Questionnaire

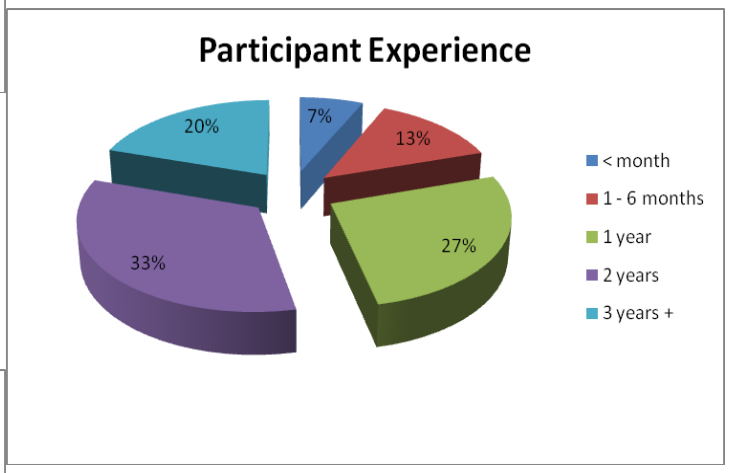
Demographics information	
Location:	Genesis
Male or female:	☐ Male ☐ Female
Age:	☐ < 25 ☐ 25—30 ☐ 31—40 ☐ 41—50 ☐ > 50
Nationality:	African
Experience (how long have you been going gym)	☐ Less than a month ☐ 1-6 months ☐ 1 year ☐ 2 years ☐ 3 years +

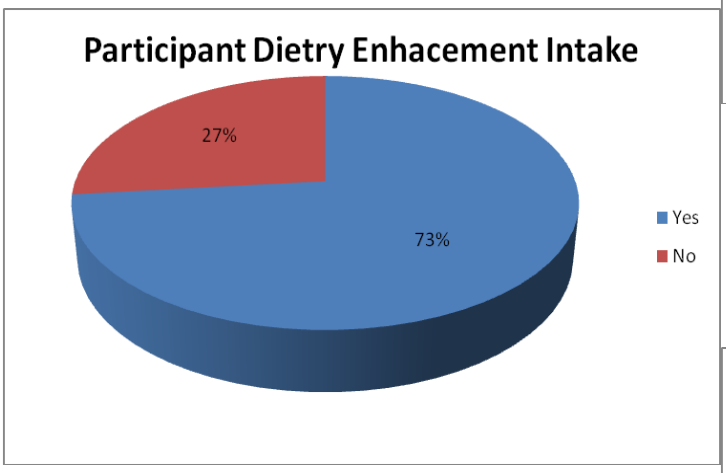
Usage information	
Do you train by yourself or with others?	☐ Yourself ☐ others
What's your motive to go GYM?	To get big
Do you take any form of Dietary enhancements on listed days?	☐ Yes ☐ No If yes specify which dietary enhancements: Protein shakes

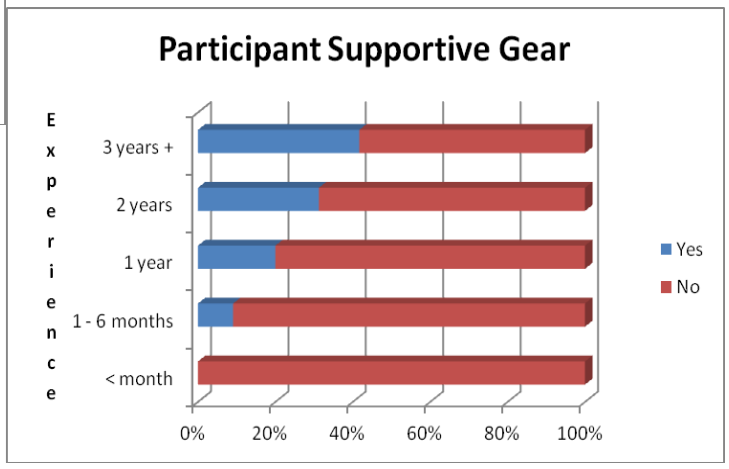
What Parts of the body do you work out throughout the week?	Arms, Chest, Shoulders, Back
Do you wear any supporting gear?	☐ Yes ☐ No If yes, which one? Back Brace
Have you had any previous injuries?	☐ Yes ☐ No If yes, what happened and are they reoccurring?
Do you stretch before and after your workouts?	Yes

