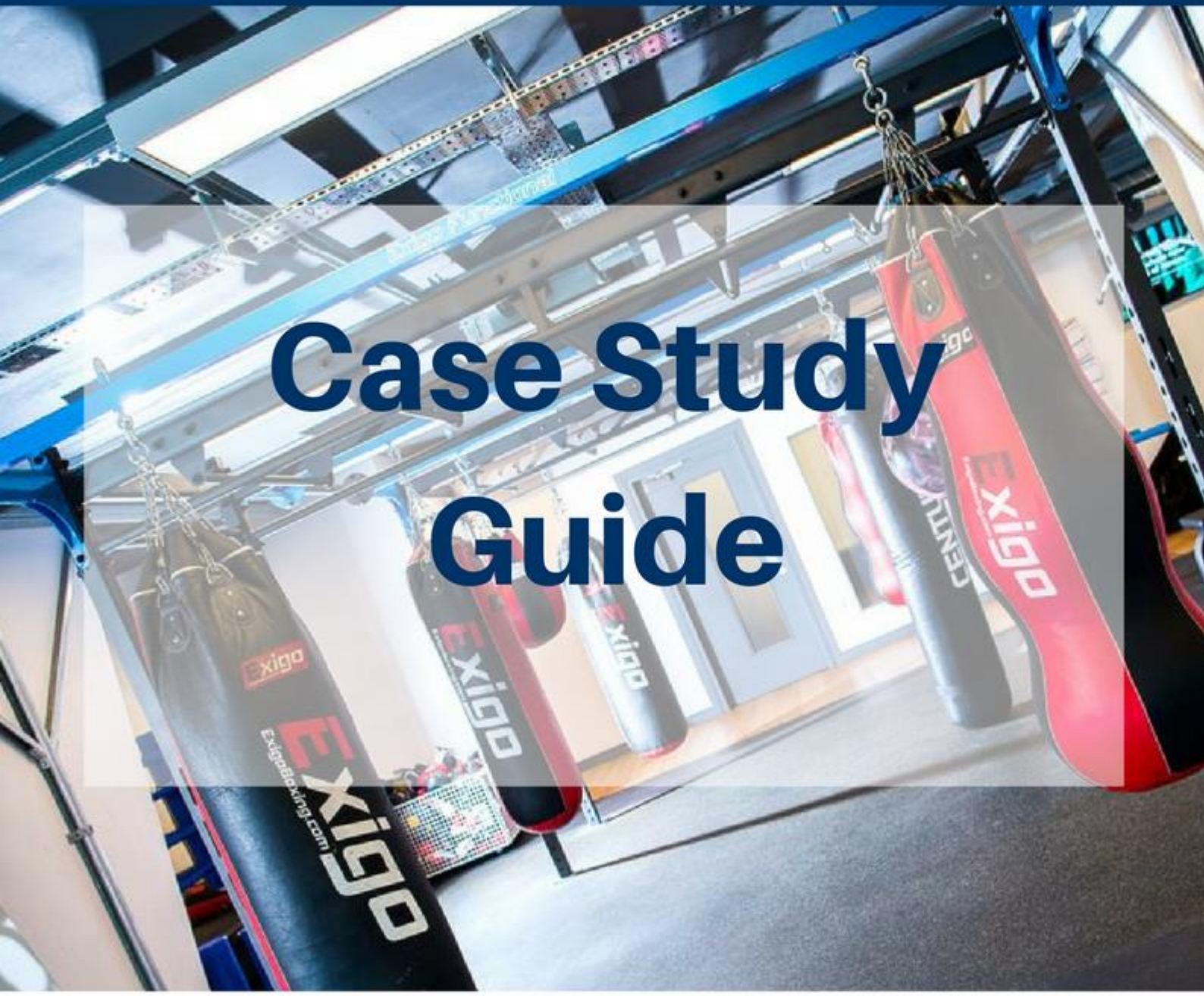
L4 S&C AWARD



Case Study Guide

STRENGTH & CONDITIONING EDUCATION

WELCOME TO THE CASE STUDY GUIDE

Welcome to the Strength and Conditoning Education Case Study guide. The purpose of this guide is to assist in the completion of the L4 S&C excel case study. It includes a breakdown of what is expected to be completed, with examples given for each task.

The case study to be completed is seperated into the following three components:

- The needs analysis
- Performance programming and planning
- Performance program review

Each component is further divided into individual tasks that are to be completed throughout the 12-week learning journey, prior to attending the practical assessment. These tasks are to be completed following the case study task order as instructed throughout this learner guide, with each task corresponding directly to the excel case study template.

Once handed in, the entire case study will be marked with feedback provided between weeks 10 and 12 of the learner process, prior to the final practical assessment.

THE NEEDS ANALYSIS

Within the fields of strength and conditioning and sports science, the needs analysis serves as a vital component that underpins all athlete programming and decision making. The needs analysis is composed of several components, all of which provide the necessary information required to produce effective athlete/sports specific programs. These components include:

- Needs analysis: 1 A - The athlete profile – this component provides an opportunity for the strength and conditioning coach to gather individual information from the athlete in regards to competitive experience, level, position, previous injuries, etc.

