Candidate 1 evidence

Rugby

Will the development of kicking distance make me more effective for my team?

1a

I chose to use a general observation schedule (Appx A) as this provided me with a range of data from a performance context. This allowed me to identify strengths and weaknesses across my performance and prioritise development needs for my PDP. I chose to complete this general observation schedule myself through a recorded video of the game. Completing it in this way allowed me to accurately record all aspects of my kicking game, through pausing and rewinding, to ensure all data is accurate. This baseline data will provide an accurate platform to set incremental targets throughout my PDP. Whilst we had many pre-season games, I chose to use the data from our first cup game, as this was against a team we are closely matched to and will allow me to use data from a competitive environment with appropriate pressure, providing a true reflection of my current performance levels to analyse.

I chose to capture some performance based data through a scatter diagram (Appx B). This allowed me to have an accurate record of each kick placed throughout a game, to which I could categorise the kick 'type' and distance associated with each kick. This data allowed me to look to identify any trends within kick types and a range of data including average and maximum kick distance executed under game pressure. This data can then provide objective feedback which can be used to demonstrate clear performance area within each aspect of kicking.

In addition, I chose to use a self devised test (Appx C) which focussed only on distance and removed the pressure of any other contributing factors which could affect my kicking distance. During this test I chose my half back partner to feed me passes, this is because his accuracy in feeding is excellent. This allowed the environment to be conducive for me performing at my best, to ensure data captured was valid for these maximal efforts.

Identifying kicking distance was limiting my effectiveness as a 10, I chose to use some focussed functional fitness tests (Appx D) for my lower limbs. I completed the leg extension, leg press, and hip flexor kettlebell lift. I chose to use these tests, as they look at specific muscles and movements which are highly relevant for the kicking motion.

In addition, I thought it would be useful to collect data on my mental factor. I chose to do this through a PPW (Appx E) wheel. This is a valid toll for collecting data on my performance as I can populate the 8 sub sections on which area I feel contribute to a successful rugby performance, allowing me to identify my needs. In addition to this, the visual nature of this wheel allows for analysis to be quick and conclusive allowing me to quickly prioritise development needs.

1b

The results showed from my self-devised kicking test that there are occasions I can find touch from a clearance within my 5m line that is on the 30m from the try line (+25m). This means that in a game my ability to relieve pressure in a defensive situation is limited as my clearance gives the opposition a lineout in close proximity to our 22. As a result the opposition can run a strike play in their attacking third, which puts pressure on our defence. As this area is within kicking distance for the opposition, our defence knows that we cannot be as aggressive at the breakdown in case of coughing up a penalty. Therefore the opposition have an 'easier' time at the breakdown as our strategy is more conservative, which allows them more safety in building their phases.

My SFT results showed that my leg extension was below average at 0.8 of BW at 48kgs. This results in a slower velocity of the lower limb being able to be created in the knee extension phase of the kick, which resulted in less force being able to be created through the point of contact at the ball. This limits my ability to create height on my up and under kick and this does not give our defence enough time to get underneath the ball, and allows their fullback to collect the ball with limited pressure. As a result when the fullback collects they have time to return a kick and gain territorial advantage over us as opposed to being pressured and tackled and their next exit kick being fully pressurised. In addition, when this up and under is not high enough and occurs in the attacking third, it allows the fullback time and an opportunity for a 50/20 as our wingers have chased the ball and can leave areas to aim for the opposition kicker which are uncovered. When accurate this gives the opposition the throw-in from the lineout in their attacking third with a momentum swing from the previous phase and gives a platform to build phases of attack from in close range to our defensive line.

From the data collection from my scattergraph, it highlighted that whilst I kick with my dominant foot, 14/21, I also have the ability to kick with my weaker foot. When looking at the distance that is reached, there is very little difference. This ability to kick with both feet allows me when pressured by the opposition targeting my kicking foot, I can feint and switch to the other foot. This results in less direct pressure from the opposition, and gives me time to ensure I am well balanced to produce an accurate kick in to exit from our 22 as opposed to being charged down and losing possession in our own 22.

