

FOOTBALL CONDITIONING

for players and coaches

A SPECIAL REPORT FROM



**PEAK
PERFORMANCE**

The research newsletter on
stamina, strength and fitness

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A CIP catalogue record for this book is available from the British Library.

Printed by: Peach Print Limited
Impressions House, 3-7 Mowlem Street, London E2 9HE

Published by P2P Publishing Ltd

Registered office: 33-41 Dallington, London, EC1V 0BB
Tel: 0845 450 6402 Registered number: 06014651

ISBN: 978-1-905096-52-7

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From the editor

Twenty-first century elite football is a world away from the same game played thirty, twenty, even five years ago. The money no object expenditure of the top clubs has left no stone unturned in the search for silverware and glory. Players are now athletes in the true sense of the word and are subject to an array of training methodologies and tests that their recent predecessors would not recognise.

Simon Thadani is the conditioning coach at Ipswich Town FC. He has worked at the club when they played in the Premiership and now in the Championship. *Peak Performance* is lucky to have been able to tap the brains of someone who is ‘walking the walk’ and has years of experience at such a level. His structured thoughts on how the modern day footballer should be prepared will make interesting and stimulating reading. Simon takes us through the whole process of footballer conditioning from close-season to pre-season to in-season and provides evaluative tests, actual workouts and elite player performances and standards that will help you condition better football players whatever their level and your coaching standard.

This *PP* special report will act as an invaluable resource for coaches and players and open the door to the world of the elite professional in a way that will enable you to condition better Sunday morning weekend warriors or a future Ronaldo or Messi.



John Shepherd

About: Simon Thadani

After serving in HM Armed Forces, Simon became a professional football conditioning coach some 20 years ago, with the last nine years spent at Ipswich Town Football club. Simon has overseen the conditioning of the squad during Ipswich's promotion and successful Premiership and European campaigns and thereafter the tough and demanding Championship campaigns.

Testing in football

I have had the privilege to work with several top managers and coaches. I have also talked to many other conditioning coaches, managers, coaches and visited several other clubs over the years, and many of them have different opinions on testing players. Some were not convinced about the benefits, whereas others would be, and would have a whole battery of tests. And then again, there would be clubs that perhaps used only one or two tests.

Basically, the extent of testing and monitoring usually reflects the manager's and coaches' philosophy on how players should train and play, and how their condition should be measured. Conditioning coaches will also try to educate them on the importance of having some measurable standards in place to back up/confirm what the manager and coaches see in training and games.

My opinion is simple: testing is important but it should be kept simple and, just as crucially, should be specific to the game. Testing is not only evaluative, but also about educating the players about the importance and the benefits of being tested (ie so that they can strive for higher levels of condition). Testing is also an objective way of confirming the manager's/coaches' thoughts.

What tests should you do?

Several years ago I went to a course run by the Football Association. There were around 20 conditioning coaches in attendance, from the Premiership and the Championship. The tutors asked us to compile a list of the tests we do at our clubs – both past and present. Most of us were expecting maybe a total of 12 to 15 tests. When the combined list came back, there were 30-plus tests, several of which I and many others had never

‘My opinion is simple: testing is important but it should be kept simple and, just as crucially, should be specific to the game’

Testing amateur players

When testing amateur teams, ask yourself two very important questions: how much time does the team have to train, and why does the team play? If your team plays Saturday to Saturday (or Sunday to Sunday) and does not train between games, then it will be very difficult to test players, so testing might not be feasible. This is because you will not specifically be working on developing improved football condition. If your team plays for the fun of playing and the social side of football, then I think testing is not relevant, it's important that players continue to enjoy and love the game. However, if your players are more serious and regular training does take place, or they are at a higher level, then testing becomes more relevant and appropriate.

heard of! The point I am trying to get over is that there are so many different opinions in the game regarding testing.

Football is a multi-directional and multi-paced explosive game, primarily anaerobic, but with an aerobic foundation. We should therefore test for those components, more specifically as aerobic endurance; speed; and speed, agility, power and recovery rate.

Difference between professional and amateur players

Subject to your standard of play, you are looking at (subject to the tests used) a difference of 10% to 25% in performance between amateurs and professionals. However, you should be less concerned with this variance and more with past testing history. This will give you a better indication of fitness levels and the effects of the playing and conditioning programme.

Testing is important for the following reasons:

- To assess fitness levels
- To set programmes and schedules
- To study the effect of training programmes and matches
- To turn weakness into strength (team and individual)

- To motivate players and give them objective feedback
- To educate players
- To assess rehabilitation work and post-injury condition
- To create future standards and a player condition database
- To monitor over-training
- To advise the manager of any issues
- To make better players
- To give players the confidence to perform well
- And finally – and often highly underrated – for the mental benefits of telling a player they look good and are fit.

A very practical look at monitoring and testing, based on my opinion and experience

Generally speaking, what follows are examples of what professional clubs (subject to financial status) would monitor in training from Mondays to Fridays. They may use one or more of the following:

Heart rate monitors

If you are looking to improve a player's aerobic fitness, research indicates that you need to work them three times a week for 16-20 minutes in the top heart rate zone, ie, 90% to 95% of heart rate max. Heart rate monitors are widely used in the professional game.

Resting heart rates and questionnaires

Measuring players' resting heart rates (RHR*) and using a questionnaire ('Perceived training loads'), designed to measure the way the player is feeling about their physical condition, can evaluate training status and inform the coach as to whether they need a rest, some lighter work or are OK to carry on at the current intensity. Some clubs use this system, but in my experience it is more widely used abroad. You need to trust your players because they can manipulate the questionnaire answers!

* RHR is taken a few moments after waking. A variation from the 'norm' can indicate that the players are in an over-trained state.

Omega wave system

Only a couple of clubs have this system, due to its cost. It measures the time between heartbeats over several minutes – which in theory, using past history, would give you some feedback on training status.

