

CLIP students exploring sports science

On the back of the success of this year's Grade 6 interschool sports teams, Mr Robinson and Mr Krauss were really excited to explore the topic of sports science with CLIP Grade 5 and 6 students. The program was delivered over 2 days at school, making use of our soccer goals, basketball and netball courts, and AFL field. It aimed to improve students' ability to generate questions to start an investigation, and then subsequently communicate their findings through the use of data organised by graphs, averages and diagrams.

The first day was all about building the field for the students. Sports science concepts generally fit into the following three areas, which formed the basis for activities:

- Performance analysis
- Tactical analysis
- Skill development

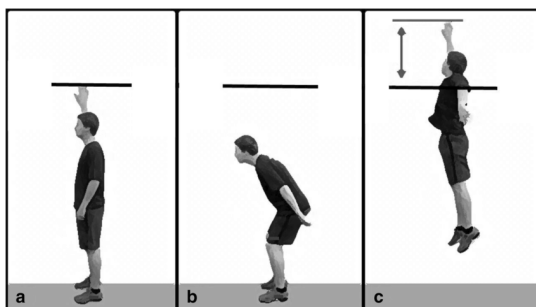
Investigation 1 - Draft combine tests (these are fun to do at home!)

Draft combine tests are widely used in professional sports and look at profiling the potential of young athletes. For the students this falls into the categories of performance analysis and skill development. We ran through three common tests and modelled how to present results in graphs, and subsequently use this for athlete comparisons. The students were able to use their results as evidence for what sports and positions individuals would theoretically succeed in. The three tests were:

1. Vertical Reach Test

This is a common test to measure someone's power in their lower body.

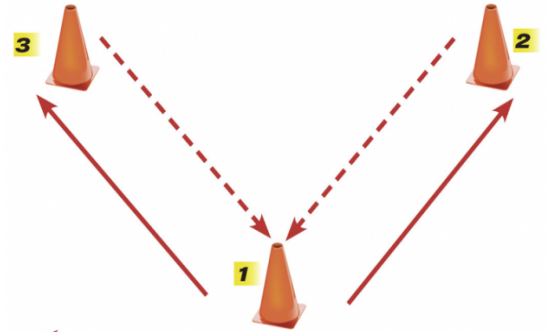
1. Stand facing the wall with your sticky note.
2. Reach as high as you can and place your first sticky note on the wall.
3. Jump as high as you can and place your second sticky note on the wall.
4. Measure the distance between both sticky notes.



2. 3 Cone Drill

This is a common test to measure how fast someone can turn while accelerating (agility).

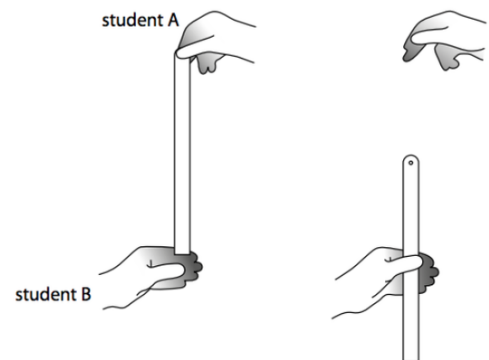
1. Start at Cone 1 and run on the outside of Cone 2.
2. Run around Cone 2 and behind Cone 1.
3. Follow the red line and run around Cone 3
4. Follow the dotted line and run back to Cone 1



3. Reaction Test

This is a common test to measure your reaction or response time to an event happening.

1. Have a friend hold a ruler (on the 30cm end) just in line with the top of your hand.
2. As they drop the ruler, catch it and look at the distance it took for you to catch it.