Looking at the data from my self-devised kick test (right foot only)(Appx C) I notice that whilst my maximum capability is 40m however, the range is 21m, and the average is only 29m. This data shows that my the average distance of my kicks (R) is 25% less than my maximum. The result as evidenced Appx B, is that most exit kicks are not getting out of our own half and allowing the opposition territorial pressure on my team. Looking at the 1RM data (Appx D) I observed that there is a 25% differential in the right and left legs. With the left leg having the responsibility of supporting the kicking leg during action by providing stability and preventing any unwanted movement, this could provide reasoning for the range being 21m. With the muscle weakness, there is less capacity for them to provide a stable platform consistently. This does not allow the direction of power to be centred through the ball on contact and means I will lose potential kicking distance on occasions. The direct impact of this is most kicks executed being away from the potential

40m. This means the exits are less effective than they could be and provide the opposition a set piece play, in our own defensive half, much closer to our try line.

2a

Research from Ball (et al 2013) has shown that a useful "rule of thumb" for high-level clearance punt distance with preferred foot is approx 40-45 metres if, if the conditions are good and technique is reliable. Non-preferred foot tends to give ~5-7 metres less in many of the studied cases. Maximal kicks may exceed 50m.

Sinclair et al explicitly highlights that maximum kicking distance is integral to the successful execution of tactic and highlights which variables underpin ball velocity and distance. The 2 biggest predictors in their study, showed that hip flexor velocity and knee extension velocity were correlated to maximum. Their study showed that knee extension had around 50% and hip flexion around 25% correlation to distance prediction. It should be noted that they highlighted that the timing of these movements being correct has a synergistic effect on the distance produced.

Kellis, E. (2007) study proved that training should target both the kinetic-chain sequencing (technique drills, timing) and the physical capacities (hip extensors, knee extensors) that enable high foot speed. Whilst this paper does not list structured exercises with reps/sets, it strongly suggests training should focus on strength, power, mobility, trunk control, and segmental coordination of each of the kicking phases is prioritised.

Atack, A. (2016) demonstrated that as the biomechanics is so important to the success of the kick it would be useful to include feedback via video analysis to consider all of the above, but also the approach geometry and support leg mechanics. In a more recent study from 2019, Atack has shown the differences in pelvis and torso contributions, and the way the kicking limb is driven through the swing, explains much of the performance gap. Importantly noting that joint kinetic timing, not just maximum force, is highly important. This importance on trunk rotation is backed up by da Silva Carvalho, D., et al. (2021), where they underline its importance in transferring energy through the pelvis and limb - in other words effective rotational timing increases terminal foot speed. Importantly, the author adds direction in the approaches to best elicit this training response where the focus should include rotational trunk/pelvis conditioning (medicine-ball throws, anti-rotation work, rotational plyometrics) and coordination drills to exploit trunk-to-leg energy transfer.

Zhang, Y., et al. (2023) analysis of plyometric interventions and their effects on kicking performance metrics of ball speed and distance found that plyometric training reliably improves kicking performance. This research highlighted the importance of structured plyometric blocks (unilateral/bilateral hops, bounding, depth jumps) to raise rate of force development and translate to higher foot speed at impact.
Manolopoulos, E., et al. (2006) showed that training strength in isolation was less impactful than a combined program which included kicking actions shortly after the conditioning sessions which produced significant increases in ball speed.

Ozbar et al. (2014) demonstrated that a plyometric training program with a successful protocol for kick velocity through plyometrics. Key design parameters to consider for this are: 1-2 a week for 8 weeks; each session includes 4-5 exercises; unilateral and bilateral exercises; ranging between 5-15 ground contacts; ground contacts ranging from 90-220 reflecting relevant overload.

Zhao et al. (2023) compared unilateral and bilateral leg press training and found no significant difference in their effects on lower body strength or performance metrics, suggesting that both training methods can be effective.