Laboratory tests

The only two lab tests I would use would be the VO_2^* and possibly the Wingate test*. I would consider other tests if there were specific individual player issues, for example, a need to determine hamstring strength, due to a player's propensity to sustain strains. The average professional player's VO_2 max is approx 60ml/kg/min (this indicates a high aerobic capacity on a par with a male elite 400m runner, but allows for a significant anaerobic contribution to their 'energy system power' – Ed). In terms of anaerobic power and the Wingate test, you are looking at player's power levels not declining by more than 15-20% between the first and tenth effort.

- The VO_2 test measures a player's maximum aerobic capacity.
- The Wingate test measures anaerobic power endurance and 'fade' over a series of intense intervals on an exercise bike.

Field tests

These form the bulk of your tests. Keep them simple and specific. 'multi-stage bleep' or 'Yo Yo' tests can fall into this category. They are popular all around the world in many different sports. Top international manager Guus Hiddink wants his players to achieve level 14 on the bleep test. The average in the professional game is between 13.8 and 14.2. The 12-minute run is also a test I use – although there are numerous versions (different durations). At Ipswich, players achieve distances of 3.35km/2.06 miles outdoors and 3.41km/2.1 miles on treadmills.

Game analysis

ProZone or Amisco analysis system (these computerised systems measure the speed and distances that players cover in a match).

Recovery test

There are numerous examples in use that have been designed on an individual basis by different clubs. Ours is simple and easy to do:

8 x 45 second multi-paced efforts on a pre-set circuit. The players' heart rates are monitored. The (active) recovery between the circuits is used to monitor their training status. Thus, if a player's heart rate is dropping and stabilising more quickly than it did during previous tests in the active recovery phase, then their fitness has improved (active recovery involves gentle CV exercise, eg walking/slow jogging). We look for players not to fatigue by more than 8% in terms of heart rate recovery values across the circuit.

Power – vertical jump test

Players' leg power can be measured using a force plate or the much more low-tech sergeant jump. Players use a countermovement jump – they bend and then extend their legs to jump. Professional players average approximately 57cm.

Speed – linear

There are many ways to test for speed. To be 100% accurate, speed gates with infra-red beams that time the start and finish and any intermediate points should be used. Players perform a flat-out sprint over 20m, with splits at 5m and 10m to assess acceleration. Static and rolling starts are used (see chapter 4 for a detailed analysis of football speed training methods).

Speed – multi-directional

For example, the 'T agility sprint test' – where the player has to move forward, laterally and turn.

Speed – endurance

There are numerous variations to this test. We might do 8 to 10 sprints over 30m or 40m, with a short recovery of 20/30 seconds. We are looking for professional players not to fatigue more than 15% to 20% from effort 1 to effort 10.

‘The average professional player’s VO₂ max is approx 60ml/kg/min (this indicates a high aerobic capacity on a par with a male elite 400m runner, but allows for a significant anaerobic contribution to their ‘energy system power’)’

Strength/local muscular endurance tests

Again there are many possibilities. These include using machines (isokinetic – that measure a muscle’s constant force expression over a designated path) or everyday free weights or body weight exercises.

Selected scores from professionals:

Number of press-ups – 65

Number of clap (plyo) press-ups – 19

Squat – 1.5 times body weight.

A word of caution: any testing is only accurate if the players’ attitude and effort toward them are 100%.

Choose the right time to test. Avoid testing players when they are tired, or during a hectic schedule of games.

Try to produce the same environment for each test as previously done, eg, after a couple of days off, or always outside on a dry day (professional players are usually tested two to four times a year).

I believe that any test with a ball is testing skill. This makes it very much a coaching issue – therefore, in my opinion, you should avoid testing with a ball.

Over the years I would say that the manager’s and coaches’ observations with reference to conditioning issues in games and training are right 75% of the time. The surprise and food for thought comes with the other 25% . This is when test results could just make the manager and coaches think a bit and, perhaps, introduce a period of rest or change playing and conditioning in regard to a specific player’s needs.

Having the fittest team in the league will not win you the league. As an ex-international and world cup player once told me (as have many other top coaches), conditioning is a very important aspect of today’s game *but* more importantly, it’s the players’ *attitude, desire, skill* and *ability* that matters first and then, and only then, the coaching and conditioning that they receive.

Pre-season: building the condition that will last throughout the playing season

Football pre-season training is one of the most important times of the entire playing season. It lasts approximately five to seven weeks, depending on season demands and circumstances. It is not only important for developing fitness for the forthcoming season, but also for establishing crucial tactics and skills, discipline standards, instilling the ‘right’ work ethic and getting players to approach the new season the way you want them to. Coaches and managers can also assess attitude and fitness and see who really wants to be in the starting line-up when the action proper gets under way.

The close-season

First, let’s take a quick look at the close-season. This is because what does or does not happen here can have a direct effect on pre-season training. As I indicated the close-season usually lasts between five and seven weeks. Generally speaking, the shorter the close-season break is, the less time you have to build condition. As with many aspects of football, there are varying opinions as to what players should do at this time. Some coaches suggest that players should train throughout the close-season, while others advocate a complete rest. And then there are others, like me, who suggest that this period is split into three phases:

1. Phase 1 – complete physical and mental rest
2. Phase 2 – active cross-training
3. Phase 3 – preparation phase.

Following such a programme will get players optimally ready for when they restart regular training.
(see chapter 7 for a detailed consideration of close-season training)

What happens in pre-season?

In pre-season, players who were not in the manager's previous regular starting 11 can catch his or her eye. They can display the right attitude and work hard on their conditioning and become a regular in the team. However, on the flip side, I have observed a connection between players who get injured during pre-season and then lack both fitness and playing form in the early season.

There are three objectives for pre-season:

1. To lay down the conditioning foundations in strength, speed, stamina and suppleness, without getting any players injured;
2. To set standards and work ethics both physically and mentally for the forthcoming season;
3. To get players match-fit through friendly, but competitive games.

