

ARMY RUGBY UNION SENIOR SQUAD



2007/08 STRENGTH AND CONDITIONING TRAINING INFORMATION

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Foreword

By WO2 Andy Price
Head Coach Army Senior Squad

I believe that one of the main elements that maintains The British Army as World leaders in Military rugby and ahead of the other two services, is our superior fitness.

Army elite rugby is played at high pace and intensity for at least 80 minutes. To maintain this, the players need high levels of skill, mental toughness and physical fitness.

A player, who improves his fitness, will be a better player. The player will maintain a higher skill level and increase their ability to read the game and maintain tactical awareness under fatigue.

It has been widely quoted that some players play rugby to get fit. In Army elite rugby, you must get fit to play rugby.

The aim of this Strength and Conditioning information and education manual is to give you guidance and advice on how to gain and maintain fitness for rugby. It also provides general rugby fitness, agility, strength, speed, hydration, recovery strategies and much more.

I commend this manual to you and strongly advise you to use it as a good guide to improving your rugby fitness and performance.

Please remember:

Fitness is the responsibility of **you** the player.

Andy Price

The Excellent Rugby Union Player & Team

MAKE IT HAPPEN

“Today is the first day of the rest of your life – make it happen!”

Player Characteristics:

HARDWARE (Physical Attributes)	SOFTWARE (Mental Attributes)
Fitness	Aggression / Competitiveness
Agility	Awareness / Vision
Workaholic	Leadership
Power	Pride
Strength	Motivation / Dedication
Speed	Determination
Skill	Self Awareness / Belief
	Anticipation
	Mental Toughness
	Life-balance / Holistic Attitude
	Coping With Pressure
	Confidence / Positiveness
	Ambition
	Individuality / Matchwinner
	Concentration / Focus
	Discipline
	Tactical Appreciation

Team Attributes

Commitment / Spirit	Competitiveness
Confidence in each other	Desire To Keep Winning
Togetherness / Bonded as a unit	Protective Of Each Other
Discipline	Focussed On The Positive
All-Round Strength	Strong Leadership
Organisation	Team Oriented
Skill & Fitness At Highest Level	Constant Search For Excellence
Desire To Be The Best	Enjoyment / Fun
Individual Stars Within The Team	Recovers From Defeat

What is fitness?

Fitness can be defined as “*an individual’s adaptation to the stresses or requirements of their chosen sport or lifestyle*”.

The type of fitness required can vary greatly between sports, the more dissimilar the sports and the more elite the participant the smaller the crossover of fitness. The specificity of fitness means that the training you perform for any sport must be orientated towards specific, achievable goals.

Fitness is dynamic; it is always changing according to training status, fatigue, physical health, injuries, nutritional standing and psychological well being.

Fitness can be split into components – the seven S’s:

- **Speed** is the ability to co-ordinate simple or complex limb movements at high velocity. An example of a relatively simple movement would be throwing a ball; a complex movement could be an all out sprint.
- **Strength** is the maximum force an individual can exert through a muscle or group of muscles, against an external resistance.
- **Stamina** is a measure of the body’s ability to maintain a rate of work.
- **Suppleness** is the range of movement through a joint or group of joints.
- **Skill** is the ability to perform the movements of a sport efficiently and effectively.
- **Sustenance or nutrition.**
- **Psychology** in terms of fitness can be thought of as the state of motivation. It can be affected greatly by stresses an athlete can carry into training from work, the family or their social life.

The sport you are involved in dictates the relative merits of each fitness component and the time spent training that component. In rugby this is also true when comparing positions on the field. All positions require a degree of each fitness component but the relative importance of each component will vary according to a player’s position.

Principles of training

Adaptation

Every time you expose your body to a training stimulus changes take place in your body, which are designed to make you efficient at the type of work you have performed. Sometimes these changes are chemical – for instance a hard endurance session may jolt your body into producing greater quantities of enzymes for energy production. Other times these changes can be structural such as the muscle growth production by weight training. On other occasions still these changes can be neural, that is they will be related to the nervous system and lead to an improvement in your co-ordination. It should be realised that adaptation can only take place in downtime when no training is performed hence the need to recuperate between sessions. You must always remember that adaptation is not the same as recovery, recovery takes you to the fitness level you were at before a particular training session, and adaptation allows you to achieve fitness level greater than those prior to a particular session (super compensation).

Overload

You cannot continue to train at one level and expect progress in your physical conditioning. In order for your fitness to improve you must continually progress the work you perform. The load (volume and intensity) for your sessions must reflect the goal for each session. There are three types of load:

- **Training load** – the work done in a session is great enough to improve fitness.
- **Maintenance load** – the work done in a session is only enough to maintain fitness.
- **Detraining load** – this is such that fitness falls even though you perform the session.

There are three basic ways to add overload to a session:

- **Frequency** – adding more session's e.g. increasing your sprint sessions from 1 to 2 a week.
- **Volume** – increasing the quantity of work done e.g. running eight 30m sprints instead of six.
- **Intensity** – increasing the quality of work done e.g. running the same distance quicker.

A generalisation in training is that you use increases in volumes and frequency before you increase intensity levels. To maintain fitness you can lower the frequency of work and the volume but must maintain intensity. It is also true to say that slow and steady is better, the longer you take to achieve a level of fitness the longer you can hold it through maintenance work.

Designing Your Programme

DECISIONS

“The best decisions are those taken understanding the whole picture!”