Appendix 2 – Questionnaire Summary Graphs









Appendix 3 – Observation Studies

Daily workout observation (observational Studies)

Monday	Tuesday	Wednesday	Thursday	Friday
- Warm up and stretches (stretches each part of the body) - Works on only the upper body on Monday - Uses dumbbells and barbell - Some of the exercises include flat bench press, dumbbell shrug, curls, one arm dumbbell row, - Using 12.5kg on the dumbbells - Does each exercise consistently and doesn't overwork himself - Warms down at the end of session	- Warm up and stretches (stretches each part of the body) - Cardio day - Runs for 1hr - Warms down at the end of session - No weights	- Warm up and stretches (stretches each part of the body) - Works on only the lower body on Wednesday - Uses dumbbells and barbell - Squats and lunges - Does each exercise consistently and doesn't overwork himself - Warms down at the end of session		- Warm up and stretches (stretches each part of the body) - Works on upper and lower body on Friday - Uses dumbbells and barbell - Mix of exercises upper and lower body - Using 12.5kg on the dumbbells - Does each exercise consistently and doesn't overwork himself - Warms down at the end of session

Daily workout observation (observational Studies)

Monday	Tuesday	Wednesday	Thursday	Friday
• No protective gear • Non supportive shoes • Slight stretching • No warm up • Form was very weak especially when working out legs. • Squats - Knees over toes. Very heavy weight. • Seated Rows - Bent back when pulling the weight back • No warm down	• No protective gear • 5 min run for warm up • Minimal stretching • Form throughout the workout was well. Chest was targeted without too much stress on joints • No warm down	• No protective gear • Stretching but no warm up • Looks tired from yesterday. • Keeps touching chest as if it hurts. • Shoulder exercises done badly due to chest hurting • Does a very minimal warm down	• No protective gear • Slight stretching and warm up • Still appears to feel pain in chest • Undertakes chest exercises even though chest is hurting • Form is very poor and rep count is much less than Tuesday. • No warm down	• No protective gear • Slight stretching and no warm up • Leg exercises again with bad form. Knees over toes causing a lot of stress on knee joint. • Warm down

Daily workout observation (observational Studies) – Lachlan Lade

Monday	Tuesday	Wednesday	Thursday	Friday
• Start of first session was good, started with just basic arms day. Stretching by using bench press bar. • Starting off with the bench press, was able to push out three sets of 10 - no sign of strain, a little harder towards the end of each set. • About a minute break he was able to pump out some bicep curls - starting with just the bar as a warm up and then again doing 2 sets of 12. A little more sign of strain. • Did some more various workouts but with no real sign of struggle. Going for big weights over endurance. • Warmed down with a few more reps of the bar. About 1 hour 20min session.	• Today he warmed up with 5min of cardio and then jumped into back workout. • Did other various exercises but didn't look too bad, very easy with weights. • After 45min of working out, physically looked very tired and extremely sweaty - pushing his body. • Warm down with some mat exercises. 1 hour session.	• Today at the gym, Lachlan was doing some cardio where he started off with a 15min run and then jumped into weights for his legs. • Pushing some big weights on his legs, it looked like Lachlan was pushing himself physically. • 1 hour into the session he looked very tired and drained. But continued to do more exercises. • Warms down at the end of the session concluding a 1 hour 45min session.	• Today he started with about a 20min run warm up. • Started on the bench press working out arms but did so with ease, no strain. • Half way through the session 30min he looked very tired and decided to switch to some more legs where he ran and pulled weights. • Warm down at 1 hour.	• Today Lachlan looked tired and began to slack off on some of the exercises, didn't warm up. • Looked like he was struggling throughout the session. • Ended 50mins in with no warm down.