For amateur players, time – or rather, a lack of it – is a major factor. For example, amateurs have work and study commitments, which come first. I therefore believe that work needs to be done by players in their 'own' time. The importance of pre-season training does not diminish in the amateur game – in fact it is probably more important when compared to the professional game, because fitness levels vary so much between teams.

Fitter teams can establish a winning advantage over their opponents, even if they are not the most technically adept or skilful team. A word of caution: I have seen many amateur teams train too hard in the early part of pre-season. This can lead to injuries and can demotivate players to the extent that the turnout for subsequent training sessions decreases.

Consequently good, simple, common-sense planning is important to ensure that the pre-season period occurs optimally and maximises returns for the playing season.

‘Fitter individuals and teams have the advantage, especially at the end of games’

Tip: for amateur team managers and their coaches: find out which players cannot make all training sessions and try to persuade them to do some training on their own with a team mate or a friend. You can provide them with a training hand-out to encourage them.

Pre-season phases

As mentioned, pre-season should last between five and seven weeks.

Phase 1 – getting back to football fitness

Phase 1 usually lasts for 10 to 14 days. Its purpose is to ease players into all aspects of conditioning and football, under controlled circumstances. Emphasis is placed on core stability, basic strength drills, stretching and multi-directional work. A note on the latter aspect: in my experience, players do try to look after their fitness in the close-season; however, they often do this by linear work, ie treadmill runs or interval training in the parks or on beaches, etc. Therefore it is important to get them used to moving in different directions again.

Speed and power work is also crucial during pre-season phase 1. Endurance is primarily developed by aerobic (and some anaerobic) interval endurance work.

Example drill 1: Penalty box to penalty box runs.

Based on a full-size pitch (approximately 106 by 67 metres), you are looking to work the players at 85% to 90% of maximum heart rate.

Run from penalty box to penalty box in 11-13 seconds (subject to standard), jog the width of the penalty box in 20-25 seconds, and then run penalty box to penalty box in 11-13 seconds again: this constitutes one completed run.

Do: six to eight runs. Rest actively for two minutes, and repeat four times.

Drill 2: Penalty box runs with a ball

Players in groups of three are designated A, B and C. Players are running the width of the penalty box and back with a ball. They should aim to do this in approximately 18 seconds. Two players run and one rests.

Sequence: Players A and B go the width of the penalty box and back, wait three seconds and then players B and C go. On their return, they wait three seconds and then players A and C go; therefore each player has gone twice. Rest 30-45 seconds, change the order and go again, ie first run A and C; second run A and B; third run C and B; rest 30-45 seconds, change the order for the final time, run B and C, then A and C and finally B and A. This completes one set.

Do: three to eight sets.

Basic field tests should also be carried out during this period, to review where the players are with reference to aerobic fitness and strength (see chapter 1).

I would use the multi-stage bleep test or a recovery test and basic upper and lower body strength test (using, for example, clap press-ups and squats).

Phase 1 snapshot: A professional player would be training five days each week in this period, with a rest day every one or three days, subject to intensity. They would do two or three sessions a day. There would be three to four strength sessions, three recovery pool sessions and three or four running sessions. Football training would be performed three or four times a week.

Phase 2 – early friendly matches and strength, power and speed development

Phase 2 usually lasts for a couple weeks. Generally speaking, aerobic fitness is covered by the football training now. The first friendly matches should involve all players. It's a good idea to get them all playing 45 minutes or so per game, against moderate

‘...the season is not a sprint, but a marathon for which you are striving to get your players peaking 30 or 40 times in an eight to nine month period....’

Simon Thadani's 10 football pre-season tips

- 1. Counter dehydration:** weigh players before and after training to inform of fluid loss (one litre approximates in weight to one kg). This is a great lesson that players will not quickly forget, especially if you tell them that research shows that a 3% loss in weight caused by dehydration can decrease strength by 10% and speed by 8%.
- 2. Watch the surfaces you train on:** avoid running on roads or hard surfaces for long periods of time. Try to train on grass as much as possible to reduce injury risk.
- 3. Get the right footwear:** measure each player's feet (get the experts involved). Boots and trainers should be the right length and width. They are not a fashion statement. In my experience, correctly-fitting footwear reduces injuries significantly.
- 4. Training should reflect the demands of the game:** training should be realistic and reflexive of game demands even in pre-season, with turning, changes of direction and multi-paced work with and without a ball.
- 5. Stretch the Achilles tendons:** research has shown that Achilles tendons may shrink or contract very slightly during the close-season, so have a good plan in place for stretching these bands of soft tissue.
- 6. Sell the benefits of pre-season conditioning to the players:** get players to buy into what you are trying to do.
- 7. Know the players' heart rate maximums:** this is crucial if you are going to use heart rate monitors.
- 8. Add variety:** use cross-training, different locations and voices (different coaches). This will help keep training fresh, interesting and players on their toes.
- 9. Treat the players as individuals:** train players differently in accordance with their position, once the conditioning foundations are in place. Six-foot-plus centre backs need to be doing different conditioning drills from midfielders.
- 10. Hard work:** there is no substitute for hard, physical work. All the sports science, nutritional information and gadgets will never replace the graft that is needed to fuel passion, desire, mental strength and the will to win.

opposition. Between friendlies, rest and recovery is very important and appropriate strategies should be implemented. In this phase we use massage, recovery pool sessions, ice baths, and ensure that players don't miss out on sleep!

However, players should continue to train, as and when, with the emphasis placed on speed, power and all-round strength development. At the end of Phase 2, players should be playing 65 to 75-minute games.

Phase 2 snapshot: A professional would be training four times a week and playing three games in this two-week period. They would be training a maximum of twice a day. They would perform a couple of speed sessions and a couple of strength sessions a week, with the rest of the time spent football training.