The nature of the rugby season means that players physical development is planned on a yearly basis. A yearly plan will obviously cover 52 weeks, within this time frame all aspects of fitness need to be developed, maintained whilst the development and maintenance of each component should not interfere with a players ability to compete in season. This planning process is generally known as periodisation. In producing a periodised plan the rugby year is generally split into 3 phases:

- **Off season** – this period starts after the last game. This would last for 4 weeks would with the main aim being recovery with minimum fitness loss. Cross training and non-specific gym work are the activities carried out in this period.
- **Pre season** – or preparation phase, this is the period where high volumes of work are performed in an attempt to improve conditioning. This lasts for approximately 12 weeks.
- **In season** – this period lasts for approximately 36 weeks. During this part off the season it is important that the player involves a balance of fitness development, maintenance and recovery time.

General Training Guidelines

- The programmes and advice in this pack is to be used as a guideline and should be used in tandem with club training, Regimental life and private lives.
- Keep a record of your training, (it only needs to be brief). It will help when planning, adjusting or analyse your aims. Keep it up to date and bring it to the games if you need to speak to me about it.
- Make time to train all aspects of your game, physical fitness, mental skills and technique/individual skills all need hard work.
- When you can't be arsed, **REMEMBER THE NAVY GAME.**
- If training in the gym, obey the local gym rules, for example, keep the gym tidy and replace weights after use.
- Wear suitable clothing and footwear for all training sessions.
- Respect other trainers working in the gym or on the track but do not let them disrupt you from producing your own quality session.
- Always warm up prior to training. Warming up for weight sessions are as equally important as track sessions.

- Easy jogging and gentle stretches should take several minutes.
- Avoid static stretches at the end of range, they could temporarily reduce muscle power, use dynamic stretches

Strength And Power Training

Strength

“We may be strong as individuals – but as a team we are invincible!”

Basic Components of Weight Training

1. **Patience** - It takes dedication, time and regular progressive sessions for best results.
2. **Frequency** - You should work out three or four times a week in each area of fitness.
3. **Prevention Of Injuries** – An additional benefit gained from weight training is assistance in injury prevention. Weight training toughens up joint and the added size will resist tissue injury and prepare the body to overcome physical stresses.
4. **Flexibility** – Ensure each exercise is taken through its full range of motion. This will assist in your flexibility about each joint. The term muscle-bound is a misused term through misinformation or lack of experience in its use.
5. **Co-Ordination & Agility** - The lack of basic strength can often be the basic reason for poor- co-ordination, which leads to early fatigue and lose of body control or performance. Improved strength can mean improved rhythm and increased power.
6. **Self-Confidence** – In addition to your improved physical appearance and greater strength, you will acquire an improvement in your "self image".

“Given the application of the basic components above to your weight training sessions, to show any real improvement you must first firmly believe in your own abilities to improve, succeed and the inner feeling of having something to contribute to the organisation”.

Strength and Power

What is strength and what is power?

Strength is a measure of the maximal force a muscle group can apply to a particular movement. It takes no account of the time taken to exert that force.

Power relates not only to the force of movement but also to the time taken for that force to be applied. The strongest person is therefore the person who is able to apply the most force. The most powerful person is the one who can apply the most force in a given time frame. For this reason, "power" in an athletic sense is often described as "speed strength" – a measure of how fast the player can apply his strength.

How does strength improve?

Strength can be discussed in two ways, absolute and relative. Absolute strength simply states how strong you are irrelevant of your body weight. Relative strength compares your with your body weight. Players with the best relative strength tend to be the best athletes – they are more efficient at movements and the best potential to produce the higher power outputs and running.

Principles of Weight Training

Overload

To achieve any increase in strength the body must be placed under stress, No matter how much you fatigue a muscle it will not become stronger unless overloaded beyond its working capacity. this means that in order to become stronger you must be prepared to progressively lift more weight. However, this does not mean that each day you should be adding more weight to the bar. Any increase in load should be applied progressively over a period of time.

Variation

Throughout the year the type of exercises, the number of reps and sets, the amount of rest between sets and the speed of movement should all be manipulated in order to continue applying overload and continue improving strength.

Frequency

The stimulus for muscle growth is increased training volume. This can be achieved in a number of ways, e.g. increasing the number of sessions per week, or the number of sets and reps completed per session. However, it is still important to have sufficient rest between sessions.

Order Of Exercise

It is recommended that large muscle group exercises should precede small muscle or single joint exercises. For Example

- Power Cleans
- Squats
- Bench Press
- Barbell Lunge
- Lateral Pulldowns
- Lateral Raises
- Bent Over Lateral Raises
- Tricep Press
- Twisted Crunch

Why In This Order

The power clean, squats and barbell lunges come first because they are the most functionally important exercises. The power clean precedes the squat because technically it is a more difficult movement. These are known as multi joint movements.

The shoulder and triceps exercises come next because they are single-joint movements.

The twisted crunch comes last because trunk stability strength is always required for good stability and technique in any exercise. Thus the trunk exercises should come at the end of a routine so that trunk-muscle fatigue doesn't compromise technique during other exercises

Muscular Balance

Balance out your program in order to avoid developing a muscle imbalance. This occurs when you focusing on one particular area, such as your biceps and not exercising the opposing muscle group (triceps), the risk of injury will increase if you are not careful here.

Warm-Up

Always warm-up prior to your sessions. Easy aerobic activities performed for 4/5 minutes involving both upper and lower body this promotes blood flow through the muscles and around joints.

The next stage of the warm-up should be a choice of individual mobility exercises for the whole body taking each major joint through a full range of motion without stress and loading prior to the workout. This is as important when completing a strength session as it is on the track.