Investigation 2 - Optimising training through heart rate zones

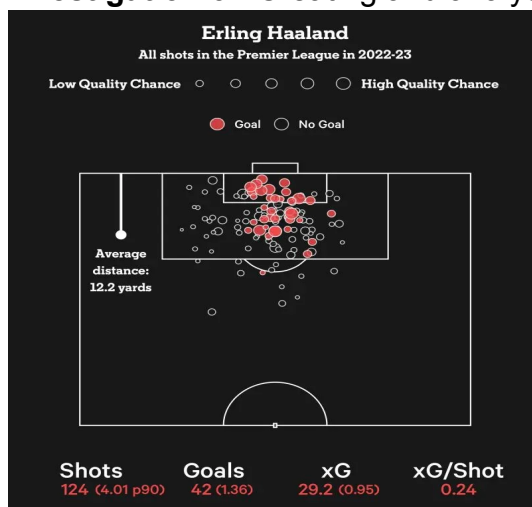
For our second investigation the students were introduced to the basics of the cardiovascular system and the importance of heart rate in exercise. After calculating their resting and max heart rates, we explained to the students how training at different heart rates is closely linked to different purposes and different sports.

- **Zone 1 (recovery/easy)** 55%-65% HR max
Used to get your body moving with minimal stress and exertion. This zone might be used for an easy training day, warming up or cooling down.
- **Zone 2 (aerobic/base)** 65%-75% HR max
Used for longer training sessions, you can sustain this basic-effort zone for many miles, yet still chitchat a little bit with your workout partner.
- **Zone 3 (tempo)** 80%-85% HR max
This is a zone where you push the pace to build up speed and strength; conversation is reduced to single words.

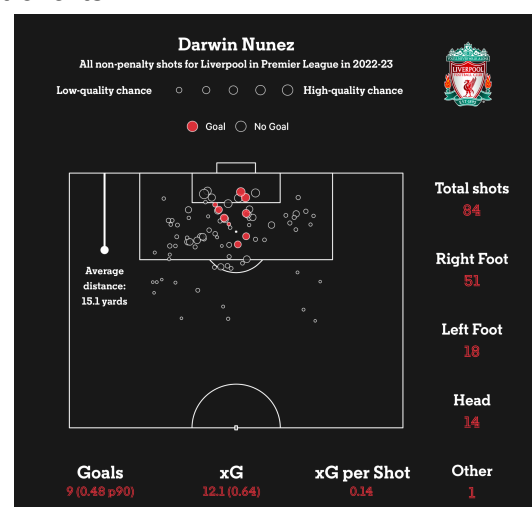
To get a sense of what it feels like to be in each heart rate zone, the students spent 2 minutes running a course around the oval before measuring their heart rate. We then discussed why this could be important for recovery, building a fitness base and training to be more explosive.



Investigation 3 - Creating and analysing shot charts



VS



The last investigation engaged with the creation and use of shot charts in sports. Students began to understand how these statistics could inform tactical decisions on a personal and team level.

Day 2 - Student investigations

Day 2 was all about the students applying their knowledge to their chosen sport. They were challenged to integrate two of the investigations we looked at, collect their own primary data set and then present their findings to their peers. We were thoroughly impressed with the presentations and an example project is shown below.

CLIP Sports Science

By Rosie, Rose and Claudia

What is sports science?

Sport science applies the study of science to sporting activities.

The focus of sport science is to help improve performance and capability in preparation for events and competitions while lessening the risk of injury. If we do this correctly the outcome will expand our knowledge of netball and create our training more efficient in gameplay!

Our Investigation

How much does fatigue affect our netball skills in the last 5 minutes compared to the first?

Usually when you play netball you run, a lot. Fatigue always comes in at some point. We wanted to find if fatigue affects us a lot or not as much.

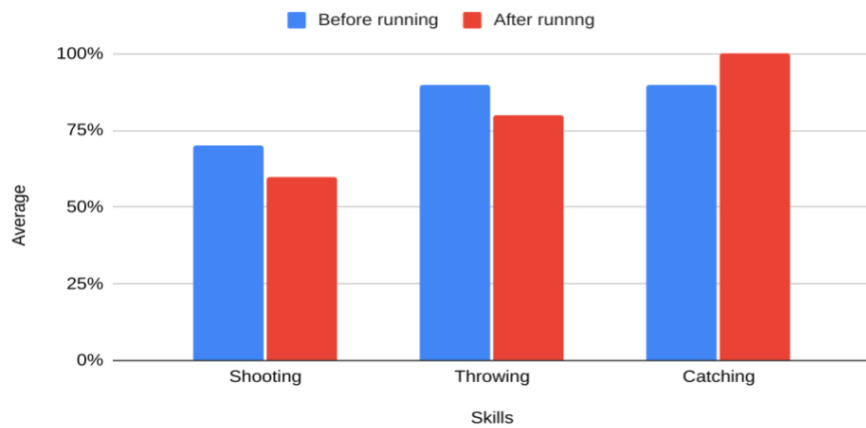
Method

We explored the 3 main elements of a netball game; passing, throwing and shooting.