Phase 3 – the quality rather than quantity phase

This phase should last for the final two weeks of pre-season. It consists of two or three quality competitive matches to assist the development of sharpness. This is the phase when conditioning around matches and training really works. Testing also continues and the tests are broadly the same as those used in the previous phase. We usually see bleep test results go from level 13.5 to 14.4. We also add a speed endurance test. This phase is characterised by high intensity, and conditioning is 'short, sharp and football-specific'. At the end of this phase, fitness coaches and managers should not be afraid to rest the players, for the physical benefits as well as the mental ones.

As I mentioned your aim is to get players in good condition for the first league game of the season. You must remember that the season is not a sprint but a marathon, for which you are striving to get your players peaking 30 or 40 times in an eight to nine month period – this is not easy!

Phase 3 snapshot: A professional would be training once or twice a day, four or five times a week. They would perform one strength session and one or two speed sessions and play two or three full matches in this period.

In-season training: intensity and frequency of matches and maintaining physical and mental readiness

Unlike testing and monitoring players (see chapter 1), the prioritising of conditioning in football is not such a hotly debated topic in the game. It needs to be done, but the problem for a conditioning coach is that it can get very frustrating, because football gets in the way!

You will never be able to achieve everything you want to in terms of getting players conditioned to play the game, because football training, football matches and recovery will generally always take precedence, and rightly so. So you must prioritise and manage conditioning. It's not possible to do it all – and if you tried, the players would be very tired when it most mattered, ie for those most important 90 minutes of the week, on match days. Managers, football coaches and conditioning coaches must decide, day by day, week by week, where the priority lies: is it skill or technical work, is it team shape, is it a physical component or is it recovery? We all need to work together.

If, however, the player is not currently in the first team, then it becomes a different ball game, as many restrictions are lifted and conditioning can take the ascendency.

Know and understand the demands of football conditioning

One of the biggest lessons I have learned since working in

‘One of the biggest lessons I have learned since working in football is to try to specifically understand the demands – day in, day out – that football training and matches make on players’

football is to try to specifically understand the demands – day in, day out – that football training and matches make on players.

I also need to know which specific conditioning components in a specific training session have actually been worked: for example, aerobic, anaerobic endurance, power and speed. This may seem obvious; but there are sessions involving the ball, with the football coach, that are less obvious unless really looked at – of which more later. But the answers to these will have a direct effect on what you do with the players, in terms of conditioning – not only that day, but also over the next few days and beyond. Let me give you a couple of examples of what I mean:

Example one: One of the football coaches took away several of the defenders for half an hour to concentrate on heading. I watched the session and observed that each player ended up doing 150-plus headers. Afterwards, they said how much they’d enjoyed it and how hard it was. I therefore decided that these players had done enough and did not need the afternoon session, nor plyometrics (specific jumping exercises) the next day.

Example two: The football coaches were doing ‘1v1’ and ‘2v2’ defending drills for about 20 minutes. While watching the session and observing the players’ body postures and techniques for defending, it was very noticeable that they were doing a lot of lunging and squatting, working in different planes of movement. I realised that there was no need for them to do any strength work the following day.

These two examples show how it is possible to cover several components of conditioning by assessing what else the players do in their ‘other’ training. The football sessions conditioned the players in a very functional and specific way, and with a ball. However, I would like to point out that I would certainly not do this until the correct strength foundations had been laid down in pre-season and I would always be aware of the fact that any contact drills will always run the risk of contact injuries.

Food for thought for football conditioning

What are you willing to sacrifice to improve a specific component if time becomes a training issue? Are you willing to sacrifice a player for a football training session? Will the benefits of improving a conditioning component outweigh that player missing the session? Will that extra session physically take anything out of him that may affect performance during a match? All these factors are food for thought for a football conditioning coach.

Prioritising conditioning – as a team or for individuals

In the amateur game you have to consider four basic factors:

- coaching manpower
- time
- cost
- player responsibility.

Coaching manpower – put simply, do you have enough coaches to enable you to divide workouts into different elements? For example, with 20 players training, one group doing stretching, another dynamic strength work, another working on acceleration and another on power, that's four coaches.

Time is your biggest enemy – there's never enough, so players (especially amateur players) must make it their own responsibility to train in their own time (see chapter 2).

Cost – the cost of bringing an outside specialist in to do some conditioning is always a factor, but it is often very worthwhile, as players will be motivated by a new face and perhaps new training methods.

Player responsibility – as mentioned, it is crucial that amateur players (and even professionals) take responsibility for their own fitness and train on their own, to develop their fitness and ability to improve their game.

In the professional game your conditioning priorities will tend to be based on what the individual player needs. The only time when the players would work out together is if there were specific recovery work or if a ‘team building or bonding session’ was scheduled.

The components of football conditioning

Stamina

Players need basic *aerobic endurance* – this can be developed using repeated four-minute runs working at 90% of maximum heart rate.

Basic *aerobic interval training* is also needed and can be developed by, for example, ‘box to box’ runs with recovery jogs (on a full size pitch, 10-11 seconds for box to box, with a 20-25 seconds’ recovery jog).

Heart-rate recovery work is another essential, assessed with heart-rate monitors.

(Ideally players would have been pre VO₂ max tested. They would run for 90 sec. at a high intensity, stop and wait for a pre-determined period of recovery before going again. This would be repeated continuously for 18 to 32 minutes. VO₂ max refers to the maximal oxygen processing capability of the footballer. It is measured in millilitres of oxygen, per kg of body weight, per minute)

Speed endurance is developed using repeated maximum-effort sprints with short recoveries.

Strength

Work to build up a player’s strength can be split into three areas – upper, mid and lower body. Body weight can provide resistance, as can weights and other gym-based work, such as medicine ball work.