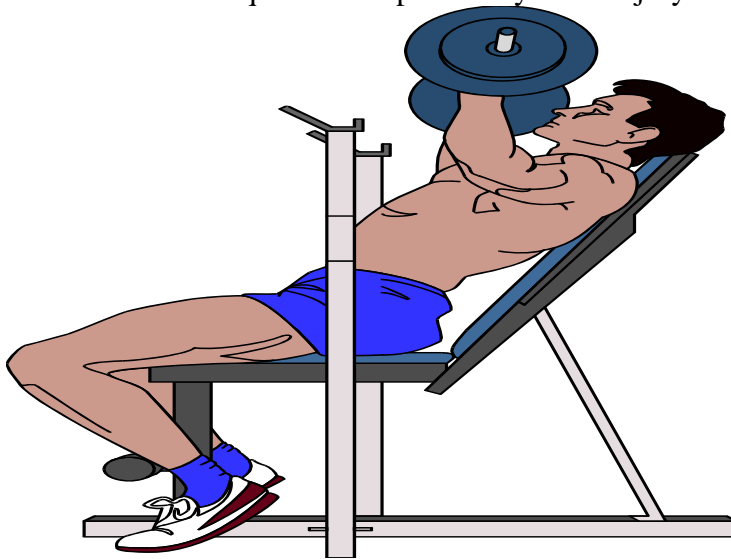


One And Ten Rep Max (Rm) Principle

- Basic weight training is based on the principle of maximum repetitions often referred to as RM. This is defined as the maximum weight that you can lift a certain number of times before fatigue sets in. For example, if you can lift a given weight ten times and no more before fatiguing, that weight will represent your 10 RM for that particular exercise.
- Training loads are often based on a percentage of a player's 1 RM (i.e. the maximum amount of weight that can be lifted for one repetition only). This is achieved by trial and error by completing a series of lifts while gradually increasing the weight you are lifting. However, the easiest method of prescribing the training load is to design the programme based on the number of repetitions to be completed for each set of a particular exercise. This means that if the prescribed intensity of effort is 4-6 reps per set and you use a weight that allows 8 reps, and then

obviously the weight is too light. Conversely if you could only complete 3 reps, then the weight is too heavy.

- The prime stimulus for POWER development is optimal acceleration. In other words, you should be able to maintain a high degree of acceleration on the bar for each repetition. If you cannot and the acceleration is decreasing with each repetition then you should stop the set. Unlike programmes designed to develop mass, when completing your power session DO NOT train to failure as this may lead to incorrect technique and the possibility of an injury.



Examples Of Weight Training Sessions

Power Training Session (PT)

Ser	Exercise	Sets	Reps	Rest between sets	Remarks
1	Power Clean	3	6	2-3 mins	60% 1RM
2	Bench Press	3	6	2-3 mins	60% 1RM
3	Front Squat & Press	3	6	2-3 mins	60% 1RM
4	Bench Pull	3	6	2-3 mins	60% 1RM
5	Squat Jumps	3	6	2-3 mins	35% 1RM
6	Dips	3	10	2-3 mins	Body Wt
7	Heaves/chin ups	3	6	2-3 mins	Body Wt

General Strength Session (GST)

Ser	Exercise	Sets	Reps	Rest between sets	Remarks
1	Back Squat	3	3-5	2-3mins	To Max
2	Bench Press	3	3-5	2-3mins	To Max
3	Straight Leg Dead Lift	3	3-5	2-3mins	To Max
4	Bent Over Row	3	3-5	2-3mins	To Max
5	Overhead Press	3	3-5	2-3mins	To Max
6	Weighted Heaves	3	3-5	2-3mins	To Max
7	Weighted Dips	3	Max	2-3mins	To Max

Local Muscular Endurance (LME)

Ser	Exercise	Sets	Reps	Rest between sets	Remarks
1	Dumbbell Bench Press	5	8-12	60seconds	60% 10RM
2	Clean and Press	5	8-12	60seconds	60% 10RM
3	Seated Row	5	8-12	60seconds	60% 10RM
4	Lateral Raises	5	8-12	60seconds	60% 10RM
5	Single arm Bicep Curls	5	8-12	60seconds	60% 10RM
6	Heaves (assisted ¼ body Wt)	5	Max	60seconds	Fast reps

It is stressed that these are examples of simple weight training programmes. You may need to start with different exercises, more rest, less weight or fewer sets. As mentioned earlier in the pack, you need patience to find this out and your early sessions should be based on trial and error to get your ideal start point. Take the time to get what is right for you; you will get more benefit in the long term.

Plyometrics

Training muscles to work fast requires quick, explosive movements, with minimal contact with the ground. But always remember the aim is explosiveness and speed. You're aiming to get as far/high as possible on every single repetition, there should not be an 80% training session with plyometrics, quality and 100% effort with minimum fatigue levels between sets are the key to power improvement.

