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INTRODUCTION

As sport begins to return after long layoffs forced by lockdown, the rugby community can look forward to all the benefits of playing the sport. However, this does not come without certain risks, because the sport is high in intensity and contact, and if the return to play is not managed appropriately, this can lead to injuries and setbacks for players.

These are avoidable through controlled progression of rugby activities over the first six weeks of returning to training in preparation for matches. The objective of these Competition Ready Guidelines is to guide that process.

A group of rugby conditioning experts and sports scientists have developed this progressive and systematic guidance for how training sessions can be constructed, which rugby activities should be considered higher in risk, and how that risk can be reduced through effective planning, goal setting and training session management.

The principles and key concepts are outlined below, with the accompanying annotated figures. This is not intended as a coaching guidance document – your skills and knowledge as a coach are as relevant here as ever, and you should consider using resources like <u>World Rugby's Passport Hub</u>, the <u>World Rugby Activate programme</u>, the <u>World Rugby Strength and Conditioning resources</u>. Links to these resources are provided in the "Supporting resources and tools" section of this document.

OBJECTIVES

This guidance document is aimed at improving the return to play after what are likely to be long layoffs from the sport. This means, first and foremost, managing the return of your players to full match-play with minimal risk of injury and maximal enjoyment. Achieving this will help sustain, and even increase participation, and will improve performance.

PRINCIPLES

Progressive overload

The over-arching principle that guides these recommendations is that return to full contact and full play must be gradual and progressive. This applies to every element of training and performance, from running to full contact.

The purpose of gradual progressive load is to avoid injury. Players who are untrained or detrained have lost the neuromuscular and cardiovascular conditioning or fitness to handle normal match and even training demands. They will therefore need to relearn and adapt to rugby specific activities like changing direction, sprinting, jumping, tackling and other set phases in the sport, and during this process, the risk of muscle, tendon, and ligament injury from both non-contact and contact play increases.

Management of training elements such as training volume, intensity, load (the product of volume and intensity), frequency, and the specific activities you prescribe during training will manage this progressive overload.

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Communication

Communication is a key principle for a coach in any circumstance, but its importance is heightened during return from the long lockdown layoffs. Your players will have continued to train at very different levels during the past twelve months, and so within your squad some will have maintained a base level of fitness, while others may have detrained entirely. Your ability to manage these differences depends on your communication with the players, and how effectively you can gather their feedback, and then use that to guide your decisions about how rapidly to progress them.

Know your players

It is very important to know your players, as this will allow you to plan and anticipate likely challenges. With respects to returning to normal rugby activity, the key factors are:

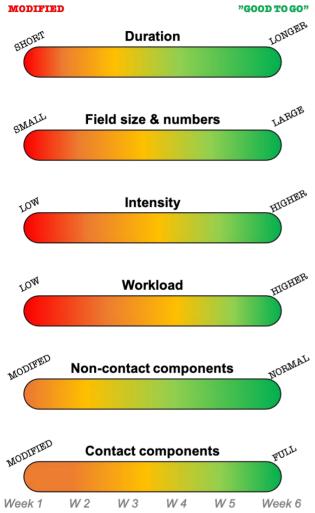
- Training age
- Training history
- Injury history
- Technical proficiency

The adjustment of overall load, and specific activity management, depends on your assessment of whether your players are adapting to and capable of the sessions you prescribe. That assessment, in turn, is affected by the above factors, so remain mindful of them, and don't hesitate to deviate from the general guidelines provided here if you assess that any of your squad are at greater risk of injury for any reason.

THE ELEMENTS OF A TRAINING SESSION

The guideline is divided into two parts. First, the elements of your training sessions. This includes the duration, intensity, workload, the size of the field you use, and the degree or manner in which you integrate various activities into the session. Figure 1 on the following page shows the recommendations for each of these elements, indicating a safe recommended progression over the weeks, and briefly describes the key principles that guide these recommended progressions.