1. We shot the ball into the hoop 50 or 100 times.
2. Next, we threw the ball at the wall trying to hit a certain spot.
3. After that, we had a partner pass the ball to us seeing how many we could catch.
4. We then re-did all of that but ran in between each activity trying to get our heart rate up to at least our personal Zone 1.

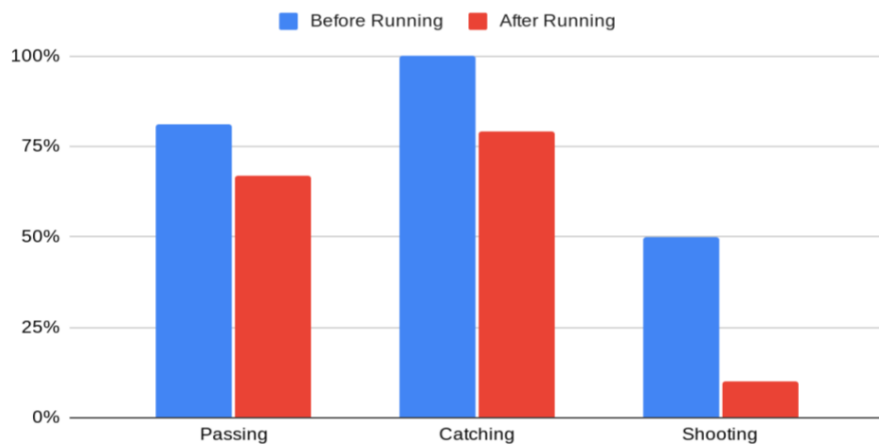
Netball Skills

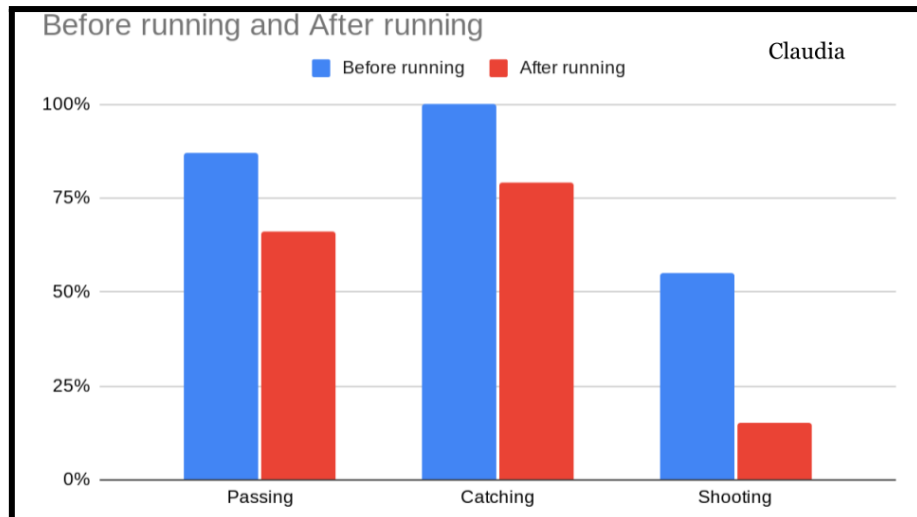
Rosie



Before Running and After Running

Rose





Conclusion

- Most of our skills dropped after our heart rate got higher
 - Rose's shooting dropped 35% after running
 - Claudia's shooting dropped 40%
 - Rosie's throws dropped 10%

What this means

Our investigation shows that the less physical stress you are under, the better your performance will be. That is why it is important to sub in and out different players, and make sure your heart rate is controlled when you are playing. It also shows that GS and GKs have the potential to play better when everyone else is tired.