- Needs analysis: 1 B – The sport analysis is composed of several components (biomechanics and energy system analysis). Collectively, the information gathered within the sports analysis provides vital input which in turn, allows for the strength and conditioning coach to produce accurate sports specific programs.

- Needs analysis: 1 C - Athlete assessment – The athlete assessment is the process where the strength and conditioning coach gathers real world data based on an athlete's performance measures. The performance measures applied involve both movement assessment, and performance benchmarks relative to an athlete chosen sport.

- Needs analysis: 1 D - GAP analysis – This is the final task of the needs analysis process, where all the data gathered from the athlete assessment can be compared against the sport specific performance benchmarks within current literature. The athlete assessment data can then be compared against the normative data performance benchmarks, evaluated by the strength and conditioning coach, and used as input to set specific performance SMART goals. These performance SMART goals, along with all the other additional information gathered within the needs analysis, forms the foundation for the development of the performance programs.

THE NEEDS ANALYSIS – TASK 1 A – THE ATHLETE PROFILE

To complete the task, firstly open 'task 1A' within the case study.

Please Fillout Needs Analysis part A on this sheet	
Athlete Profile:	
Name:	Alan Smith
Age:	27
Sport:	Rugby Union - Prop
Competitve Exeprerience:	6 years experience
Competitive Level:	Professional Rugby athlete at Championship level
Previous Injury History:	No series previous injuries - however the athlete has suffered several concussions
Current Weekly Training Frequency:	5 sessions per week - 3 strength/power resistance training based - 2 movement training based
Sport Specific Training Sessions Per Week:	2 technical/tactical sessions per week
Previous Training History:	**Previous training modes that has previously been undertaken:** • maximal strength training • variations of Speed strength training (Olympic lifting) • Metabolic conditioning • Technical and tactical rugby training (conditioning and position specific training)

The athlete profile task requires vital information to be gathered that will contribute towards the final evaluation and ultimately, the final performance programs. The sections to be completed include:

- Athletes profile
- Athlete preferences questionnaire
- Health questionnaire

Remember, even at this initial stage, the more detail that can be gathered within the athlete profile, the more effective the programs will be (avoiding the risk of not providing enough training stimulus). Put simply - THE MORE INFORMATION GATHERED, THE BETTER!

THE NEEDS ANALYSIS – TASK 1 B – THE SPORT ANALYSIS

To complete the task, firstly open 'task 1 B' within the case study. You will see two separate components that are to be completed within this section. These are:

- Biomechanics analysis
- Energy system analysis

Biomechanics analysis:

This section requires a biomechanical analysis to be completed for an athlete's chosen sport. This allows the strength and conditioning coach to replicate the forces (kinetics) and movements (kinematics) within a sport within performance programs, allowing for optimal transfer of training effects.

Biomechanics		
Kinematics in Sport	Yes/No	Provide Example of Movement in your Sport
Acceleration	Yes	Rugby forwards develop maximum running speeds over short sprint distances (30 – 40m) during a game, over coming inertia and horizontal propulsion (
Decceleration	Yes	Rugby athletes are required to rapidly brake after each acceleration phase - requiring eccentric hamstring strength qualities (Bramley, 2006)
Change of Direction	Yes	Rugby forward athletes have to be able to generate lateral ground reaction forces when performing lateral cuts (McClymont 2005)
Max Speed	Yes	Rugby forward athletes very rarely express maximal speed mechanics within competition. However this can occasionally occur
Multi Directional lunges	Yes	
Vertical Jump	Yes	Occasional a rugby forward athlete will be required to performing a maximal vertical jump, requiring good vertical ground reaction production for maxi
Other	Tackling, scrumming	During rucking, mauling, and tackling activity, muscular forces must be produced to overcome/resist large inertial forces
Other		
Other		

- This requires a biomechanical analysis of the movements that occur in an athlete's chosen sport. Movements such acceleration, deceleration, change of direction and maximal mechanics. However, certain sports may include specific mechanics beyond the movements detailed above (e.g. lunge mechanics involved within racquet sports, punch mechanics within martial arts, etc.)

THE NEED ANALYSIS – TASK 1 B – THE SPORT ANALYSIS

Energy system analysis:

- The energy system analysis requires the dominant energy systems used within the sport to be detailed. It may be the case that certain energy systems will be dominant at separate specific times during active competition, therefore different aspects of any chosen sport will be need to be analysed individually

Energy Systems	
Dominant Energy Systems	Rationale
ATP-PC	Rugby forward athtletes are required to push in scrums, lift in lineouts, tackle, wrestling and gripping, and perform short sprints - all of which are A
Glycolytic/Lactate System	Rugby forward athletes are required to demonstrate efficient metabolic conditioning qualities to reach competitve breakdowns throughout a gam
Aerobic System	Rugby forward athletes require efficient aerobic system performance to allow for optimal recovery between repeative ATP-CP and glycolytic syst

THE NEEDS ANALYSIS – TASK 1 C – THE ATHLETE ASSESSMENT

To complete the task, firstly open 'task 1C' within the case study. You will see a movement assessment table, and a performance benchmarks table.