Principle is to progress from short to longer (normal) as weeks progress. Applies to each drill/activity, games and to the whole session. Observe players and shorten sessions if fatigue or many mistakes are seen. Games to be played in modified duration eq: 3 by 3 x 3 min, then 3 x 3 x 4 min

Principle is to move from small to large, both for field size and player number. Use small areas with fewer players initially to control running distance, speed, and game intensity. Focus instead on skill execution. Objective is to maximise touches of the ball, with optimal density of players dependent on the activities being performed. Increases in player number and field size will increase overall load & intensity. Eq: games of 3 vs 3 on 5m x 5m area, progressing to 5 vs 5 on 15m x 15m, then 10 vs 10 on 40m x 30m.

Principle is to keep intensity low initially, building up with time. Measure using Rating of Perceived Exertion (RPE), on a scale from 0 to 10 (see scale in text). Intensity measurement can be applied to all activities strength, skills drills, running, contact, small-sided games, structured field play. Progress intensity gradually, and take special note of players reporting high (>8) intensities

Workload increases over time to avoid overload and to reduce risk of injury. Workload = Intensity (RPE) x time (min). Management and progression are thus by duration and/or intensity. Observe for signs of fatigue (error, drop in intensity) in order to manage workload. Assess recovery between sessions as an indication of optimal workload.

Consists of skill activities - catching, passing, kicking, and is trained individually, in units and within the team as described later. Principle is to modify drills and activities initially, to manage the intensity, volume and risk (eq: kicking for accuracy not distance, short skill drills etc). Grading is achieved by increasing speed, size of field, number of players, complexity of drills and evolving to unit and team play

Modified contact may be introduced from first session, but modifications are essential to avoid high injury risk. Modified contact includes grappling, working around the body of an opponent, post-touch down & ups, left or right rolls, hit tackle bags, burpees etc. This can be progressed into contact drills, graded as advised in the Contact session. Touch games may be introduced early, developing into modified contact before full contact is introduced in the form of practice matches and eventual match play. Contact includes set-pieces.

Figure 1: The training elements with recommended progression over six weeks

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How to use the guidelines

Each of the six training elements shown above has been graded, with a recommendation made for how close to "normal" that element should be in the first week of training. Red shading indicates a large change from normal, or a greatly modified training element. For instance, in Figure 1 above, red indicates that duration should be considerably shorter than normal, intensity and workload lower, field size and player number small, and both contact and non-contact components should be modified in week 1.

As the weeks progress, each **element returns gradually towards normal**, with **green indicating fully normal training**, which may be thought of as "good to go". This happens at different times for the various elements. Duration, for instance, achieves normal levels by week 4 or 5, whereas workload may only reach normal levels in week 6. Contact components progress more gradually than non-contact components, reaching normal "good to go" levels in Week 6, rather than Week 5. Remember that these are merely guidelines and should not be viewed as prescriptive, and you should also use your discretion to either accelerate or slow down the rate of progression depending on your assessment of your players.

Within this progressive overload concept, don't neglect fundamental principles such as overall load management. The green shading shown at the end of the six-week progression indicates normal training, but your normal training prescription must still take into account the overall load, and respect that you cannot give players high volumes and high intensities of every training element. For example, as you increase contact elements in the session, you may need to decrease non-contact elements, while using smaller fields and player numbers less often. An increase in intensity typically requires that duration be decreased. Therefore, don't simply work towards maximum levels of each element, but rather understand that the goal is normal training, indicated by green shading, and that normal training requires management of load as you would always do.

RUGBY ACTIVITY PROGRESSION

The second component of this guidance is a recommended training and match activity progression. Here, various activities of play – running, sprinting, skills, agility, kicking and contact – are explored in more detail, with an expected safe progression described where the goal is to work towards full or normal activity, but which should start with modified activity that is the progressed according to the principle described above.