Range of movement (flexibility)

Players will do Pilates to develop their range of movement and, in particular, core strength. Yoga will also be done, for similar reasons. Then there are basic stretch routines comprised of stretches for all

‘In the professional game your conditioning priorities will tend to be based on what the individual player needs’

the main muscle groups. Finally, there is dynamic (active) mobility work, which takes muscles and joints through ranges of movement in ways that are not that dissimilar from the movements required when playing football – for example, leg swings.

Speed and power

This involves numerous practices designed to improve physical and mental ability.

We do drills designed to improve what we call the ‘golden step’ – that’s the positive first forward step to start a sprint, which in football equates to, for example, beating a defender to the ball. Then there is pure speed work, which is done at maximum velocity. We also do speed and agility work, which involves changes of direction at maximum velocity and SAQ® type drills, such as ladder and hurdle work.

(SAQ® stands for speed, agility and quickness and is a patented performance enhancing system)

Speed technique is worked on using drills similar to those a sprinter might use. Speed training for football is considered in detail in chapter 4.

Plyometrics are also used to develop power; exercises include bounding and single-and double-leg jumps.

We will also use bungees, sleds and parachutes for more specific resistance speed and power training.

Recovery

Recovery must be seen as a conditioning element, and it is crucial for the development and maintenance of player fitness. It is commonly split into ‘active’ and ‘passive’ recovery. I use the following methods:

Passive	Active
Hot and cold work	Swimming
Massages	Cycling
Rehydration	Cross training
Refueling	Slow jogging
Sleep	
Day off!	

Skill

Although skill is not a football conditioning component, you must be aware that even though you may develop the fittest, strongest and quickest players you have ever seen, if they can't control or pass a ball or make the correct decision on the pitch, then it really doesn't matter how fit they are!

Knowing what factors to prioritise when training footballers**The history of the player**

It is important you know what work the player has done and whether he has any previous injury history. Their attitude, desire and dedication to make themselves a better player will also be an important consideration – if they have it they will work that much harder, if they don't you must encourage them to do so.

Current status

Consider whether the player is a regular in the first team; if they are, then recovery may take priority. You should also assess whether the player has time to work on any additional training elements that may not be seen as a priority but could boost performance.

What the player actually needs

You need to decide whether the player needs to work on their strengths or their weaknesses and whether – whichever course you take – they run the risk of overtraining.

Time identification

You have found a component you need to work on, so when are you going to do it? For example, 15 minutes before or 15 minutes after every training session, instead of a football session, in the afternoons or evenings? Work out when it will be best for the player and the other demands of their footballing day.

Other thoughts on football conditioning

Be realistic

Don't promise what cannot be achieved. Yes, you can get players quicker, but you cannot make them into Thierry Henry! Again, you can get players stronger, but you cannot make them into Olympic weightlifters. This is important for the players to understand in terms of managing their expectations; it also ensures that you play to the actual requirements of football and not some unrealistic idea.

Time is precious

I keep reiterating this: grab whatever you can to work the priority areas such as speed and stamina. If it's 10 or 40 minutes, use it wisely to make a difference. I know many professionals who do 10 minutes of strength work, nearly every night before they go to bed, using their own body as resistance (for example, press-ups, sit-ups, dorsi raises, etc). And there are other players who do extra stretching before and after training or 10 minutes of extra speed training after training.

What will the cost be?

What are you willing to sacrifice to improve a specific football fitness component if time becomes an issue? Are you willing to sacrifice the player missing a football session?

Future progression

How are you going to identify whether you have succeeded or failed?

In my opinion, if all aspects of football are equal – for example, skill, technique, ability, passion, dedication and perseverance – then aerobic endurance and speed (power) will always be my conditioning priorities. If a player has a good aerobic capacity, they will be able to keep going again and again throughout the 90 minutes, and if they have that bit of extra speed and power they will also get to the ball first. This is not to say that strength and suppleness, for example, are not important; far from it; but, as I said, it's about prioritising.

Football speed: speed drills and practices are outlined with and without the ball

There is no doubt that football is getting quicker. The evidence is conclusive and pretty evident in the pace of a Thierry Henry or Cristiano Ronaldo. It's not only that players are getting physically and mentally faster (the latter is an aspect that I will be focusing on in this article), but coaches are training players and teams to move the ball faster and encouraging players to counter attack more than ever. Also, the emphasis on scouting players with pace has become prominent. Speed is the competitive edge.

Football is changing, and speed, in whatever form, is at the forefront. When managers and coaches discuss a player's physical attributes the two phrases I continually hear are 'The boy has got three lungs' (describing the player's CV potential) and 'How quick is he?' – referring obviously to the player's speed. I must hear those remarks at least a dozen times a season! I was talking to a young up-and-coming coach in a top league and he told me how his club had spotted a young player during a pre-season game (he was playing for a non-league side) whose pace was frightening. After doing some research, they signed him and he has now gone on to score goals for his professional club. The player went on to represent his country at full international level, then moved to a new club for several hundred thousand pounds.

I have worked with players who may not be the most skilful,

‘I have worked with players who may not be the most skilful, tactically aware or aerobically fit, but have the ability to accelerate, maintain, endure and change direction at high speed better than most other players on the pitch or training field’

tactically aware or aerobically fit, but have the ability to accelerate, maintain, endure and change direction at high speed better than most other players on the pitch or training field. All these players have made a good living from the game and if they can read the game as well ...well, they make a fantastic living. Play to these guys’ strengths and your side will always have a chance.

Improve your football speed

Every player has the potential to improve their speed. Although speed is a natural component of a player’s makeup (influenced by genetics and lifestyle, ie for the latter, what sports the player played while young and indeed how they ‘played’), you can improve a player’s speed significantly as long as the training programme is well structured and the player works hard and has the right attitude.

Experience has shown that players who are skeptical tend to improve less than players with open minds. You can improve every player’s speed whether they are naturally quick or not, but the greatest improvements will occur in those who want to get quicker. By how much, however, is the difficult question and is much debated in football.