Movement assessment table:

- To complete this section, you will be required to carry out a movement assessment as described within the Strength and Conditioning Education L4 S&C practical workshop with a chosen athlete. Once this has been completed, record all scores within the movement assessment table.

Movement Assessment			
Exercises	Result	Ideal	Notes
Deep Squat Depth	4	5	the athletes deep squat deep passed 90 degress depth, however a posterior tilt of the hips did occur just as the femur 90 degrees
Deep Squat Shoulders	2	5	the athletes deep squat shoulder abilities are limited, expressing a restriction in overhead extension and thoracic extension mobilities
Lunge L	3	5	the athlete didn't demonstrate any valgus dysfunctions of the knee during the performance of the lunge, however the athlete demonstrate
Lunge R	4	5	again, the athlete didn't demonstrate any valgus dysfunctions of the knee, however the athletes ability to maintain postural control did imp
Single Leg Squat L	3	5	the athlete couldn't perform a single leg squat to full depth, however they could reach partial depth just above 90 degrees
Single Leg Squat R	3	5	the athlete couldn't perform a single leg squat to full depth, however they could reach partial depth just above 90 degrees
Thomas Test 1L	3	5	the athlete demonstrated partial limiting one joint hip flexor range of motion
Thomas Test 1R	3	5	again, the athlete demonstrated partial limiting one joint hip flexor range of motion. Demonstrating no uni lateral balances between each h
Thomas Test 2L	3	5	the athlete demonstrated greater limiting two joint hip flexor range of motion, with the knee going into extension
Thomas Test 2R	3	5	the athlete demonstrated greater limiting two joint hip flexor range of motion, with the knee going into extension, however no uni lateral b
Ankle Range L	3	5	the athlete demonstrated partially limiting dorsi flexion range of motion
Ankle Range R	3	5	the athlete demonstrated partially limiting dorsi flexion range of motion
Shoulder Lift Off	2	5	the athlete demonstrated limiting overhead shoulder extension capabilities
Push-Up	3	5	the athlete demonstrated correct lumbar spine control, however winging scapulars were demonstrated during the concentric phase of the e
Pos Chain L	3	5	the athlete demonstrated partial posterior chain limited range motion
Pos Chain R	4	5	the athlete demonstrated greater posterior chain range of motion compared with the other leg, however below 90 degrees range of motion

THE NEEDS ANALYSIS – TASK 1 C – THE ATHLETE ASSESSMENT

Performance benchmarks table:

- To complete this section, you will be required to firstly select three performance assessments specific to an athlete's chosen sport. It is advised that the performance benchmarks selected are based on previous recognised performance assessments for that sport.

- Remember that the sports specific performance assessments chosen must assess the required sports specific qualities previously highlighted within the sports analysis section (strength, power, 10m acceleration, etc.)

Performance Benchmarks			
Name of Test	Result	Ideal	Rationale
1RM Squat	160kg	1.8 x BW (BW = 110KG)	Rugby forward athletes are required to generate lagre ground reaction forces to overcome inertial forces during acceleration, rucking, scrumming
10m Sprint	2.57 sec	Av: 2.10-2.25sec	Rugby forward athletes are required to complete repeated 10-30m sprints throughout a game, suggesting acceleration qualities are of greater im
CMV Jump	39cm	Good: 35-45cm	The vertical jump is biomechanically simliar to various acceleration and game related movements. Thus, such a test is valid to assess speed stren

- The ability to be able to research, collect and apply normative data within modern strength and conditioning is a vital skill. Normative data, is simply data that has been previously collected (such a performance assessment scores) across a large population, and then categorised (good, average, poor, etc.). Furthermore, such data is normally further divided into athlete competitive levels (recreational, semi pro, pro, etc.). To complete the normative data performance measures section for a chosen sport, simply search for 'normative performance data for …….' Obviously with the desired sport inputted.

- Gather and input the required information within the task section of the case study. Please note it may be the case that a sports specific performance assessment needs to be created specifically for the athlete in question (e.g. Thai boxer – power endurance assessment - number of bag kicks per minute)

- As always throughout the pack, a rationale must be given for all the above sections (where instructed within the case study).

THE NEEDS ANALYSIS – TASK 1 D – THE GAP ANALYSIS

To complete the task, firstly open 'task 1 D' within the case study. You will see the following sections:

- movement assessment evaluation
- sport specific performance evaluation
- SMART goals

Movement assessment evaluation:

- To complete this section, you are required to evaluate and report the findings from the movement assessments previously carried out. Within this evaluation, a detailed description of which movement patterns could be considered strengths (performed correctly without movement dysfunctions)

- And which movement patterns are areas that require improvement (provide justifications for all details given).