For example, consider kicking, an example of which is shown on the following page. Kicking is a high-risk activity for muscle injury, and so we advise that players not kick normally or without restriction for the first five weeks of training. Instead, modified kicking should be introduced from week 1. This can be achieved by limiting kicking distance, instead focusing on accuracy, placing limits on the height and distance of kicks within small-sided games, and kicking in controlled situations without fatigue or opponent pressure. Over the weeks, each modification can be phased out, such that full or normal kicking in match play only occurs from week 5 onwards.



Kicking

- · Kicking creates a high risk of soft-tissue injury
- Recommended that kicking be modified on the first week of return to training
- Modifications to kicking include:
 - Focus on accuracy and shorter distance kicking. Kicks within small sided games on smaller fields
 - Safer types of kicking include grubbers and chip kicks. Consider limits on the height and distance of kicks, and kick without fatigue
 - Kick only in controlled circumstances, without pressure or 'chaos'.
- Progression to longer distance kicking can occur by Week 5, with normal kicking at Week 6

For each of the activities that make up rugby, we have advised on a timeline that begins with avoided training (indicated by red training, such as for agility and sprinting, where the risk is very high and so the activity should be avoided for the first week or two), progresses to modified forms of that activity, and then ends with normal or full activity.

The summary of activities is shown on the next page (Figure 2), and each activity is described in more detail subsequently.



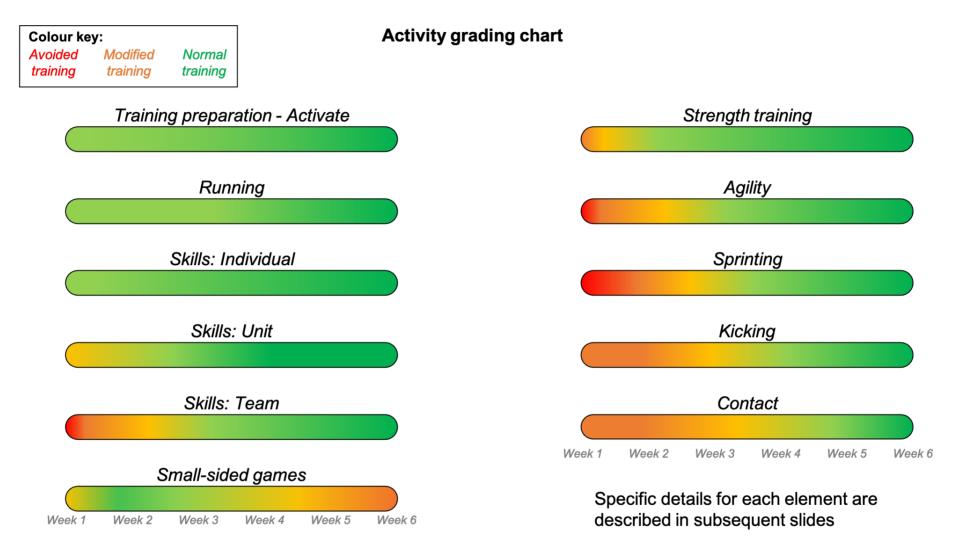


Figure 2: Training activities, showing recommended progression over six weeks



Training preparation and running

Training preparation - Activate

Week 1	Week 6

- Activate is an injury prevention programme that can be incorporated into the session warmup
- It is a graded prehabilitation programme, shown to reduce soft-tissue injury by up to 30% and concussion by up to 60%
- Purpose is to prepare players to train. Ideally will be commenced prior to the first training session, but may be performed at all training sessions
- See LINK for resources including descriptions and videos of activities

Running



- Excessive running volume and/or speed carries a risk of chronic injury due to overload
- Running should commence from the first session, but be managed for volume (duration), intensity, and complexity (changes of direction and speed) to reduce injury risk
 - Shorter duration, limits on distance run
 - Monitor using RPE as described •
- Normal running should be possible within three weeks, but it remains important to apply load management principles to running speed and distance