Development of physical speed

For me the physical development of speed is split into two main areas:

1) Good base strength (foundation) – this can be developed during part of the close-season and pre- and early-season training cycles (see chapter 2). This consists of exercises such as core stability, strength work, lunges, squats, specialist speed and agility training, step ups, bungees* (for over-speed work), plyometrics, medicine ball work and so on. What and how it is used will depend on your views and priorities as a conditioning expert.

* Bungees are elastic cables and harnesses which allow an athlete to sprint faster than would be able to under their own power – hence the term over-speed

Whatever standard of football you play at, players with pace, who are quicker than their opponents, will always stand out as long as they know their own strengths and your team plays to them.

2) Actual field work – this involves the use of speed drills and techniques that look at components such as foot to ground contact and movement, agility and acceleration. Note: it is important to work to maximum during this phase. If this is not done then improvement will not follow, as the players' neuromuscular systems will not be optimally enhanced.

Football is a multi-directional, multiple pace, explosive, but aerobically-based game; therefore drills should simulate what happens in a game. Players normally only have to sprint for 2–5 seconds and the maximum length of sprint is around 70 metres. When conditioning football speed you need always to focus on these match requirements and condition accordingly.

Basic theoretical knowledge

To develop speed you must have a basic theoretical knowledge of what makes a player quick. For me this rests on the following:

- State of mind – brightness, alertness, anticipation and reaction.
- The nervous system, which must switch on the muscles quickly and coordinate movements.
- The muscles and tendons, which must move rapidly with coordination and power.

Stages of a sprint

Football speed involves acceleration, a maximum speed phase and a deceleration phase (when you can no longer maintain your top speed and when stopping). However, I have observed that there are many other components to be aware of when improving football speed.

“You can improve every player’s speed whether they are naturally quick or not, but the greatest improvements will occur in those who want to get quicker”

The dos and don'ts of speed training

- Do train for speed early in a session (after warm up) – to allow for quality.
- Do use your imagination (use relays, rugby balls, etc).
- Do the majority of sprints between 2–5 seconds.
- Do train multidirectional speed.
- Do have plenty of recovery – 1:6 or 1:8 ratio work to rest.
- Do speed work with and without a ball.
- Do make sprints competitive.
- Do ensure players' attitudes are right.
- Do try to have a theme for each speed session, ie anticipation, reaction, golden step, etc.
- Do use a variety of methods, for example, resistance work, over speed work, hills and so on.
- Do a little and often – this is better than nothing.

Top players in the Premiership and the Championship can reach top speeds of 9.5 metres per second! Usain Bolt would be running at 11 metres plus a second at his fastest during a 100m – nevertheless this is good sprint speed for a footballer.

- Don't speed train without having first developed a sufficient strength base.
- Don't exceed more than 60–70m of sprint work on one run.
- Don't do speed work every day, 3–4 sessions a week, subject to games, will be sufficient.
- Don't do speed work when players are tired.
- Don't work at less than 100 per cent.
- Don't do speed work until players are properly warmed up.

Football specific speed

A famous manager in the Premiership measures speed by timing how long it takes a player to control and pass the ball. He continuously measures this very short period of time with each player to promote fast, controlled, moving football within his teams.

The physical and mental stages of an average sprint:

I have learned that if you can improve two or more of these components, the player will get faster, whether this be physically or mentally.

1. Mental brightness and awareness – a player should never switch off during a game. They need to be alert, know their opponent's strengths and weaknesses, and watch his body movements. The player needs to know their opponent – for example, is he right or left footed and which way does he prefer to turn?

2. Anticipation or/and reaction – speed in football is very much about anticipation, for example, 'Where is my team mate going to put the ball?' or 'The opposition is not going to get that ball, I can'. If a player can anticipate then they are already one step ahead. After that it's all about reacting first and 'getting that yard'.

Components 1 and 2 summarise a phrase I have heard many times when talking about mental brightness, awareness, anticipation and reaction in football: 'You don't need to be fast to be quick' – although I must admit that it helps! I have worked with several players who, when doing speed testing, have not had particularly good test results, but watching them play and train on numerous occasions they seem always to get to the ball first, or intercept the ball or score when their marker or opponent is much faster than they are. The ability to be one step ahead of an opponent psychologically, to have a 'footballing brain' or have superior reactions can make a player quick and in possession of great football speed!

3. 'Golden step' – this is an American term, which basically describes the player's first step as being a very positive and dynamic movement. It's the step that takes a striker away from his opponent and into a position to make a strike on goal.

4. Upper body awareness – this is often an underestimated part of speed work and involves not only the arms but the whole upper body. The arms drive the legs and a forward lean of the torso will aid acceleration for example, allowing

‘I have worked with several players who, when doing speed testing, have not had particularly good test results, but watching them play and train on numerous occasions they seem always to get to the ball first’

Steve Foley, 40 years' experience in football as a coach and player on football speed:

'I have never seen a ball sweat! Quick accurate, positive passing will always beat any individual player in a race!

If you ever have a player with speed of thought and natural speed in their legs, you will have a top class player to work with.'

the powerful muscles of the calves, hamstrings and butt to work in harmony to provide propulsion. Additionally, turning the hips and torso dynamically into the direction of the turn while driving the arms appropriately will make for more powerful turns.

5. Initial steps (acceleration phase) – to develop optimum acceleration, the legs must drive back against the ground (the movement is initiated from the hip-flexors – the muscles at the top of the thigh) and the arms should be pumped backwards and forwards vigorously – where practical. In this respect much can be learned from the starting technique of sprinters.

6. Technique and running mechanics – this means stride frequency, stride length, running economy. It is important to sow the seeds of good running technique into players at a young age. You will find it difficult to influence their running when they are in their twenties.