Appendix 4 – Diary Studies

Health Recap (Diary)

This table is to record how you are feeling throughout the week, keeping track of your health.

	Monday	Tuesday	Wednesday	Thursday	Friday
How do you feel in the morning?	Feeling energetic and ready to go	A little bit tired but otherwise okay. Body is not sore anymore.	Fresh and energetic	Pain when I move the shoulder.	Much better after one days rest.
How do you feel before gym?	Pumped, Full of energy, ready for gym	Ready to go.	Feeling good.	Day off from gym	Fresh and ready to go again.
How do you feel after gym?	Feeling pretty good at the moment.	Fresh (cardio day)	Pain in the shoulder after working on the upper body today.		Feeling good
How do you feel before bed?	Body is slightly sore especially the legs.	Very good at the moment	Still some soreness in the upper body especially the shoulder	Shoulder is not so sore anymore.	A bit tired but otherwise okay.
How do you think your body coped with your exercise throughout the week as a whole?	Throughout the week I felt my body coped well although I did feel a bit of pain in the shoulder on the Wednesday which required me to take a day off from gym on thursday. I felt I tried to do a few to many reps with the weights which caused the pain, besides this I did not have any other problems.				

Health Recap (Diary)

This table is to record how you are feeling throughout the week, keeping track of your health.

	Monday	Tuesday	Wednesday	Thursday	Friday
How do you feel in the morning?	Well Rested	Legs are a bit sore	Sore Chest	Chest is still store, shoulders are sore too	Tired
How do you feel before gym?	Tired After work	Legs feeling a bit better and feeling ready for gym	Still chest is hurting a lot	Feeling a bit better, but chest is still hurting	Still tired, long day at uni
How do you feel after gym?	Knees hurting but good after a hard workout	Sore Chest	Burnt out, not too good	Feeling good but chest and arms are sore from workout	Legs feel weak
How do you feel before bed?	Tired	Tired but good	Sore chest and tired, it has been a long day	Tired and ready for bed	Tired and sore
How do you think your body coped with your exercise throughout the week as a whole?	I think my body really feels burnt out as my workouts are very intense. I try to keep my workout intense as my goal is to get big. However, sometimes I feel like its too intense for my body to cope. This week my chest was especially feeling sore, throughout most of the duration of the week.				

Health Recap (Diary) – Lachlan Lade

This table is to record how you are feeling throughout the week, keeping track of your health.

	Monday	Tuesday	Wednesday	Thursday	Friday
How do you feel in the morning?	Hungover but physically fine.	Woke up a little tender in the arms from working out but nothing strange.	Tired but not sore	Legs are a little sore going up stairs and back is a little tender.	Very sore today, arms and legs.
How do you feel before gym?	Feeling ready and prepared.	Fine and ready.	Ready to work out.	A little sore today / end of the week nearly.	Slow workout, more of a warm down to keep muscles from getting worse.
How do you feel after gym?	Feeling a little sore / hungry - arms are feeling the workout.	Worked out my back - Not too bad pretty fine.	Good did legs and a little bit of back. Feeling the pressure in my back a little.	Very sore on my legs and arm, did a hard workout, muscles are weak.	The same as going to the gym. Still tender and sore.
How do you feel before bed?	Tired / ready to have a good night sleep.	Pretty good, not too sore at all.	Feeling the pain in my back and shoulders at more today. Very tired.	Better after shower but very tender.	A little tired but better than this morning.
How do you think your body coped with your exercise throughout the week as a whole?	After doing a long week of gym I was able to handle the pressure pretty well while also keeping up with my Uni events. As for physically, my body felt fine and we able to handle the amount of strain I was able to do throughout the week, I was feeling a little sore towards the end of the week but that is natural after a week of gym.				