1. **Squat jump;** Feet shoulder width apart and hands down by the sides, begin the movement by quickly lowering to a half squat position, then check the downward movement by exploding upwards as high as possible and throwing the arms upwards to assist the take-off. Upon landing repeat the movement and work for a maximum height each time for 6 repetitions.
2. **Overhead med ball throw;** Holding a medicine ball with two hands above your head, drive the ball downwards into towards the floor. Repeat 6 times.
3. **Box bounds;** Place four benches 1 to 1.5 metres apart. Jump up on the box and spring high from it, with full extension. On landing, recoil immediately and explosively, up on the next box.
4. **Push ups;** In the press up position, slowly lower yourself down so that the elbow is flexed at 90 degrees, immediately explode upwards and push body so that the upper body raises completely off the floor. On landing repeat the exercise 5 times.
5. **Tuck jumps;** Drop to a quarter squat and immediately explode upwards upwards, trying to touch the palms of the hands with the knees. On touching the ground, treat it as if it was a red hot stove and drive upwards continuously 6 times.
6. **Dumbbell alternate arm swing;** Stand with the knees slightly apart and the knees slightly bent, holding a dumbbell of suitable weight in each hand. Swing the arm forwards and upwards to above the shoulder while taking the other arm backwards. Check the movements at the end of each swing and reverse the direction, 5 times on each arm.
7. **Split jumps;** Adopt a starting position, one leg extended, forward leg flexed to 90 degrees. Spring up and change legs on regaining position, spring up again. Repeat 4 times on each leg.
8. **Underhand med ball throw;** Starting position with one leg in front of the other, med ball at waist height, throw the ball as high into the air as possible. Repeat 6 times.

Plyometrics is a training technique used to bridge the gap between power and maximum strength. The essence is quick recoil (stretch/reflex), therefore you must not use the ground for an extra recovery bounce as the value of the exercise is then lost.

Carryout 6 – 10 reps of each exercise with 2 – 3 minutes rest in between sets, 4 – 6 sets of each exercise.

A good warm up and cool down is absolutely necessary due to the stress on the muscles, ligaments and tendons to aid in the recovery process.

Exercises must be carried out correctly on a firm, flat and resilient surface.

Players Training Diary

DATE					
EXERCISE			REP MAX		
SETS					
REPS					
KGS					
EXERCISE			REP MAX		
SETS					
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Endurance Training

Goals

“However long it takes – the end result is always worth the effort!”

Endurance can be thought of as the body’s ability to maintain workload; energy production is required for this work, generally the more efficient and effective an athlete’s energy production – the better his endurance. There are two main energy producing pathways available:

- **Aerobic energy production** – the production of energy via pathways which utilise oxygen.
- **Anaerobic energy production** – the production of energy via pathways that do not directly involve oxygen.

Examples Of Aerobic Sessions (Aer S)

Exercise	Reps	Sets	Intensity	Rest
5000m run	1-continuous	1	65 – 70% max heart rate	N/A
3000m run	1-continuous	1	70 – 85% max heart rate	N/A
1000m runs	4	1	70 –85%	2 – 4mins recovery between reps
400m runs	10	1	70 – 80% of pace for best 400m	1 – 2 min rest
100m runs	6	3	70 – 80% of best 100m pace	50 m slow jog between reps, 3 mins between sets

Speed Training (ST)

Speed is an essential, every player in every position requires it. Speed is the ability to move quickly and effectively, and is dependent upon reaction time, speed of muscle contraction and running technique. These qualities can be improved with the appropriate training. The components of running speed are:

- Stride length
- Running form
- Speed endurance
- Reaction time
- Acceleration
- Strength
- Power
- Flexibility

Technique Work

Increases in strength must be integrated into an efficient and functional sprinting technique programme: Correct form while running plays a large part in determining just how fast you will run. Some points to concentrate on are:

- Use a strong-arm action. Emphasis is on driving the opposing arm backwards.
- Try to keep a solid (stable) upper torso - this contributes to maximising force production in a forward direction.
- Drive forward not upwards when training (i.e. don't over emphasise knee lift – high knee lift will cause your upper body to lean backwards making it almost impossible to apply hip extension force throughout the range of motion). Keep your hips and shoulders on the plane.
- Get into your stride quickly and extend the legs on each stride.
- Minimise ground contact time.

Agility & Sprint Drills (A&SD)

Sprint Drills

Mark out 80m running lane with 10m intervals

- Warm up then 10 minutes of high knee lifts, heel flicks to behind. Two footed jumping and sideways skipping. All exercise are to be done over 30 metres
- Walk back and repeat after every 30m until loss of technique, emphasis should be on high knee lift not forward movement. This is what makes the drills hard.
- Jog to the start line, accelerate over 20m ease of for 20m accelerate 20m ease off.
- Walk back to start line and repeat. 6 x 5 minutes. Vary the sprint distance each repetition.

- **OR**

- * 8 x 15m sprints 100% Active recovery between reps
- * 8 x 10m sprints 100% Active recovery between reps

- **OR**

- Mark out 100m in 20m segments
- Run between these segments, increasing pace every 20m (jog, stride, 75%, 90%, maximal)
- Active recovery
- Repeat 2 sets of 4 - 8 reps

- **OR**

- Mark out 50m course into a 30m section and a 20m section
- Start running at 50% speed, and increase the pace with each stride, until you are at full pace by the end of the 30m. Maintain maximal speed for final 20m
- Active recovery. Repeat 2 sets of 6 - 8 reps

All efforts should start with a near resting pulse rate.

Agility

Initiative

“We can sail inside the harbour – but that’s not what ships were built for!”

Avoiding a collision in rugby is a great skill.

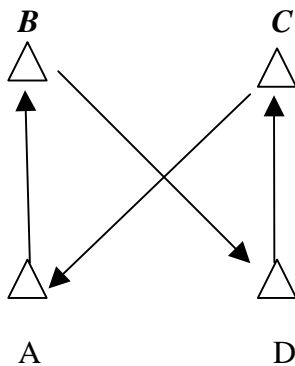
In sport, agility is characterised by fast feet, body co-ordination during change of direction and sports skill performance, and reaction time/ability. It is an amalgam of balance, speed, strength, flexibility and co-ordination. Although a performer’s agility, relies heavily on the acquisition of optimum sports technique, it can also be enhanced by specific conditioning.