1 Ball impact dynamics in the punt kick Kevin Ball Chris Ingleton, James Peacock and Hiroyuki Nunome; College of Sport and Exercise Science, Victoria University, Melbourne, Australia, 31 International Conference on Biomechanics in Sports (2013); 2013-09-01
2 Sinclair, J. K., Taylor, P. J., Atkins, S., & Hobbs, S. J. (2016). *Biomechanical predictors of ball velocity during punt kicking in elite rugby league kickers.* International Journal of Sports Science & Coaching.
3 Kellis E, Katis A. Biomechanical characteristics and determinants of instep soccer kick. J Sports Sci Med. 2007 Jun 1;6(2):154-65. PMID: 24149324; PMCID: PMC3786235.
4 Atack, Alexandra. (2016). The Biomechanics of Rugby Place Kicking.
5 Atack, A. C., Trewartha, G., Bezodis, N. E., et al. (2019). *A joint kinetic analysis of rugby place kicking technique to understand why kickers achieve different performance outcomes.* Journal of Biomechanics
6 Carvalho DDS, Ocarino JM, Cruz AC, Barsante LD, Teixeira BG, Resende RA, Fonseca ST, Souza TR. The trunk is exploited for energy transfers of maximal instep soccer kick: A power flow study. J Biomech. 2021 May 24;121:110425. doi: 10.1016/j.jbiomech.2021.110425. Epub 2021 Apr 9. PMID: 33873107.
7 Zhang Yeqin , Li Danyang , Gómez-Ruano Miguel-Ángel , Memmert Daniel , Li Chunman , Fu Ming ; Effects of plyometric training on kicking performance in soccer players: A systematic review and meta-analysis ; Frontiers in Physiology; Volume 14 - 2023
8 Manolopoulos E, Papadopoulos C, Kellis E. Effects of combined strength and kick coordination training on soccer kick biomechanics in amateur players. Scand J Med Sci Sports. 2006 Apr;16(2):102-10. doi: 10.1111/j.1600-0838.2005.00447.x. PMID: 16533348.
9 Ozbar, N., Ates, S., & Agopyan, A. (2014). The effect of 8-week plyometric training on leg power and kicking speed in female soccer players. Journal of Strength and Conditioning Research, 28(10), 2888–2894.
10 Zhao, X., et al. (2023). *Effect of unilateral and bilateral leg press training on lower body strength, sprint, and vertical jump in adolescent rugby players. Journal of Strength and Conditioning Research*

2b

Ball et al., 2013; Sinclair et al., 2016 shows that clearance punts of 40–45m are a benchmark, with non-preferred foot being ~5–7m shorter. To reach maximal ranges (~50m+), timing and sequencing of hip flexion + knee extension are essential. Kellis (2007) and Atack (2016, 2019) demonstrate that kinetic chain sequencing and joint timing (not just raw strength) are decisive for distance. Therefore, technique drills should be a central part of my development. Atack's work stresses approach geometry, support leg stability, and trunk–pelvis rotation — these must be systematically reviewed and trained. As there are multiple technical areas to consider to ensure I am not overwhelmed I will approach the development in an isolated manner until more confident in each aspect.
With this research in mind,I will split technique practices into to focus on the timing of hip and knee extension during the swing phase, optimise approach and support leg mechanics, and integrate trunk–pelvis rotation drills to improve distance of kicks with both feet.

Sinclair (2016) identified hip flexor and knee extension velocities as the largest contributors to distance (~75% of predictive variance). Strength and power training of these groups is

critical also . Kellis (2007) adds that strength, power, mobility, and trunk control all underpin effective kicking. De Silva Carvalho et al. (2021) emphasise trunk/pelvis rotational conditioning (medicine-ball throws, rotational plyometrics, anti-rotation core).Zhao (2023) suggests both unilateral and bilateral lower-limb strength training approaches are effective — offering flexibility in program design.
With this research in mind I will prioritise lower-limb strength exercises which will develop the hip and knee extensors and give a higher proportion of exercises towards this. I will however also include explosive plyometric training (unilateral and bilateral), and rotational trunk conditioning to raise foot speed and improve distance.

Zhang (2023) shows structured plyometric blocks reliably improve kicking performance, especially unilateral/bilateral hops, bounds, and depth jumps. Ozbar (2014) provides a proven framework: 8 weeks, 1–2 sessions/week, 4–5 exercises, 90 –220 ground contacts/sessions. Manolopoulos (2006) demonstrated that combined programs (strength and kicking actions) produced greater improvements than isolated conditioning work. This suggestion of coupling the plyometric sessions with immediate performance actions of kicking would provide me with the opportunity for some biofeedback will be completed as the first session of the week. This will allow me to set targets for subsequent weeks based around the biofeedback which will provide an increased focus for development. With this research in mind I will include a structured plyometric program of 8 weeks, 1 session a week progressing from 90 to 220 ground contacts and combine this with immediate kicking practice to maximise transfer into performance.