Performance benchmark evaluation:

- To complete this section, you are required to evaluate and report the findings from the Performance benchmark assessments previously carried out. Within this evaluation, a detailed description of which sports specific qualities could be considered strengths (through comparison against the normative performance data)

- And which sports specific qualities are areas that require improvement (provide justifications for all details given).

THE NEEDS ANALYSIS – TASK 1 D – THE GAP ANALYSIS

Movement assessment evaluation - the first section of the GAP analysis task to be completed requires an evaluation of the movement assessments performed with the athlete previously. Within this section, detail any movement dysfunction that where present.

Movement Assessment Evaluation
From my movement assessment I found the athlete was *- My athlete demonstrated good squat depth mobility to just below 90 degree depth, however a posterior tilt of the hips was displayed beyond this depth. The athlete displayed limited overhead extension capabilities, with low scores on both the overhead squat and shoulder lift off test. During the performance of the lunge, the athlete demonstrated good hip external rotational, resisting valgus of the knee dysfunction. However, the athlete did display forward flexion of the spine when performing the lunge, coming out of neutral alignment and losing postural stability of the torso. During the Thomas test, the athlete displayed tight one and two joint hip flexors. The athlete displayed partial range posterior chain range of motion. This was slightly more evident in one leg than the other.*

THE NEEDS ANALYSIS – TASK 1 D – THE GAP ANALYSIS

Performance benchmarks evaluation - the second section of the GAP analysis task to be completed requires an evaluation of the performance benchmark assessments performed with the athlete previously. Within this section, a detailed comparison against the normative data previously gathered is expected, allowing for the athlete's performance benchmark strengths and areas for improvement to be highlighted.

Performance Benchmarks Evaluation
From the performance benchmark I found the athlete was *.....The athletes 1RM squat performance (160kg) is below the normative data performance benchmark for professional rugby union props (Smart 2011). This indicates that the athlete is lacking in maximal strength performance, which in turn could be limiting the athletes ability to apply ground reaction force effectively, therefore limiting the athletes ability to overcome intertia (effecting acceleration, rucking, scrumming performance). The athletes CMV performance was rated 'good' when compared against previous normative data (Gamble, 2012). This may indicate that the athlete has good speed strength (power) capabilities, even though the athletes back squat strength is lacking. The athlete demonstrated limited 10m acceleration capabilities, with a score displayed below 'average' within normative data literature (Baechle and Earle, 2008). Based on a comparison against normative performance data, this indictaes that the athlete has a great potential to improve in both back squat and 10m acceleration performance, whilst moderately increasing CMV performance.*

THE NEEDS ANALYSIS – TASK 1 D – THE GAP ANALYSIS

SMART goals:

- To complete this section, three specific SMART goals must be applied (short – 8 weeks, medium – 16 weeks, and long term – 24 weeks for all four). These goals will be made up of a combination of both movement and sports specific performance goals.

S.M.A.R.T Goals	
Short term (8weeks)	
Goal 1	Increase back squat from 160kg to 170kg (BW of 110kg x 1.55)
Goal 2	reduce 10m sprint time from 2.57sec to 2.4sec
Goal 3	Increase CMV jump from 39cm to 42cm
Medium term (16 weeks)	
Goal 1	Increase back squat from 170kg to 180kg (BW of 110kg x 1.65)
Goal 2	reduce 10m sprint time from 2.4sec to 2.35sec
Goal 3	Increase CMV jump from 42cm to 44cm
Long term (24 weeks)	
Goal 1	increase back squat from 180kg to 190kg (BW of 110kg x 1,75)
Goal 2	reduce 10m sprint time from 2.35sec - 2.2sec
Goal 3	Increase CMV jump from 44cm to 46cm

- Poor SMART goal – 'my athlete will improve their 1RM squat' - Correct SMART goal – 'my athlete will aim to improve their 1RM squat from 100kg to 110kg within 8 weeks'

- Lastly, remember to be realistic when setting goals. World records within Olympic lifting get broken by 1 kg! So, if an athlete is considered advanced, then improvements will be made in small increments.

- However, if an athlete is only at a recreational level, or has a poor performance within a certain performance measures, then improvements may be made more drastically. So be sure to consider the level of the athlete when setting goals.