Skills

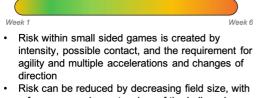
Skills: Individual		Skills: Unit		Skills: Team	
Week 1	Week 6	Week 1	Week 6	Week 1	Week 6
 Individual skills include catching, passing, kicking (see later), spatiawareness and contact skills (se later) Risk is managed as part of overal load management principles, ensuring that intensity and volumare not excessive 	e	 Unit include maul, scrum, lineout backplay, kickoffs etc Unit skill development begins ea but is modified to minimize risk of injury and as part of load management. Modifications include: Non-contact or modified 	rly,	 Team skills are developed througame play among whole team Early modifications are necessato reduce injury risk, particularly from contact, higher running speeds and agility movements Progression is through field size player number, contact 	ary , e,

- Focus on accuracy and technical execution
- Slowed down movements with drills involving fewer players on small fields
- Objective is maximum touches
- Normal skill activities commence by week 3
- contact drills during instruction
- Reduced speed
- Shorter duration
- Unit skill modifications evolve towards normal training by week 4
- modifications and intensity of drills and small-sided matches
- Normal team skill training may commence from week 5 onwards



Small-sided games and strength

Small-sided games



- a focus on maximum touches of the ball, and contact modifications (touch, modified contact)Small sided games are recommended early after
- return as a may to manage other risks, and develop skills and fitness
- By week 4, as fitness and conditioning improves, small sided games may be phased out, with increasing field size and number of players, as part of overall load management strategies

Agility and sprinting



- and strength is insufficient to protect when performing rapid lateral movements and loadingAvoidance of demanding agility drills is
- recommended for the first week upon returnRisk can be managed through a combination of
- controlling speed, intensity and frequency
 Modifications include a focus on accuracy within
- smaller spaces, slower speed (walk, slow run throughs), with progression to normal agility drills and demands by week 5

 Week1
 Week6

 • Field-based strength training may include tyrepulls, carries, and various body weight exercises
 • Strength training carries risks as a result of overload of muscles and joints, particularly when unfamiliar

 • Risk can be managed down by regulating load, in terms of volume, intensity and frequency of strength training sessions

 • Monitor RPE and workload (see previously) to respond to player's needs re potential overtraining

 • Normal strength training may commence from week 4 onwards

Week 6

 Sprinting carries high risk of musculotendinous injuries, due to unfamiliarity with load and speed of movement

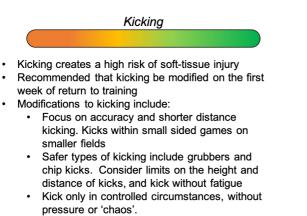
Week 1

Sprinting

- Sprinting should be avoided for the first two weeks after returning, with limits of the relative speed of players (eg: remain below 70% of top running speeds)
- Phased in periods of sprinting with run-throughs building to 80% and 90% are advised
- Ensure sufficient recovery so as to not sprint with fatigue, when risks are greater
- Normal sprint/top speed running may be resumed by week 6 after return



Kicking and contact



 Progression to longer distance kicking can occur by Week 5, with normal kicking at Week 6 Contact

- Contact carries the greatest risk of injury, and so care must be taken to avoid excessive forces created by speed, nature and context of contact situations
- Modified contact can be introduced in the form of the drills shown here
- Use tackle bags and shields to provide further protection at your discretion, with the focus on avoiding bone on bone contact during early weeks.
- By week 5, near full contact may occur, but within the limits of drills and in smaller field, small-sided games
- Full contact and match play may occur from Week 6 onwards

Contact

The contact elements of the sport pose the highest risk of injury. These include contact from set phases, and open play such as tackles and rucks. It is really important that these be managed most conservatively so as to avoid injury.

Contact should not, however, be avoided from the start of training, but rather modified so that players are able to reacquire the technical proficiency that is required in order to tackle normally by week 6. By week 5, practice or warm-up matches can be included in the progression, initially modified for player number, field size and duration, progressing to full contact in shorter matches by Week 6, in preparation for regular matches. Modified contact can be included into every training activity, and may use a combination of equipment (shields, pads etc) and behaviours such as small-sided games and smaller fields as described previously to manage injury risk.