Atack (2016, 2019) highlights the importance of video analysis for biomechanics (approach, support leg, torso and pelvis contribution). Ongoing video review should assess timing of joint sequencing, trunk rotation, and coordination across preferred and non-preferred foot. With this research in mind, I will integrate regular video feedback to monitor biomechanics (approach, support leg stability, and trunk–pelvis coordination), comparing preferred and non-preferred foot performance.

With all this research in mind there are 4 foundations of development for improving my kicking performance.

1. Technique & sequencing underpinned by improving hip/knee timing, approach mechanics, trunk–pelvis rotation.
2. Strength & power - target hip/knee extensors, trunk control, unilateral/bilateral lower-limb strength.
3. Plyometric integration - structured program and immediate kicking actions for transfer.
4. Feedback & monitoring - the use of video to refine technique and track progress, especially non-preferred foot.

2c

I want to set a target of using more attacking based kicks on the opposition last third, leading to scoring opportunities. If I can add this to my repertoire, it will mean I am more

unpredictable when attacking the line and will make the defensive line more cautious with their line speed, providing more space to attack.

I want to increase the average distance of my clearance kick to 40m. If this distance increases it will allow us to relieve the territorial pressure of the opposition. As this is generally outside kicking range, it allows us to be more aggressive at the breakdown, not being at risk from giving a certain 3 points up from a penalty opportunity.

If this distance increases it will also give me the confidence to go for 50-20 kicks when the space is there. This will allow us to turn the defence and gain possession of the line out in the opposition 22 and run a strike play and may create a scoring opportunity.

Additionally, this can have a positive mental impact on the team as with a single well placed kick can cause the opposition to retreat with their head down and morale affected. This differential in motivation and intensity between forward packs, can provide a platform for a more effective maul from the line out, gaining more yards to be closer to the opposition try line before stopping.

3

I completed an 8 week training programme (Appx F). This programme was structured around technique and sequencing, the development of strength and power, plyometric and kicking repetitions. I chose to use video sessions on a weekly cycle to allow me to record feedback. Throughout the programme I utilised a training diary (Appx G) to record evaluations of the sessions and implement any appropriate adaptations.

4a

From my GOS kicking record (Appx G) I have now been able to increase the average distance of my place kicks from hand to 32m. This allows for a greater distance when exiting and means when I am forced to exit from a central position in our own 22 can reach close to the halfway line. This relieves direct pressure and greater distance for the option to reach to get our try line. As a result places pressure on them to build a higher volume of phases without errors or mistakes that to get closer to our red zone.

My SFT (Appx I) results show that I have improved in all areas, but particularly the knee extension. In particular the leg extension has improved by 40%. This would translate to a quicker foot speed through contact of the ball resulting in a greater force being produced moving the ball further. As a result when we receive a penalty in the opposition half I can place it closer to the opposition's 5m line which results in an excellent platform to attack from close to the try line.

It is now established from my post PDP GOS (Appx G) that my average kick distance 35m) that I have the range to kick the width of the pitch comfortably. However when looking at the match analysis, not once do I play an attacking cross kick to the winger, who is tactically hugging the touch line when the opposition are in the 22. This suggests that

despite having confidence in the range, I do not have the confidence to execute the kick as it is more of a risky type play. As a result we cannot capitalise with a try scoring opportunity when the defence is narrow and my far winger has the chance to receive an unpressurised cross kick, which should lead to a highly likely try scoring opportunity.

4b

I found having a partner to train with helpful. This allowed me to remain honest and committed during my conditioning sessions. This allowed me to complete the more intense sessions with higher loads, and not opting out when my motivation was low. This ensures optimal progress towards my goals.

I found setting biweekly distance kicking targets beneficial, this provided me with some feedback around any performance based progress I was making. As I was seeing progress in each of these checkpoints, it provided me with confidence in the design of my PDP and ensured I remained committed to this allowing for optimal progress.