7. Deceleration phase – it is important that players learn how to stop quickly. This ability rests largely on appropriate skills training and on what is known as an 'eccentric muscular contraction'. This occurs when a muscle lengthens under load, as happens during the lowering phase of a biceps curl (a 'concentric muscular contraction' occurs when a muscle shortens under load, as during the lifting phase of a biceps curl).

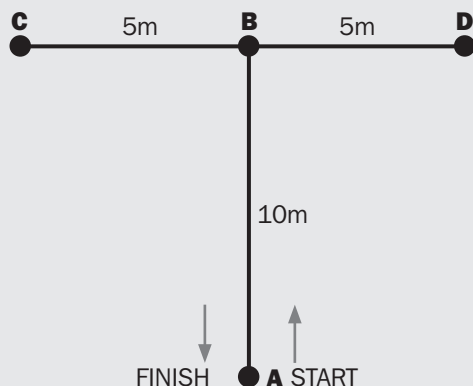
8. Speed endurance – this refers to the ability of a player to sustain maximum or near to maximum speed – training must be designed to promote this.

Speed tests

We have briefly discussed the theory of speed and its basic components, so let's take a look at a couple ways we can test it.

1) The T-agility test (adaptation)

Equipment – four traffic cones and stopwatch.



Start at A. You start the stopwatch as soon as you see the player's first limb movement. Sprint around B (90°) to C, then around it (180°) to D and around it (180°) to B, making a final 90° turn to sprint past A.

Test scores

Any time:

Over 9.60 sec. is poor

Under 9.30 sec. is average

Under 9.00 sec. is excellent

	Actual performances
Young centre forward	8.81
Early 20s centre forward	8.90
Early 20s centre forward	8.95
Senior fullback	9.10
Academy wide player	9.22
Central midfielder 20s	9.35
Senior midfielder	9.66
Goalkeeper – young	10.15

Based on average of three runs. Test done early/mid season.

2) Sprint test

Measured by electronic gates.

a) Players perform a flat-out sprint over 20m from stationary start, with splits measured at 5m, 10m and 20m.

b) 20m with a 2m run-on – splits measured as above.

Examples of performances	Standing sprint			Rolling sprint		
	5	10	20m	5	10	20m
18-year-old centre forward	1.07	1.77	3.01	0.85	1.38	2.76
1st team centre forward	1.09	1.80	3.10	0.85	1.40	2.73
Senior centre back	1.11	1.83	3.29	0.91	1.43	3.02
1st team midfielder	1.09	1.77	3.29	0.85	1.38	2.91
17-year-old midfielder	1.34	2.09	3.42	0.87	1.56	2.87
Released academy midfielder	1.59	1.85	3.28	0.94	1.52	2.76
Released academy midfielder	1.16	1.92	3.33	0.92	1.66	3.04
Senior 1st team full back	1.01	1.67	3.28	0.87	1.30	2.86
1st team midfielder – wide	1.14	1.89	3.02	0.82	1.47	2.80
Released reserve midfielder	1.04	1.70	3.31	0.88	1.33	2.96
Academy goalkeeper	1.17	1.96	3.29	0.87	1.57	2.88
1st team forward	1.03	1.69	3.12	0.82	1.43	2.72
1st team fullback	1.10	1.72	3.20	0.84	1.44	2.84

Analysis of these sprint performances can then identify which ‘sprint areas’ a player may need to work on. A poor 5m time (from standing) but a good overall 20m time, for example, would indicate that the player should work on reaction, the golden step and acceleration.

A centre back requires a different approach to a striker

Football conditioning has become much more specific and scientific. Professional players are now subject to a rigorous fitness regime to get them – and crucially maintain them – as match ready as possible, but this does not mean that all players should train exactly the same.

The demands of the game

Football is changing, whether we like it or not, and over the seven years I have worked with ProZone (a match analysis system) it has become very noticeable that Championship and Premiership players seem to be working more intensely, covering more distance on the pitch, year in year out. Therefore, training must continue to reflect the ever-changing demands of the game. Football is a skilled team based sport, all about technique, decision making and creative play. It is a continuous, multi-directional, multi-paced, explosive sport but with an aerobic foundation. In terms of the overall playing demands across the year, it is a marathon and not a sprint. A game is played on average every five days for nine months.

I have the highest respect for boxers, rugby players and track and field athletes, to such an extent that I spend a lot of time talking to the respective sports' coaches and participants. I look at their training methods and their physical and mental approach. There is a lot to learn from them. This has made me a better conditioning coach and hopefully in turn improved my players' condition. Football is unique, in regard to the short-, mid- and long-term demands of a season. Other sportsmen and

‘It has become very noticeable that Championship and Premiership players seem to be working more intensely, covering more distance on the pitch, year in year out...’

sportswomen may say that footballers have an easy life, that they don’t work enough, or are not fit or strong and so on. To these my reply has always been: come and join in for a few weeks or look at the training programme, remembering of course what you have to do with a ball. You need supreme physical condition and playing skill. Over the years, several different athletes from different sports have done this and I would like to think they have changed their opinion as a consequence. I’m sure, though, that this change in opinion would be the same if a footballer participated in the training regimes of these other athletes’ sports. Yes, football can learn from other sports, but the game itself, ex-players, coaches, managers, other teams’ methods at home and abroad, can teach football more.

The actual demands of a game

Let’s now take a look at what players do in an average match, based on playing position. As I pointed out in chapter 1 and 2 there is a 10-30% difference in the fitness levels between amateur and professional players. By understanding the demands of the game, specific to position, it will be easier to design position specific drills and training programmes. I use the following acronym to assist with specific player conditioning FITT – this stands for, Frequency, Intensity, Type and Time.