The key, as with all training elements and risk factors, is that they are progressed gradually over time. Your coaching skills and knowledge will guide that progression, but we have provided here some exercises or drills that you may include in your training sessions to facilitate this 'relearning' of contact. The drills are divided into three categories based on their 'contact intensity':

- Low includes grappling activities, contact with shields, or contact from a very close proximity (1m or less) at low speeds. Players would typically describe these drills as a 5 or less out of 10, if using a 1-10 scale (see supporting resources section)
- Medium faster speeds and higher forces, but using mats on the grounds and shields in contact to manage impact and prevent direct bone on bone impact. Distance prior to impact increases to 2m
- High competitive drills, with higher speeds and direct contact with opponents, including bone on bone. This also includes practice matches and full contact sessions on smaller fields in smaller playing areas

The drills that fall into each intensity category are shown and explained briefly in Table 1. Our recommendation is that you avoid

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high intensity contact drills and match play at least for the first three weeks after training resumes. Generally, you will use low intensity drills in weeks 1 and 2, with medium intensity drills introduced from Week 3 onwards. From week 5 onwards, a transition to higher intensity drills may occur, though it is essential that you assess the technical proficiency of players and advance the level of contact only if you are satisfied that they are adapting and acquiring the necessary contact skills. Do not hesitate to repeat a week using predominantly lower intensity contact drills if you have doubt over whether the players are adapting to contact and reacquiring contact competency.



Contact drills progress from highly modified contact that improves technical proficiency without high forces and risk, and develops over the weeks to become more advanced in a graduated return to contact process. Some examples of drills that falling into low intensity, medium intensity and high intensity contact are provided. The principle we advise is that Low Intensity contact drills be used primarily in Weeks 1 and 2, with medium intensity drills phased in from Week 3 onwards, and High Intensity contact drills introduced at week 5. Practice matches with modified contact, or played on smaller fields may be introduced from week 5, with full contact possible at your discretion from Week 6 onwards. Intensity can be assessed on a scale that runs from 1 to 10, or from 1 to 5. Note that inexperienced or novice players may need to spend more time on a given stage until the coach assesses that they have sufficient technical proficiency to continue

Low intensity

- 1. General contact work in pairs 1v1 (Grapple, pummelling etc) wrestling and bodyweight exercises etc
- Breakout Reaction Triangle Ball carrier breaks out of triangle, 3 defenders have to prevent break out 1v3
- 3. Low level grapple/swivel 1v1 player 1 on all fours, player 2 attempts to de-stabilise player 1
- Stay square into corner 1v1 players start connected player 1 aims to stay square on body of player 2 attempting to reach the corner of the Smtr x Smtr square
- 5. Sink, wrap, clamp, grip lift and place 1v1 swap after two rotations
- Connection to shield 1mtr distance, same foot same shoulder 1v1, left/right shoulder

Medium Intensity

- 7. Connection to shield (Up/down or Paddle/2mtrs out) 1v1
- Tackler & Ball carrier intensity level onto mat (left/right shoulder and front on angles) 1v1
- Pairs Breakdown combo 2v1v2
 Level 1 Wrap +Roll Tackle on tackle bag
- Level 1 Wrap +Roll Tackle on tackle bag (Down/Up & Attack 2mtrs out, finish on top roll out)
- 11. Connection to shield (2 man hold) Bounce/cone/connect 5mtrs

High Intensity

- 12. Up/down, cones angle into 3 Tackle Bag choice (Coach call)
- 13. 1 v 1 Carrier & Tackler close contact, tackle up and onto ball, carrier to attempt presentation
 14. 2 v 2 Win the race – Ball carrier, plus support v
- 2 V 2 Win the race Ball carrier, plus support v tackler and jackal
 5 Tackle size (laft sight forest), Tackles v Ball
- 15. Tackle circuit (left, right, frontal Tackler v Ball Carrier)
- 16. Breakout Reaction Triangle– Ball carrier break out of triangle, support player re-act 2v3
- 17. Practice matches, either full or modified for player number, field size, duration and modified contact