ABC:

Agility **B**efore **C**ontact

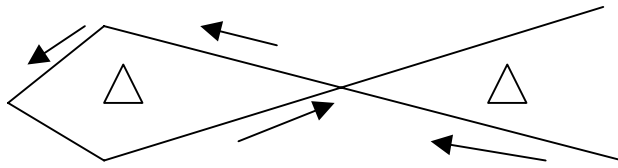
Examples of agility drills:

Agility square

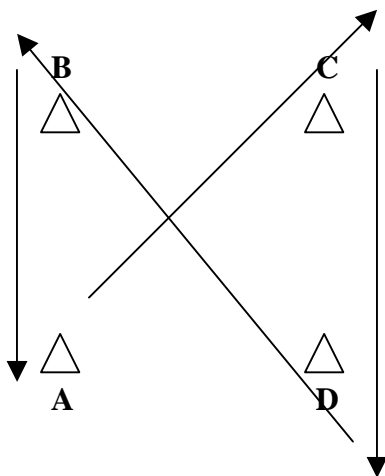


Set up 4 cones 5m apart
Sprint side AB
Move laterally BD
Backwards DC
Forwards CA
Stay low throughout
Use arms to drive and accelerate

Figure of 8 runs



Set up 2 cones 5 – 10m apart
Sprint around in a figure of 8 shape
Again keep a low centre of gravity
Ensure arm drive is used to accelerate



X cone run

Cones are set up as per agility square
Sprint AC
Run backwards CD
Sprint DB
Turn around cone B
Sprint through to cone A



Core stability

Persistence

“You will need to make many turns and overcome many obstacles to create the path you desire!”

The lower abdomen, hip and glute area are vital in power production and power transfer in athletic movements, they are areas which are also very prone to injury problems. Having a strong, stable core will make you a better athlete, it can help improve all aspects of your game from sprinting to scrummaging.

Generally when people work their core they tend to think of their superficial muscle called rectus abdominals, which form the 6 pack, they attempt to build a strong core with exercises such as sit-ups and leg raises. A strong core requires much more than this and involves many sets of muscles located and attaching in our abdomen and hips. The deeper muscles that are closer to the centre of the body tend to act as stabilisers, where as the more superficial surface muscles act as the large force producing, mobilising muscles. It is vitally important that all areas of the core have sufficient attention paid to them.

A term often used in core training is neutral spine position, this position is the most suitable and efficient for athletic movements and limits shear forces on the spine. A neutral spine position is attained when muscle activation minimises the curvature present in the spine. This position is very effective for force production, power transfer and minimising injury risks.

Core stability can be maintained and developed with traditional exercises such as squats, deadlifts and plyometric exercises but this development and training can only occur when an athlete is able to use his core muscles correctly and also realise when and how they are using them – this involves attaining and

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maintaining a neutral spine position and utilising your hip, buttock and groin muscles correctly commonly termed switching on or activating your core.

As with other training schedules you must know where you start and at what level you can join a training programme..

Master awareness and contraction of the core muscles (level 1)

Static holds and slow movements in stable environments (level 2)

Static holds in unstable positions (level 3)

Level 1



Start position

Back lying with legs bent and feet flat on the floor.

Place hands just in front of the pelvis fingers pushing onto abdominal muscles.

Tense the lower abdominal muscles feeling the fingers push away, flattening the back and the pelvis slightly tilts upwards. Do not contract too forcefully and continue breathing at a normal rate.

Hold 15 seconds, relax and repeat 5 times.

Level 2



Start position

Back lying with legs bent to 90° feet flat on floor.

Push down through feet raising hips off floor trying to achieve a straight line from shoulders to knees. Lower down under control.

Progression 1. Place feet on bench and repeat exercise.

Progression 2. Place feet on floor and push through single leg extending other leg straight out.

Level 3



Start Position

Lay in a supine position with the feet in full contact with the top of the ball. The arms should run parallel with the body for support.

Technique

From the start position raise the pelvis up so a straight line is achieved between the shoulders and the knees with the feet still in full contact with the ball and slowly return to the start position.

Progressions

1. Remove one foot from the ball
2. Bring both hands across the chest (Both feet on the ball).

Example Training Schedule Pre Season Training

Day	Week of Trg	1	2	3	4	5	6
Mon	am	Aer s	Aer s	Aer s	Aer s	Ana s	Ana s
	pm	GST	GST	LME		LME	GST
Tue	am	Aer s	Aer s		Ana s	CS	Aer s
	pm	NIE	GST	NIE	LME	LME	
Wed	am	NIE	NIE	Ana s	ST	ST	CS
	pm	GST					ST
Thu	am	A & SD	Ana s	CS	SE	Ana s	Aer s
	pm		GST	GST	PT	LME	
Fri	am	Aer s	A & SD	A & SD	A & SD	A & SD	A & SD
	pm	GST					PT
Sat	am	NIE	GST	GST	Aer s	PT	Aer s
	pm		Aer s				
Sun	am	NIE	NIE	NIE	NIE	NIE	NIE
	pm						

Key:

- Aer s = Aerobic
- Ana s = Anaerobic
- ST = Speed Training
- A&SD = Agility and Speed Drills
- GST = General Strength Training
- LME = Local Musclar Endurance
- PT = Power Training
- Plyo = Plyometric
- C S = Core stability
- NIE = Non Impact Exercise (can be used as active rest periods)