PERFORMANCE PROGRAMMING AND PLANNING – TASK 2A

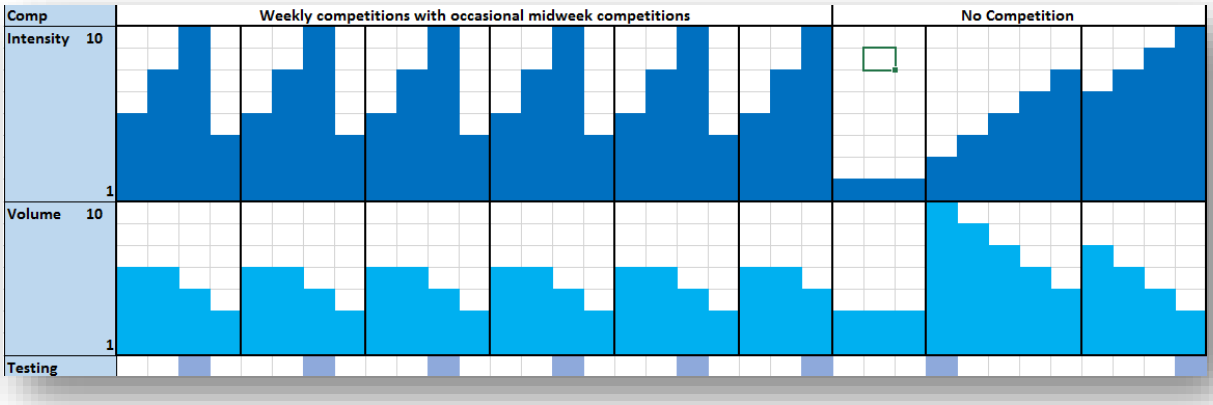
THE ANNUAL PLAN

To complete the task, firstly open 'task 2A' within the case study. The information needed to be detailed within this section is as follows:

- A breakdown of the annual macrocycle plan in relation to the sports specifics (e.g. preparation phase, competition phase, etc.). A breakdown of the mesocycles within the annual macro-cycle periodisation plan phases. A breakdown of when any performance assessments will occur, and lastly, a graphical representation of the planned volume/intensity loading throughout the annual macro-cycle plan.

Please fillout Performance programming and planning task 2 A

Month	January	February	March	April	May	June	July	August
Week	1 2 3 4	5 6 7 8	9 10 11 12	13 14 15 16	17 18 19 20	21 22 23	24 25 26	27 28 29 30 31	32 33 34 35
Meso cycle	7	8	9	10	11	12	13	1	2
Comp Phase	Competition Phase						No Competition		
Training Phase	Competition Phase - strength and power training: modified linear MET CON - daily undulating Plyometrics - daily undulating Movement training - daily undulating	Competition Phase - strength and power training: modified linear MET CON - daily undulating Plyometrics - daily undulating Movement training - daily undulating	Competition Phase - strength and power training: modified linear MET CON - daily undulating Plyometrics - daily undulating Movement training - daily undulating	Competition Phase - strength and power training: modified linear MET CON - daily undulating Plyometrics - daily undulating Movement training - daily undulating	Competition Phase - strength and power training: modified linear MET CON - daily undulating Plyometrics - daily undulating Movement training - daily undulating	Competition Phase - strength and power: modified linear MET CON - daily undulating Plyometrics - daily undulating movement training daily undulating	Transition phase - non sport specific general conditioning - muscular endurance - aerobic steady state continuous training	Preparation phase 1 - strength training modified Linear: Strength Endurance- Hypertrophy - basic strength - MET CON linear Progressions: aerobic - sub MAS Plyometrics - linear Movement training - linear	Preparation phase 2 - strength training modified Linear: basic strength - max strength - power MET CON linear progression: supra MAS - RST Plyometrics - linear Movement training - linear



PERFORMANCE PROGRAMMING AND PROGRAMMING – TASK 2 B – MICROCYCLES 1-4

To complete the task, firstly open 'task 2 B' within the case study.

Once the macrocycle/mesocycle annual plan has been completed, please select 4 weeks from within the plan to be planned in greater detail.

Week 32	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
AM:							
Session aims:	Speed strength Basic Strength Assistance work Prehab/ Core	Speed strength Basic Strength Assistance work Prehab/ Core		Speed strength Basic Strength Assistance work Prehab /Core	Speed strength Basic Strength Assistance work Prehab/ Core		
PM:							
Session aims:	Linear movement training horizontal force focused plyometrics MET CON -Sub MAS	Technical/tactical		Technical/tactical	Lateral movement training lateral force focused plyometrics MET CON - Supra MAS		

The micro-cycle should detail the following information:

- An overall breakdown of the planned individual sessions within the microcycle
- The training focus of the session in regards to training qualities (e.g. strength, speed strength, movement training, etc.)
- And the additional technical/tactical training also being completed within the microcycle

PERFORMANCE PROGRAMMING AND PLANNING – TASK 2 C – MICROCYCLE 1 PROGRAMS

To complete the task, firstly open 'task 2 C' within the case study. The programs to be planned should represent each planned training session detailed within week 1 from the 4-week micro-cycle previously planned.

Within each program, the specific warm up for each individual session needs to be detailed, followed by a detailed description of the actual session (reps/sets/rest/ratios for any speed/agility/plyometric/metabolic conditioning training/coaching points)

Please note that you do not need to fill out all the available program session plans within the case study .This amount has only been included to ensure that there is enough program cards available to accommodate your athletes training frequency.