The details of each drill are explained below



Intensity level	Drill number	Name	Description
	1	General contact work in pairs 1v1	Grapple work and 1 v 1 wrestling and bodyweight exercises etc
	2	Breakout Reaction Triangle	Ball carrier breaks out of triangle; 3 defenders create the triangle, and they must attempt to prevent break out from ball carrier who starts in the middle of triangle. This drill can be developed to include passing between players then drill start on coach command etc. (1 v 3)
	3	Low level grapple/swivel 1v1	Player 1 on all fours, Player 2 attempts to de-stabilise Player 1 by driving with shoulder, push, pull trying to get underneath player on all fours who will attempt to keep strong body position throughout. (1 v 1)
	4	Stay square into corner 1v1	Players start connected Player 1 the defender aims to stay square on body of Player 2 the ball carrier, carrier will attempt to reach the corner of the 5mtr x 5mtr square while the defender uses accurate body-height, strong connection and footwork to remain square on carrier (1v1)
	5	Sink, wrap, clamp, grip	Player 1 starting 1 mtr away from Player 2 will step in and connect around hips or just above waist of Player 2 will wrap, clamp and grip then lift and turn through 180 degrees and place player 2 back onto the ground this drill should be fast and dynamic, and the players should go through 2 rotations each. (1v1)
	6	Connection to shield	Player 1 in strong stance will hold shield around waist height, player 2 from a 1mtr distance will step into shield and connect using, same foot same shoulder, fast wrap, clamp and grip to drive shield holder back approx. 3 mtrs go through four rotations using left and right shoulders (1v1)



7	Connection to shield (Up/down or Paddle/2mtrs out)	Same as Drill 6, but this time change angle of entry by player going into a dynamic up/down or tracking round a cone or pole into connection with the shield holder. Player can also use different feet patterns i.e Same foot, same shoulder connection or come to balance, paddle then connect.
8	Tackler & Ball carrier	Tackler & Ball carrier –Tackler using 3 different angles left shoulder, right shoulder, front on. Medium intensity connection and ball carrier must attempt to present the ball within the exercise. Tackler can work on different levels of tackle within this exercise.
9	Pairs Breakdown combo 2v1v2	2 players start on a line with a dynamic up down player 1 gathers ball that is passed, rolled or thrown into grid. Player 1 carries into shield, late change of movement, the player has a number of options pass the ball to beat shield, connect with shield and offload, go to ground and present, pop or pass the ball from the ground. Player 2 acts as a first support player and re-acts to ball carrier. Once action with ball is complete leave ball and both players go to tackle bags that are placed on the ground so players must crawl over bags, drop height early, chest on bag, activate hands and feet to crawl along bag. Both players then get back to start point immediately.
10	Level 1 Wrap +Roll Tackle on tackle bag	Tackler to change entry point i.e down/up, around cone or pole & attack 4mtrs out, finish on top of bag then roll out back to feet
11	Connection to shield (2 man hold)	Same as Drill 6, but this time change angle of entry by player going into a dynamic up/down or tracking round a cone or pole into connection with the shield holder. Shield is this time held by one player with a second player in behind first player to add resistance. Attacking player can also use different feet patterns i.e Same foot, same shoulder connection or come to balance, paddle then connect.