Example Training Schedule Pre Season Training

Day	Week of Trg	7	8	9	10	11	12
Mon	am	Ana s	Ana s	NIE	NIE	NIE	NIE
	pm	PT	LME			PT	GST
Tue	am	ST	Aer s	Ana s		ST	ST
	pm	NIE	PT	PT	ST	ST	ST
Wed	am	Ana s	NIE	ST	A & SD	A &SD	
	pm	GST	CS	LME	PT	PT	A & SD
Thu	am	ST	A & SD		NIE	NIE	Plyo
	pm	PT	LME	A & SD	CS	CS	LME
Fri	am	Aer s	Ana s	Ana s		A & SD	
	pm	Plyo	GST	PT	Plyo	Plyo	NIE
Sat	am	LME			A & SD	QFD	
	pm	CS	Plyo	LME	LME	LME	ST
Sun	am						
	pm	NIE	ST	Aer s	ST	ST	PT

KEY

- Aer s = Aerobic
- Ana s = Anaerobic
- ST = Speed Training
- A&SD = Agility and Speed Drills
- GST = General Strength Training
- LME = Local Musclar Endurance
- PT = Power Training
- Plyo = Plyometrics
- C S = Core Stability
- NIE = Non Impact Exercise (can be used as active rest periods)



In Season Training Schedule

Day	Week of Trg	1	2	3	4	5	6
Mon	am	Ana s	ST	Ana s	AS&D	ST	Ana s
	pm	PT	PT	Plyo	PT	Plyo	PT
Tue	am	ST	AS&D	ST	ST	Ana s	AS&D
	pm	Plyo	PLYO	PT	CS	PT	Plyo
Wed	am	AS&D	Ana s	AS&D	Ana s	AS&D	ST
	pm	CS	CS	CS	Plyo	CS	CS
Thu	am	ST	ST	Ana s	AS&D	ST	Ana s
	pm	PT	PT	PT	PT	PT	PT
Fri	am	Recovery	Recovery	Recovery	Recovery	Recovery	Recovery
Sat	am	Game	Game	Game	Game	Game	Game
	pm						
Sun	am	NIE	NIE	NIE	NIE	NIE	NIE
	pm						

Training Schedule Key And Notes

NIE = Non Impact Exercise = Low resistance cycling, Swimming, easy rowing or Walking. Can be used as rest periods

Ana s = Anaerobic Sessions = Choose from Anaerobic sessions on page 14, or a running circuit of your choice.

During the Army Rugby season this training schedule will obviously have to be modified due to the intervals of the training and competitive season. In this aspect of the season you can drop off one of the 4 running sessions and the plyometric session as these areas will be catered for on the Army's training days.

This schedule is designed to give guidelines on what areas of fitness to work on during a 36 week training period. If followed it will maintain fitness levels and help to prevent injuries and aid to a speedy recovery. If when designing your programme you discover a weakness in a specific area, take ownership in this area and pay extra attention without the detriment to the remainder of your training schedule.

Two sessions per day is acceptable if the following steps are taken;

- a. Each specific area of training must be progressive. This requires keeping a training log.
- b. Rest means rest.
- c. Suitable diet and hydration habits are imperative if quality training is to be achieved.
- d. Listen to your body. Miss a session or two if you are injured or have a slight niggle or strain. If it persists, contact Gareth or Andy.
- e. If you need any assistance or require confirmation of your schedule, programme or exercises, call me sooner rather than later.
- f. Feel free to substitute your scheduled sessions for any session you do at your clubs or during routine military PT, however make sure you balance this out in your overall plan.
- g. Remember if you do sustain an injury to a certain part of your body, don't neglect the remainder of the body.

Recovery Strategies

PERSEVERANCE

“Before the rainbow you will have to endure a little rain!”

Recovery refers to your body’s ability to adapt to the workloads placed upon during training and competitive situations. Not recovering or adapting is detrimental to your performance and sometimes your health, it can lead to a condition known as overtraining syndrome, commonly termed burn out. If you are able to accelerate your rate of recovery after competition or training, your training will be more effective and more likely to produce the required gains. Recovery training can be thought of as a method of accelerating the adaptation stage.

The stresses produced during training and competition can vary greatly and this will affect the time taken to recover as well as the type of recovery work you would undertake in order to improve your rate of adaptation. It is important to realise that the psychological stress imposed during competition/training is as important as the physical stress that occurs.

Fatigue has been divided into four main areas:

- **Nutritional** – this type of fatigue can be explained by measurable factors such as dehydration, lack of fuel in the muscle or build up of waste product such as lactate.
- **Physiological** – a build up of waste products such as lactate causing localised fatigue at the muscle wall.
- **Neurological** – the peripheral nervous system (i.e. the nerves responsible for movement and control of your muscles etc) become fatigued from high intensity work.
- **Psychological** – The central nervous system (i.e. your brain and spinal cord) becomes fatigued from competition and training.

If you are able to marry the recovery work you perform to the stressors your training produces you will adapt at a faster rate and all aspects of your performances will improve. The following are illustrations of effective strategies for different types of fatigue:

- **Nutritional fatigue** – replenish fuel and fluid supplies as quickly as you can at session end.
- **Physiological fatigue** – Active recovery work (good cool downs, stretching, easy pool sessions etc), hydrotherapy (Jacuzzis and 4 sets of hot (1 min) and cold (30 secs) contrast showers or bathing).
- **Neurological recovery** – active recovery work, hydrotherapy and passive rest (relaxation time and quality sleep).
- **Psychological recovery** – motivational work, visualisation, massage and passive rest.