Warm up/Injury Prevention	
Describe all injury prevention work	SMR adductors/abductors/hip flexors/hamstrings/Pectorals/Latts external/internal shoulder band resistance rotations scapular protractions, lateral band walks, thoracic foam extensions,
Describe R.A.M.P warm up	Hip mobility, deep squat mobility barbell complex - shoulder press, squat, RDL, overhead squat, snatch balance, power snatch, snatch

Session - Tuesday AM					
Exercise	**Reps**	**Rest**	**Sets**	**Ratios**	**Coaching Cues**
Power snatch	3	2-3min	5		Hit and shrug, stay tight in the back, hook grip, keep the arms relxed, explosive second pull, catch in clean gripstabilise
Front squat	3	2-3min	5		Front Rack the bar on the chest, back tight, brace, break from the knees and hips, lift the chest, upright as possible, drive through the heels
Incline BB bench press	3	2-3min	5		set bench to 45 degree incline, lower barbell to chest, keep tight, keep stabilised in the scapulars
Sumo deadlift	3	2-3min	5		set in a sumo stance, externally rotate at the hips, back tight, lift chest, drive through heels
Single arm row	3	2-3min	5		One hand on the bench, row to the hip, no movement in the spine or hips
Hyperextensions	8	1min	3		Set GHR to hyperextension setting, extend using all the posterior chain, lift the chest at the top of the movement

PERFORMANCE PROGRAMMING AND PLANNING – TASK 2 D – THE MIDWAY REVIEW

To complete the task, firstly open 'task 2D' within the case study. As previously within task 1 C, you will see a movement assessment table, and a performance benchmarks table

Movement Assessment			
Exercises	Result	Ideal	Notes
Deep Squat Depth	4	5	the athletes deep squat deep passed 90 degress depth, however a posterior tilt of the hips did occur just as the femur 90 degrees
Deep Squat Shoulders	2	5	the athletes deep squat shoulder abilities are limited, expressing a restriction in overhead extension and thoracic extension mobilities
Lunge L	3	5	the athlete didn't demonstrate any valgus dysfunctions of the knee during the performance of the lunge, however the athlete demonstrate
Lunge R	4	5	again, the athlete didn't demonstrate any valgus dysfunctions of the knee, however the athletes ability to maintain postural control did imp
Single Leg Squat L	3	5	the athlete couldn't perform a single leg squat to full depth, however they could reach partial depth just above 90 degrees
Single Leg Squat R	3	5	the athlete couldn't perform a single leg squat to full depth, however they could reach partial depth just above 90 degrees
Thomas Test 1L	3	5	the athlete demonstrated partial limiting one joint hip flexor range of motion
Thomas Test 1R	3	5	again, the athlete demonstrated partial limiting one joint hip flexor range of motion. Demonstrating no uni lateral balances between each h
Thomas Test 2L	3	5	the athlete demonstrated greater limiting two joint hip flexor range of motion, with the knee going into extension
Thomas Test 2R	3	5	the athlete demonstrated greater limiting two joint hip flexor range of motion, with the knee going into extension, however no uni lateral b
Ankle Range L	3	5	the athlete demonstrated partially limiting dorsi flexion range of motion
Ankle Range R	3	5	the athlete demonstrated partially limiting dorsi flexion range of motion
Shoulder Lift Off	2	5	the athlete demonstrated limiting overhead shoulder extension capabilities
Push-Up	3	5	the athlete demonstrated correct lumbar spine control, however winging scapulars were demonstrated during the concentric phase of the e
Pos Chain L	3	5	the athlete demonstrated partial posterior chain limited range motion
Pos Chain R	4	5	the athlete demonstrated greater posterior chain range of motion compared with the other leg, however below 90 degrees range of motion

To complete this task, repeat the same movement assessment and performance benchmarks with the athlete, recording all new data. Once this has been done, a comparison can be made against the original movement assessment and performance benchmarks previously gathered.

Please note that this task is to be completed at week 4 of the full 8 week training plan.

Performance Benchmarks			
Name of Test	Result	Ideal	Rationale
1RM Squat	160kg	1.8 x BW (BW = 110KG)	Rugby forward athletes are required to generate lagre ground reaction forces to overcome inertial forces during acceleration, rucking, scrumming
10m Sprint	2.57 sec	Av: 2.10-2.25sec	Rugby forward athletes are required to complete repeated 10-30m sprints throughout a game, suggesting acceleration qualities are of greater im
CMV Jump	39cm	Good: 35-45cm	The vertical jump is biomechanically simliar to various acceleration and game related movements. Thus, such a test is valid to assess speed stren

PERFORMANCE PROGRAMMING AND PLANNING –

TASK 2 E –MICROCYCLE 5-8

To complete the task, firstly open 'task 2E' within the case study.

Please select the next 4 weeks (microcycles 5-8) from annual plan to be planned in greater detail.