12	Up/down, cones angle into 3 Tackle Bag choice	Player starts on a line with down/up then around one of three coloured cones, into and through gate into 3 Tackle Bag choice (Coach call) – Tackler can also change entry by down/up, all fours into roll and back to feet then enters gate and reacts to coach call on what tackle bag to target, set tackle bags up in a semi-circle so that there is a front-on, left and right tackle to be made. Once tackle is complete tackler must get back to start point to finish.
13	1 v 1 Carrier & Tackler	Close contact, make tackle, tackler get back to feet then show daylight and onto attempted jackal on ball. Ball carrier attempt ball presentation – this drill can be carried out at a 1mtr distance and then can build up distance between ball carrier and tackler
14	2 v 2 Win the race	Ball carrier, plus support v tackler and jackal. All players start face down on ground and re-act to coaches call or whistle, 2 attackers v 2 defenders. Attackers made up of one ball carrier and one support player and defence made up of one tackler and one jackal. Aim of the drill is to "Win the Race" attacking support player must get there before jackal and vice versa.
15	Tackle circuit	Left, right, frontal Tackler v Ball Carrier. Tackler will be up against three ball carriers. Ball carriers will attack one at a time at different angles putting pressure on tackler to track, prepare, connect, accelerate and finish each tackle. Tackler must roll out after each tackle and get back to feet.
16	Breakout Reaction Triangle	Ball carrier breaks out of triangle; 3 defenders create the triangle, and they must attempt to prevent break out from ball carrier who starts in the middle of triangle. This drill can be developed to include passing between players then drill start on coach command etc. To further develop this drill, nominate one player within the defensive triangle that immediately becomes the support player to the ball carrier. The drill finishes when ball carrier has managed to get the ball to the support player by a pass, offload or has gone to ground presented and the support player has won the race to protect the ball carrier on the ground.



PREPARATION FOR TRAINING: ACTIVATE

Players can also train in preparation for training. In fact, the regular performance of an exercise programme has been shown to significantly reduce injuries in rugby, and World Rugby have developed Activate for this purpose. Research on Activate has found that in reduces soft tissue injuries by up to 40%, and concussions by up to 60% in school-aged rugby players.

The Activate programme can be included as part of your warmup, or it can even be prescribed to players to perform before they return to training, since will improve their "trainability" and enable you to accelerate their rugby specific training when they do return.

We also recommend that Activate exercises be incorporated into your warmup routines when your squads are back together and in training.

The links to the <u>World Rugby Activate resource</u> can be found in the Supporting resources and tools section of this document.

SPECIAL POPULATIONS

Children

The time away from the game has been so long that many developmental changes may have occurred. The most obvious of these is the growth spurt that many children experience during puberty. If you coach players at this age, be particularly mindful of this, and consider adjustments to training based on what they report as pain or discomfort scores. This means actively monitoring these young players and asking them to report and rate any pain they may be feeling. For instance, if a player reports knee pain (a common consequence of the growth sport) of 2 out of 10, you can consider modifying the session and referring them to a medical practitioner. If the pain level increases to 5/10 or above, then rest the player and refer them to a medical practitioner.

Be especially mindful of the pitch size and the number of players being used – see the guidelines for pitch size and player number for guidance and err on the side of caution with the younger players to keep the running volume lower and progress them to full pitch and team size more gradually than you might otherwise.

Referees

Rugby referees and match officials may also adopt a progressive return to normal activity as guided by the principles above and the drills shown. Contact elements are of course the exception, but the principles for the gradual re-introduction to higher risk activities such as sprinting, agility and higher running volumes may be used by match officials to safely return to fitness and performance levels necessary to perform the referee function.



SUPPORTING RESOURCES AND TOOLS

Rating of perceived exertion scale for quantifying training intensity

This is a numerical scale that runs from 1 (meaning rest or no activity) to 10 (maximum exertion) and can be used to assess how your players rate the intensity of training. It can be adapted and applied to any element of training, including contact intensity (where 1 means zero contact and 10 is full, match-intensity contact).

We advise that coaches have an expectation for the training intensity for the overall session and for each drill or training activity, and then compare the player's experience of the activity with that expectation and use it to manage intensity for best results and minimal risk.

Rating of Perceived Exertion (RPE Scale)		
10	Maximal	
9	Really, Really, Hard	
8	Really Hard	
7		
6	Hard	
5	Challenging	
4	Moderate	
3	Easy	
2	Really Easy	
1	Rest	

World Rugby Passport

World Rugby passport, the on-line learning hub

World Rugby Activate programme

Activate background

Programmes and materials

World Rugby coaching resources

World Rugby coaching: The home of Rugby coaching on the web

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