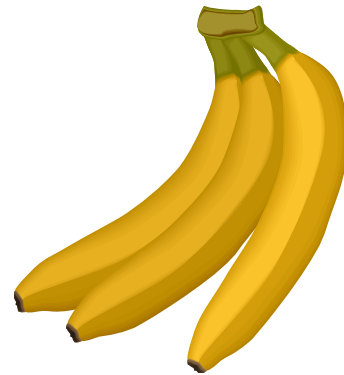
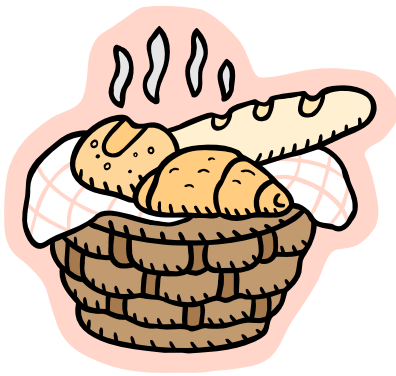
Hard Work + Optimal Recovery = Best Performance.

During the three phase season it is vital that you practise good recovery strategies after every training sessions and game. This assists in the minimisation of post exercise soreness and reduces fatigue. The following strategies should be implemented where possible:

- * Recovery from games, and training that lasted more than 1 hour
- * Drink isotonic fluids, eat carbohydrate snack
- * Stretch while warm
- * Walk and move for 5 minutes post game/training

- * 5-10 minutes after
- * Shower - stretch and self massage
- * Try alternating hot and cold showers for 1 minute 3 to 4 times(if Possible)
- * Continue re-hydrating and replacing fuel (carbohydrate snacks)

- * Within the first one to two hours after:
- * Continue drinking fluid (not alcohol)
- Eat a meal of predominately complex carbohydrates.



Basic Injury Management

VISION

“Even if the way forward is unclear – you must still build the bridges to reach what lies ahead!”

Types of Injuries: There are two types of injuries that occur from participation in Rugby Union. These are:

- Pre-season injuries that occur as a result of excessive overload or repeated and constant stress to the joints and soft tissues. Hence the term 'overuse injury'.
- In-season injuries that result from the trauma associated with play.



Pre-season Injuries, typically the treatment is divided into two stages:

1. **Pre-season injuries** – During the acute stage, the goal of the treatment is to decrease any inflammation as a result of the trauma, this will speed up the healing stage.
2. **The healing stage** - Once the tissues are beginning to heal, treatment becomes directed toward correcting any mechanical imbalance that may exist and therefore remove the cause. For example redress your training schedule
3. **In-Season Injuries** - Impact with the ground and other players are the major concerns, therefore the most common form of injuries are:
 - Soft tissue contusions
 - Ligament injuries to the knee and ankle
 - Joint injuries to the shoulder, neck, spine etc.
4. Treatment of any injury must start immediately you leave the field, whether it is during the game or at the end of the game. Gareth and Andy will advise you on action to take to ensure recovery and return to play as soon as possible.

Injury Avoidance Guidelines

1. Always wear the appropriate and the best possible training footwear.
2. Change your trainers regularly to maintain their absorbent qualities. Failure to do this could result in amongst other things anterior shin pain.
3. Perform the appropriate warm-up for all forms of training.
4. If you have been injured, make sure that you are fully recovered before re-commencing unrestricted training.
5. Maintain and be conscious of good form in all your training.
6. Report any major injury problems to Gareth or Andy.

Injury Management

A soft tissue injury will be made considerably worse with alcohol - this increases the diameter of the blood vessels and therefore the amount of bleeding at the injury site. This is a reaction that will extend the healing process by days, possibly weeks

P.R.I.C.E.

Within the first 48 hours of a soft tissue injury the aim is to minimise swelling and bleeding (within the tissue). This can be achieved by:

- **PROTECTION:** Protection from further injury.
- **REST:** However try to maintain the movement in the joint
- **ICE:** Acute (within 48 hours) use ice packs for 5 minutes every 1-2 hours. Then ice for as long as directed for 15 minutes every 3-4 hours. Use a damp cloth to protect the skin. An even red colour is OK but white patches, especially with ice on them will cause a burn.
- **COMPRESSION:** This may be in the form of a bandage (see physio for advice)
- **ELEVATION:** The affected part should be raised higher than the heart to assist drainage by gravity.

After 48 hours, any tissue bleeding should have stopped but swelling may be aggravated by activities for at least two weeks, so the continued use of ice and possibly compression is advisable.

Once the tissue has begun to heal increasing force needs to be put through it, by rehabilitation training to regain full strength and function of the structures involved.

The full healing process of a soft tissue injury may take up to six weeks. This does not mean that you do not train or play for this time. If a game is missed you are at risk of not maintaining match fitness. You should obtain advice from me, Gareth or Andy on rehab training and exercises to enable your return to the playing field fitter than you were before you left!

Fluids and hydration

Exercise increases the production of heat from the body; sweating helps to cool you and prevent over heating. When you sweat water is lost from the body. If this is not replaced dehydration occurs, body temperature rises, performance suffers (both skill and aerobic) and heat stress can result which can be dangerous to your health. For this reason hydration should be the main priority during training.

Thirst is a poor indicator of when to take a drink. By the time you are thirsty fluid loss has already occurred. Most athletes will lose around 1 litre of sweat per hour when training intensely in warm conditions.