Week 32	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
AM:							
Session aims:	Speed strength Basic Strength Assistance work Prehab/ Core	Speed strength Basic Strength Assistance work Prehab/ Core		Speed strength Basic Strength Assistance work Prehab /Core	Speed strength Basic Strength Assistance work Prehab/ Core		
PM:							
Session aims:	Linear movement training horizontal force focused plyometrics MET CON -Sub MAS	Technical/tactical		Technical/tactical	Lateral movement training lateral force focused plyometrics MET CON - Supra MAS		

The micro-cycle should detail the following information:

- An overall breakdown of the planned individual sessions within the micro-cycle
- The training focus of the session in regards to training qualities (e.g. strength, speed strength, movement training, etc.)
- And the additional technical/tactical training also being completed within the micro-cycle

PERFORMANCE PROGRAMMING AND PLANNING – TASK 2 F – MICROCYCLE 5 PROGRAMS

To complete the task, firstly open 'task 2 F' within the case study. The programs to be planned should represent each planned training session detailed within week 5 from the 5-8 week micro-cycle previously planned.

Within each program, the specific warm up for each individual session needs to be detailed, followed by a detailed description of the actual session (reps/sets/rest/ratios for any speed/agility/plyometric/metabolic conditioning training/coaching points)

Please note that you do not need to fill out all the available program session plans within the case study (there is 8 available program session plans). This amount has only been included to ensure that there is enough program cards available to accommodate your athletes training frequency

Warm up/Injury Prevention	
Describe all injury prevention work	SMR adductors/abductors/hip flexors/hamstrings/Pectorals/Latts external/internal shoulder band resistance rotations scapular protractions, lateral band walks, thoracic foam extensions,
Describe R.A.M.P warm up	Hip mobility, deep squat mobility barbell complex - shoulder press, squat, RDL, overhead squat, snatch balance, power snatch, snatch

Session - Tuesday AM					
Exercise	**Reps**	**Rest**	**Sets**	**Ratios**	**Coaching Cues**
Power snatch	3	2-3min	5		Hit and shrug, stay tight in the back, hook grip, keep the arms relxed, explosive second pull, catch in clean gripstabilise
Front squat	3	2-3min	5		Front Rack the bar on the chest, back tight, brace, break from the knees and hips, lift the chest, upright as possible, drive through the heels
Incline BB bench press	3	2-3min	5		set bench to 45 degree incline, lower barbell to chest, keep tight, keep stabilised in the scapulars
Sumo deadlift	3	2-3min	5		set in a sumo stance, externally rotate at the hips, back tight, lift chest, drive through heels
Single arm row	3	2-3min	5		One hand on the bench, row to the hip, no movement in the spine or hips
Hyperextensions	8	1min	3		Set GHR to hyperextension setting, extend using all the posterior chain, lift the chest at the top of the movement

PERFORMANCE PROGRAMMING AND PLANNING – TASK 2 G – THE FINAL REVIEW

To complete the task, firstly open 'task 2G' within the case study. As previously within task 1C and 2D, you will see a movement assessment table, and a performance benchmarks table

Movement Assessment			
Exercises	Result	Ideal	Notes
Deep Squat Depth	4	5	the athletes deep squat deep passed 90 degress depth, however a posterior tilt of the hips did occur just as the femur 90 degrees
Deep Squat Shoulders	2	5	the athletes deep squat shoulder abilities are limited, expressing a restriction in overhead extension and thoracic extension mobilities
Lunge L	3	5	the athlete didn't demonstrate any valgus dysfunctions of the knee during the performance of the lunge, however the athlete demonstrate
Lunge R	4	5	again, the athlete didn't demonstrate any valgus dysfunctions of the knee, however the athletes ability to maintain postural control did imp
Single Leg Squat L	3	5	the athlete couldn't perform a single leg squat to full depth, however they could reach partial depth just above 90 degrees
Single Leg Squat R	3	5	the athlete couldn't perform a single leg squat to full depth, however they could reach partial depth just above 90 degrees
Thomas Test 1L	3	5	the athlete demonstrated partial limiting one joint hip flexor range of motion
Thomas Test 1R	3	5	again, the athlete demonstrated partial limiting one joint hip flexor range of motion. Demonstrating no uni lateral balances between each h
Thomas Test 2L	3	5	the athlete demonstrated greater limiting two joint hip flexor range of motion, with the knee going into extension
Thomas Test 2R	3	5	the athlete demonstrated greater limiting two joint hip flexor range of motion, with the knee going into extension, however no uni lateral b
Ankle Range L	3	5	the athlete demonstrated partially limiting dorsi flexion range of motion
Ankle Range R	3	5	the athlete demonstrated partially limiting dorsi flexion range of motion
Shoulder Lift Off	2	5	the athlete demonstrated limiting overhead shoulder extension capabilities
Push-Up	3	5	the athlete demonstrated correct lumbar spine control, however winging scapulars were demonstrated during the concentric phase of the e
Pos Chain L	3	5	the athlete demonstrated partial posterior chain limited range motion
Pos Chain R	4	5	the athlete demonstrated greater posterior chain range of motion compared with the other leg, however below 90 degrees range of motion

To complete this task, repeat the same movement assessment and performance benchmarks with the athlete, recording all new data. Once this has been done, a comparison can be made against the original and midway review movement assessment and performance benchmarks previously gathered.