My research suggested to use both unilateral and bilateral movements. The planned sessions which I had to complete unilateral movements I felt were too long, as I only had 60 minutes to complete both sessions with transitions. This meant that when I had a kicking session to complete after it I did rush some of the repetitions that were supposed to be slower with a technical focus. This may have slowed the opportunity to progress my kicking distance further.

I chose to take a stop watch with me to each session, this allowed me to time my recovery between each set accurately. This ensured I was adequately recovered to illicit a maximal force and not be under fatigue through rushing my sets, allowing for a a greater muscle recruitment and physiological response.

As some of the exercises were new to me I researched them and watched videos first. I then created 3 key bullet points. I put these on a whiteboard in the gym and went over them before each exercise until I felt more comfortable. This ensured I lowered any risk of injury and completed all sessions without having to skip any and slow my progress down.

4ci

My coach feedback after my PDP stated that now my kicking range has increased and my kicking creativity should now be improved. He has highlighted that he feels when under pressure in defence I can comfortably support the team with exit plays relieving pressure. However when in attack, I do not vary the attack with chips and grubbers allowing the defensive line speed to remain high and often mean outside players are tackled before making any positive yards on the gain line.

Additionally, when completing my post PDP analysis of my self devised kicking test, it highlighted a deficit of 7m in a game when comparing the execution of an exit kick without

pressure with my half back feed. This suggests that I should focus on skill execution under pressure to enhance distances in my exit kicks in a game.

4cii

Having an inability to apply a variety of kicks in attack has a direct impact on my mental factor of decision making. Improving these will mean I have more options when attacking the line and have more options in my repertoire to beat the defence. This means that if any of the planned running lines are not on, I could utilise a short kick behind the defence, which could give us a chance to retain possession and get across the gain line. This could result in creating the opportunity to gain possession behind the defence and attack in an overload situation against the fullback, creating the opportunity to score a try.

Having the inability to apply a variety of kicks can affect the emotional factor as I can get frustrated with myself when I miss opportunities to do this and this can allow some fear to creep in. This means that when my teammates shout the call "Ketchup" that indicates a chip kick is on, I hesitate and sometimes choose a safer option to pass. In the subsequent phases of play, I then am in a heightened state of arousal, as I feel more pressure and can miss important defensive cues. This results in me missing mismatches in the line and potential opportunities for my teammate to get on the outside shoulder and create a line break towards the try line.

APPENDICES

Appendix A – Initial Data GOS

Appendix B – Initial Data Scattergraph

Appendix C – Initial data Self devised test

Appendix D Initial data Functional limb tests

Appendix E Initial data PPW

Appendix F PDP + Training diary

- **A- Overview of strength session**
- **B- Overview of Plyometric session**
- **C- Overview of technique session**
- **D- D- Overview of weekly plan**