Estimating fluid loss is possible by measuring body weight before and after exercise, each litre of sweat weighs approximately 1 kg, the percentage of body weight loss as sweat can then be calculated.

Although drinking fluids during exercise is the best way to prevent dehydration and maintain optimal physiological functioning, most athletes finish training dehydrated. Complete restoration of body fluid balance can occur only when the sodium chloride that was lost in sweat is replaced. The overall process therefore for total re-hydration can take up to 10/12 hours. However there are many occasions when players will need to re-hydrate as quickly as possible, in such cases consuming formulated electrolyte drinks will assist total re-hydration that cannot be achieved with other fluids.

Types of fluid:

There are 2 types of drinks, fluid replacement drinks (Hypotonic and Isotonic drinks).

Hypertonic drinks – contain very little carbohydrate and their primary function is to replace water back into the body. I.e. They do not supply energy. Examples include low calorie sports drinks e.g. Isostar light, lucozade low calorie sport or dilute low calorie squashes or diet drinks. These drinks can be useful on rest days for example where calories need to be controlled but fluid intakes encouraged.

Isotonic drinks – Have a dual purpose both hydration and energy provision. Examples include; Dilute fruit juice (1:1), diluted squash (1:4) lucozade isotonic, gatorade, powerade etc.

WATER

Practical Guidelines:

- Drink 1 litre of water per hour during training
- Drink when you have a break from training
- Before and after training drink 500ml of carbohydrate solution

Causes of Dehydration:

- High intake of caffeine rich drinks
- Alcohol
- Time spent in the sun or hot conditions
- Intense exercise
- Exercising for long periods

GENERAL TRAINING CONCERNS

The Traveling Athlete & Jet Lag

Jet Lag

Almost every athlete and traveller has a story about jet lag, how it affects or what they do to combat it. By following the guidelines set out below you will be able to recover quickly, train and perform better without suffering too much jet lag

Jet lag is defined as “ *the cumulative physiological effects of rapid air travel across multiple time zones*”.

Jet lag is scientifically referred to as disruption in the body’s circadian rhythms run in 24-26hour cycles and are oscillations in the bodies’ physiological systems (temperature, heart rate, strength, etc). These rhythms are synchronized by diet, meal timing, sunrise and sunset, rest and activity as well as social.

What Causes Jet Lag?

The Aircraft

Jet lag is caused by a series of events. First, there is the aircraft. The pressures associated with flying and the cabin environment of a commercial jetliner are not optimal for the human body. Even worse are newer airplanes, while more efficient, they often re-circulate air which is already harbouring pollutants that are not healthy for the body. Long flights cause dehydration because the high altitude and low humidity (1 – 10%) pulls the moisture out of the passengers quickly dehydrating the body. Consumption of alcohol and caffeine laced beverages can compound this dehydration problem.

Time Zones

Your body’s clock is managed by a small sector of the brain that controls the timing of biological functions like sleeping and eating. The body’s clock is designed for a regular cycle of daylight and darkness. This biological cycle becomes out of sync by changing time zones and is completely confused when it experiences daylight and darkness at the “wrong” times in a new time zone. It may take the body’s clock days to adjust to the new time zone.

The Effects of Jet Lag include:

Physical:

- Changes in blood pressure and heart rate
- Fatigue and general malaise
- Insomnia
- Headache
- Indigestion
- Drowsiness
- Losses in reaction time and coordination

Psychological:

- General disorientation
- Mood swings
- Feelings of general irritability

Tips to Combat Jet Lag and Dehydration While Travelling:

- Before and during your flight consume a diet high in complex carbohydrates (fruit, vegetables, pastas, breads). This maximizes glycogen (muscle fuel) storage and the water stored with helps prevent dehydration.
- Avoid fatty food to allow easier and more rapid digestion.
- Consume plenty of cool fluids (bottled water, juices, clear soft drinks). Start with 2-4 cups before take off and add 1 cup per hour of flight.
- Avoid sleeping on the plane if it arrives at night.
- If your flight arrives in the morning, try to sleep at night.
- Set your watch to your new destination time and try to eat accordingly.

Tips for Exercising on Board

- Exercise as much as possible on board to minimize potential of blood pooling in the lower extremities and causing a deep vein thrombosis (DVT).
- Contract and relax every muscle in your body while seated.
- Stretch your calves and hamstrings. Hold your stretches for 30-40 secs and repeat 2-3 times.

Post Flight Guidelines

- Upon arrival get out in the sunshine and avoid dark places. If you must sleep, it should be no longer than 1-2 hrs.
- Get up and onto the new time as quickly as possible.
- Take a warm shower or bath well before bed.
- Utilizing relaxation techniques can help promote a good night's sleep too.
- Eat fast carbohydrates with dinner (potatoes, corn, sugar). This also helps trigger the sleep cycle.
- Sleep 8-10 hrs only. Sleeping late will only postpone adaptation and make you feel more tired adding sleep lag to jet lag.
- For breakfast and lunch next day, eat meals high in protein.

Post Flight Workout

- Warm up and stretch for about 10-15 mins
- Follow this with a light 15-20 mins run or 20-25 mins cycle.
- Do 5 x 20 meter running sprints or 5 x 20 secs cycle sprints.
- This should be done about 4 hours before bed since it releases muscle protein in the blood and helps trigger the sleep mechanism.
- If a sauna is available use it, but be sure to drink plenty of fluids to make up for those lost in the sauna.