Performance Benchmarks			
Name of Test	Result	Ideal	Rationale
1RM Squat	160kg	1.8 x BW (BW = 110KG)	Rugby forward athletes are required to generate lagre ground reaction forces to overcome inertial forces during acceleration, rucking, scrumming
10m Sprint	2.57 sec	Av: 2.10-2.25sec	Rugby forward athletes are required to complete repeated 10-30m sprints throughout a game, suggesting acceleration qualities are of greater im
CMV Jump	39cm	Good: 35-45cm	The vertical jump is biomechanically simliar to various acceleration and game related movements. Thus, such a test is valid to assess speed stren

Please note that this task is to be completed at week 8 within the training plan.

PERFORMANCE PROGRAM REVIEW – TASK 3A – CASE STUDY CONCLUSIONS

To complete the task, firstly open 'task 3A' within the case study.

The aim of the following task is to draw on conclusions based on the comparisons between the pre/post-performance assessment data previously gathered.

Performance Program Review
Athlete Recap: *the athlete competed in rugby union at a professional level (Championship), specifically in the tight head prop position. Within the initial movement assessment, the athlete demonstrated good squat depth mobility to just below 90 degree depth, however a posterior tilt of the hips was displayed beyond this depth. The athlete displayed limited overhead extension capabilities, with low scores on both the overhead squat and shoulder lift off test. During the performance of the lunge, the athlete demonstrated good hip external rotational, resisting valgus of the knee dysfunction. However, the athlete did display forward flexion of the spine when performing the lunge, coming out of neutral alignment and losing postural stability of the torso. During the Thomas test, the athlete displayed tight one and two joint hip flexors. The athlete displayed partial range posterior chain range of motion. This was slightly more evident in one leg than the other. The athlete demonstrated below average 10m sprint performance, good vertical jump performance and below 1.8 x BW squat performance (when compared with current normative performance data.*

The following sections need to be completed within this section:

- Briefly recap the originally set goal, before discussing the comparison between the pre/post performance data, and the short term SMART goals
- Strengths / areas for development – which areas of the programs/athlete performance were strengths, and which could be considered areas for improvement. Also, discuss what brings you to these conclusions
- Future changes – which areas of the program would you change if you were to continue to train the athlete? What could you have done differently?
- Then discuss the findings – did the athlete improve in performance overall? Did the athlete reach the short term SMART goals originally set?

PERFORMANCE PROGRAM REVIEW - TASK 3B – THE COACH REVIEW

To complete the task, firstly open 'task 3B' within the case study. The aim of the following task is to draw upon self-reflections including:

Coach Review
What you feel you learnt throughout the learning experience and process?:
Identify what you feel are your strengths as a coach, giving explanations behind these conclusions:
identify what you feel are the areas in which you feel you could improve upon as a coach, give details on what draws you to these conclusions:

- What you feel you learnt throughout the learning experience and process
- Identify what you feel are your strengths as a coach, giving explanations behind these conclusions
- Identify what you feel are areas in which you could improve upon as a coach, again give details on what draws you to these conclusions
- Detail the actions to be taken to improve on these areas. Aim to think of a combination of solutions

PERFORMANCE PROGRAM REVIEW – TASK 3C – VIVA

To complete the task, firstly open the 'task 3C' within the case study.

Viva
What were the aims and objectives of your case study?
Justify your macrocyle?

The aim of the following task is to provide solid reasoning and justifications for all sections of the case study. This is split into the following sections:

- The aims/objectives of the case study – what sport qualities did the case study aim to improve – why?

- Macrocycle justification - provide a brief recap of the overall macrocycle design in relation to the sport

- Microcycle justification – justify the microcycle design applied within the 8 weeks' case study – why did the athlete train 'x' amount days? Why did the athlete train strength and power 'x' times per week? Why were the following exercises programmed?

- Periodisation model justification – justify the periodisation model/models that were applied within the case study – why was the periodisation model applied?

- Beyond the case study – explain how if you continued to train the athlete, how might future microcycles, periodisation models, exercise selection, etc. change? Why ? Provide a rationale for your decisions.

CASE STUDY COMPLETION

Congratulations on completing the Strength and Conditioning Education L4 case study. To complete such a case study demonstrates a great level of strength and conditioning knowledge, and the application of such knowledge within the field.

Once you are happy with the final completed pack, please email your pack to the following email address ready to be marked:

assessments@strengthandconditioningeducation.com

Once this has been received, an assessor will mark the case study, before providing feedback on the completed work. Please note that the assessor may request amendments to be made to certain tasks within the pack where necessary, the details of which will be explained within the feedback recieved from the assessor.

Once the assessor is satisfied with all the completed work within the case study, and the work has been awarded with a pass mark, the remaining practical assessments and theory exams will need to be completed (the details of which you should have been informed of during the initial practical workshop).

Lastly, well done again on completing the L4 case study, and good luck on your practical assessment day.

Strength and Conditioning Education