Appendix G Post Data GOS

Appendix H Post data Functional limb tests

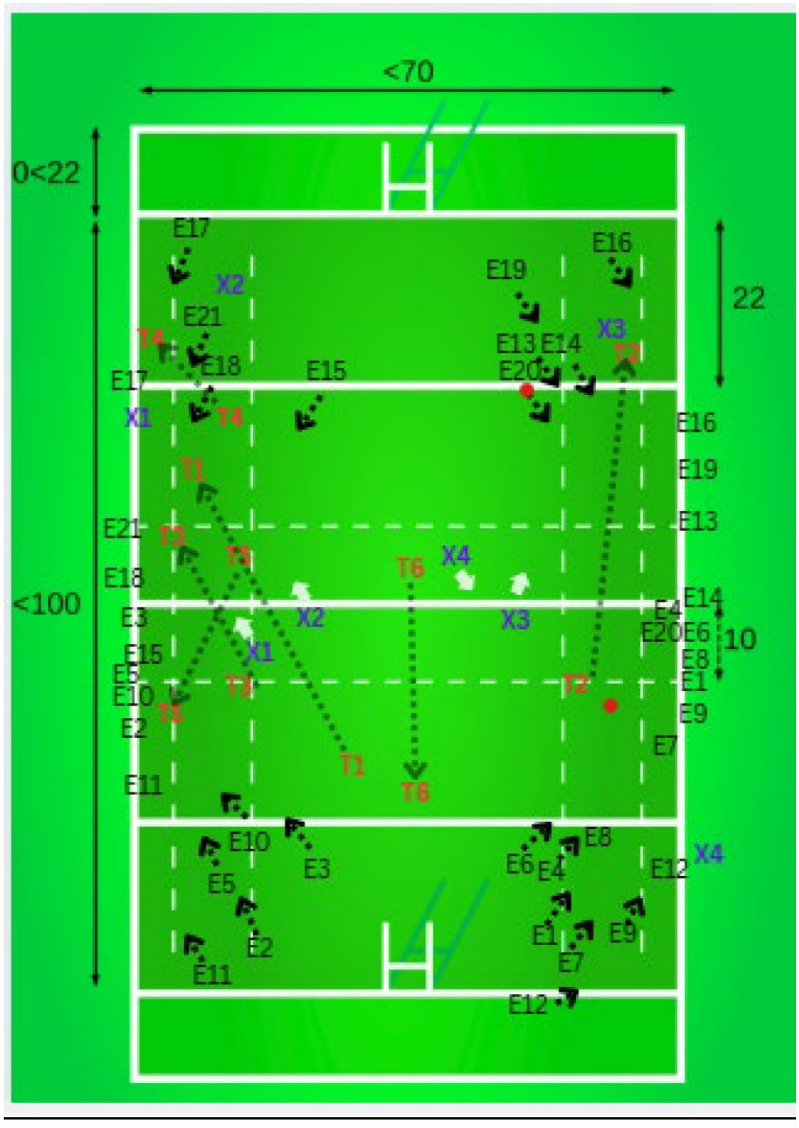
Appendix I Post data Self devised test

Appendix A - Kick Observation Schedule Record 1st Round Regional Cup *used with video analysis*

Kick	Exit (E)	Territory (T)	50-22 (X)	Creative
1	30	32	Unsuccessful	*no kicks attempted*
2	25	30	Unsuccessful	
3	21	18	*Successful	
4	24	7		
5	17	12		
6	24	17		
7	27			
8	23			
9	24			
10	18			
11	22			
12	16			
13	19			
14	27			
15	32			
16	18			
17	19			
18	22			
19	21			
20	30			
21	19			
	22.7m	19.3m	1/3	0

Appendix B - Scattergraph 1st Round Regional Cup *used with video analysis*

E= Exit kick T = Territory kick X = 50-22 kick → = direction of kick



Appendix C – Self devised kick test

*Protocol – Number 9 feeds me from a simulated breakdown onto the 5m line and I make an exit kick into touch. The distance is measured from where the ball crosses the touchline from where I kick from

Attempt No	Right	Left
1	32	17
2	40	18
3	25	20
4	29	25
5	32	17
6	25	16
7	25	19
8	19	30
9	31	17
10	32	18
AVG	29	19.7

Appendix D – Focussed 1RM leg testing

Test	**Both**	**Left**	**Right**	**Difference**
Leg Extension	47.5	20	25	20%
Leg Press	80	30	40	25%
Hip Flexor	N/A	5	7	29%

Appendix E Initial data PPW

Appendix F – PDP

A - Overview of strength sessions

The strength session was completed two times a week during a set conditioning day. I completed this with one other developing half back in the school gym. I chose to bring a stopwatch in for my session to ensure that I did not go outside of the directed 90-120 second rest window.

Week	Leg Press (bilateral)	Leg Press Unilateral	Leg Extension	Bulgarian Split Squat (new exercise)	Romanian Deadlift	Comments
1A(Thurs)	3×10 @ 65%	3×10 each @ 50%	3×12 @ 50%	3×8 each bodyweight	3×8 @ 50%	B SS seems difficult movement as new. I will keep this just at BW until feeling more comfortable in the movement and a safe range of motion.
1B(Mon)	*3X3 @ 80%*	*3X3 @ 80%*	*3X3 @ 80%*	*Not safe yet*	*3X3 @ 80%*	
2A (Thurs)	3×10 @ 65%	3×10 each @ 50%	3×12 @ 50%	3×8 each bodyweight	3×8 @ 55%	
2B(Mon)	*3X3 @ 80%*	*3X3 @ 80%*	*3X3 @ 80%*	*Not safe yet*	*3X3 @ 80%*	
3A(Thurs)	4×8 @ 70%	3×8 each @60%	4×10 @ 60%	3×8 each bodyweight	4×8 @ 60%	
3B(Mon)	*3X3 @ 80%*	*3X3 @ 80%*	*3X3 @ 80%*	*Not safe yet*	*3X3 @ 80%*	*Carrying injury for today's session from weekend, so will swap with Thursday's to allow time to recover.*
4A(Thurs)	4×8 @ 70%	3×8 each @ 60%	4×10 @ 60%	3×8 each bodyweight	4×8 @ 65%	

4B(Mon)	*3X3 @ 80%*	*3X3 @ 80%*	*3X3 @ 80%*	*Not safe yet*	*3X3 @ 80%*	
5A(Thurs)	4×6 @ 75%	4×8 each @60%	4×8 @ 60%	4×6 @ 6kg DB	4×6 @ 70%	As now feeling more comfortable with the movement I will introduce weights however, I will change to using dumbbells than a barbell as seems safer.
5B(Mon)	*3x3@85%*	*3x3@85%*	*3x3@85%*	*3x3@8kg DB*	*3x3@85%*	
6A(Thurs)	4×6 @ 75%	4×8 each @60%	4×8 @ 70%	4×6 @ 6kg DB	4×6 @ 75%	
6B(Mon)	*3x3@85%*	*3x3@85%*	*3x3@85%*	*3x3@8kg DB*	*3x3@85%*	
7A(Thurs)	5×5 @ 80%	4×6 each @ 75%	4×8 @ 70%	4×6 @ 6kg	4×6 @ 75%	
7B(Mon)	*3x1 @90%*	*3x1 @90%*	*3x1 @90%*	*3x3@8kg DB*	*3x1 @90%*	
8A(Thurs)	5×5 @ 80%	4×6 each @ heavy 75%	4×8 @ 70%	4×6 @ 8kg DB	4×6 @ 75%	
8B(Mon)	*3x1 @90%*	*3x1 @90%*	*3x1 @90%*	*3x3 @10kg*	*3x1 @90%*	

B- Overview of plyometric session

The plyometric sesisons were completed twice a week. Once before a weights session and once before a kicking session. The session including warm up should be completed within 30 mins.

Week	Exercises	Repetitions	Total ground contacts	Comments
1	Bilateral squat jumps Single-leg hops (L/R) Lateral bounds Med ball rotational throws	3 x 10 3x 8 each 3 x 8 3 x 8	90	Session right intensity, Enjoyed having competition with Will for med ball throws.
2	Box Jumps Single-Leg Forward Hops Lateral Hops Anti-Rotation Plank	3×8 3×6 each 3×8 X20s	110	Found single leg hops co-ordination on left leg distinctly weaker.
3	Tuck Jump Single-Leg Lateral Bounds Broad Jumps Medicine Ball Rotational Throws	3×8 3×6 3×6 3×6	130	Challenged myself with higher med ball throw
4	*Depth Jumps* *Single Leg Box Steps Ups* *Lateral Hops* *Anti Core Rotation work*	3×6 3×8 each 3×8 3×20s	150	Found single leg box step ups co-ordination on both legs difficult had to drop box to aerobic stepper.
5	Bounding runs 10m Split lunge jump Med ball throws Single leg hops	4x5 3x6 each 3x8 3x8 each	160	Co-ordination of the bounds was more difficult during session 1 but I managed these better during the session 2 of the week. Took much longer 40 minutes.
6	Depth jumps Lateral bounds Single leg box jumps Anti core rotation work	4x5 3x6 each 3x6 each 3x25s	180	Took much longer 40 minutes.
7	Max effort broad jumps Split jumps Lateral bounds Med ball rotational throws	4x5 3x6 each 3x6 each 3x10	190	Glad to have the competition element back in with the broad jumps. Chose to move these until last.
8	Bounding runs Single leg hops Depth jumps	4x5 3x8 each 3x6	210	Still finding the bounds difficult to co-ordinate.

	Anti core rotation work	3x30sec		

C- Overview of technique sessions

The technique sessions were completed twice a week. Once after a weights session and once after a plyometric session. On the second session of the Week I would ask a classmate to video some repetitions, I would then rate my technique against them and make that the focus for the second week. These sessions were completed in 15 mins as I was already warmed up from the previous either weights or plyometric session.

Week	Session plan	Key technical focus		Comments (R leg only)	
1	Shadowing kicking each 4 x 5 each leg Repetition practice 4 x 5 each leg (Slow) 2 x 3 max kick each leg	Approach Mechanics	Controlled, consistent rhythm Linear alignment Upper body stability	*last two steps should quicken slightly to build momentum and try and maintain balance consistently*	
2	Shadowing kicking each 4 x 5 each leg Repetition practice 4 x 5 each leg 2 x 3 max kick each leg			Max kick L -30 Target -30	Max kick R -35 Target -40
3	Shadowing kicking each 4 x 5 each leg Repetition practice 4 x 5 each leg (Slow) 2 x 3 max kick each leg	Support Leg Mechanics	- Firm, flexed plant leg - Heel–toe alignment - Centered body position	*Supporting knee is often overly bent*	
4	Shadowing kicking each 4 x 5 each leg Repetition practice 4 x 5 each leg 2 x 3 max kick each leg			Max kick L -30 Target 32	Max kick R – 36 Target 40
5	Shadowing kicking each 4 x 5 each leg Repetition practice 4 x 5 each leg (Slow) 2 x 3 max kick each leg	Trunk–Pelvis Rotation	- Sequential rotation - Controlled trunk lean - Braced core	*Focus on slight forward lean and trunk stiffness*	
6	Shadowing kicking each 4 x 5 each leg Repetition practice 4 x 5 each leg 2 x 3 max kick each leg			Max kick L -27 Target 32	Max kick R – 39 Target 40
7	Shadowing kicking each 4 x 5 each leg Repetition practice 4 x 5 each leg (Slow) 2 x 3 max kick each leg	Hip/Knee Extension Timing	- Hip leads, knee follows - Avoid early knee lockout - Compact follow-through	*Maintain coordinated continuation through the ball as at times stooping short*	
8	Shadowing kicking each 4 x 5 each leg Repetition practice 4 x 5 each leg 2 x 3 max kick each leg			Max kick L -29 Target 32	Max kick R -40 Target 40

D- Overview of weekly plan

	Session 1	Session 2	Session 3
Week 1	Strength + Plyo	Plyo + Kicking	Strength + Kicking
Week 2	Strength + Plyo	Plyo + Kicking	Strength + Kicking
Week 3	Strength + Plyo	Plyo + Kicking	Strength + Kicking
Week 4	Strength + Plyo	Plyo + Kicking	Strength + Kicking
Week 5	Strength + Plyo	Plyo + Kicking	Strength + Kicking
Week 6	Strength + Plyo	Plyo + Kicking	Strength + Kicking
Week 7	Strength + Plyo	Plyo + Kicking	Strength + Kicking
Week 8	Strength + Plyo	Plyo + Kicking	Strength + Kicking

Appendix G - Kick Observation Schedule Competitive Club Fixture *used with video analysis*

Kick	Exit (E)	Territory (T)	50-22 (X)	Creative
1	31	32	Successful	*no kicks attempted*
2	35	30	Unsuccessful	
3	40	27	Successful	
4	30	25		
5	33	32		
6	38	33		
7	36	25		
8	28	38		
9	33			
10	32			
11	24			
12	31			
13	39			
14	28			
15	32			
16	22			
17	29			
	31.8m	30.25m	2/3	0

Appendix H – Post Self devised kick test

*Protocol – Number 9 feeds me from a simulated breakdown onto the 5m line and I make an exit kick into touch. The distance is measured from where the ball crosses the touchline from where I kick from.

Attempt No	Right	Left
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
AVG		

Appendix I – Pre/Post Focussed 1RM leg testing

Test	Both	Left	Right
Leg Extension	47.5/65	20/30	25 /**35**
Leg Press	80/110	30/35	40/50
Hip Flexor	N/A	5/7	7/9