The following statistics are provided by match analysis system ProZone:

Full backs	Total distance covered	11.22km
	High intensity distance covered	1130m
	Sprint distance covered	350m
	Number of high intensity activities	157
	Number of sprints	54
Centre backs	Total distance covered	10.32km
	High intensity distance covered	764m
	Sprint distance covered	211m
	Number of high intensity activities	112
	Number of sprints	33

Wide midfield	Total distance covered	11.70km
	High intensity distance covered	1390m
	Sprint distance covered	430m
	Number of high intensity activities	182
	Number of sprints	63
Central midfield	Total distance covered	11.73km
	High intensity distance covered	1144m
	Sprint distance covered	302m
	Number of high intensity activities	169
	Number of sprints	49
Attacker	Total distance covered	10.72km
	High intensity distance covered	106m
	Sprint distance covered	351m
	Number of high intensity activities	142
	Number of sprints	51

Note: attacker = either the 'target' or 'channel man'

Key to figures

Distance covered, from walking to sprinting in 90 minutes

High intensity >5.5 metres speed per second

Sprints > 7.0 metres speed per second

These stats do not show that players will change direction over 1,000 times and turn (over 120 degrees or more) 450 times a match. Also not shown is the time between each high intensity effort – this is on average 60 seconds for centre backs, 32 seconds for fullbacks, 34 seconds for wide midfielders, 36 seconds for centre midfielders and 39 seconds for centre forwards. Also not shown is the number of tackles and jumps etc made. These are very important factors because turning, twisting, changing direction, jumping and tackling take a lot out of players physically.

Footballers can come in all shapes and sizes

Despite some experts' beliefs that each outfield playing position should have a certain physical standard/profile (body type) so that you get the best out of them playing-wise, I disagree. Yes, generally speaking it might be advantageous if an attacker is 6'3' and well built, but if the player has other exceptional attributes, then it doesn't matter what height or body type they have. Footballing ability will often outweigh physical attributes. Look at the Spanish national team's victory over Germany in the recent European Championship final, they were much slighter than the more heavily built Germans. Then there are players like Roberto Carlos, Lionel Messi, Michael Owen, Fabio Cannavaro, Aaron Lennon, Shaun Wright Philips and Deco; the list is endless of these great but not physically big players.

A guide to the physical attributes required for players related to their playing position

For me every player needs to be fit, strong, agile and fast. In the perfect team all the players would possess these attributes. However, we don't live in a perfect world. I have therefore identified the key training requirements of players according to position. Speed, stamina and mental attitude will be the key underpinning elements for all positions.

‘Speed, stamina and mental attitude will be the key underpinning elements for all positions’

Centre backs

- Powerful, dynamic strength
- Physically strong under contact situations
- Vertical, single leg jumping power
- Balanced – rarely talked about in fitness, but important in this position
- Agile – must be able to turn quickly in both directions
- Anaerobically very fit position, lots of explosive training required
- High endurance capacity not needed – can get away with a relatively low VO_2max (VO_2max is a measure of the body's oxygen processing capability)
- Ideally have pace – becomes more important if the player is not physically that big
- Should enjoy the contact side of the sport

- Must be very mentally strong.

Full backs

- High aerobic capacity (looking for a VO_2max of 63/64ml of oxygen per kg of body weight)
- Some top managers expect full backs to be the fittest players in the team
- Speed endurance work is very important
- The modern game is tending to use taller players in this position although this is not essential
- Aerobic recovery interval training (based on heart rate) is important
- Players with pace will stand out in this position.

Central midfielders

- Good aerobic foundation is essential. They are the ‘engine room of the team’
- Physically the team’s ‘all-rounder’, does a lot of everything
- Holding midfielders, strong, agile and good in the tackle
- Advanced midfielders are ‘box to box’, high intensity players, training must reflect this, will need to do, for example, more longer sprint work
- Ideally should be two-footed
- Are always twisting, turning and changing directions, must therefore have very good local muscular endurance and be highly fatigue resistant
- Pace – this will be very much a bonus.

Wide midfielders

- Some of the fittest players in the team – VO_2max of 63/64 ml/kg/body wt
- Good recovery rate is important, therefore short recovery work training is essential
- Ideally players will have pace
- Can be physically smaller subject to the team’s format.
- Mobile and agile – therefore need to do relevant agility and power work

- Two-footed players in this position will be at a massive advantage, being able to go inside and outside of defenders, for example.

Centre forward – target man

- Usually big players with a presence
- Ideally with good agility and balance under pressure – therefore need relevant agility and power training
- Dynamically strong players
- Vertical, single leg jumping power
- Explosive position, training should reflect that – work on the first step and acceleration
- Average VO_2max , approx 59 ml/kg/body wt
- Must enjoy the contact side of the sport
- If timings of jumps are a conditioning issue, this should be specifically worked on.

Centre forward – channel man

- Fit players, with above average VO_2max
- Good pace, some of the quickest players in the team
- Speed endurance training is essential
- Agile, in the respect of turning quickly – this skill should be practised
- Balance
- Explosive position, therefore training should reflect that, for example for linear and curvilinear acceleration
- Strength required, for example to hold off defenders.

Thoughts on football conditioning – keep it simple and specific – (KISS)

Keeping it simple and specific, aka KISS, is a term that has come more to the forefront of my thinking over the last few years in terms of football conditioning. Although we are continuously learning in football and conditioning is becoming increasingly scientific and complex, I always seem to come back to KISS.

SIMPLE. Many coaches, managers and players have told me, ‘football is a simple game and simplicity is genius’. However, football is often complicated by coaches and players. Simple does not mean boring. With the ball, football is about passing, dribbling, shooting, making decisions, being creative and scoring goals. Without the ball, it’s about putting the opposition under pressure, the team keeping shape, defending as an individual and as a team, being disciplined and avoiding mistakes (how many goals are scored via mistakes by the opposition players?). It really is that simple and so should football conditioning be.

SPECIFIC. Conditioning should be specific to what players actually do physically on the pitch with and without the ball. They walk, stand still, jog, run at high intensity and sprint on numerous occasions and they turn, change directions, jump, tackle and make contact with other players. They make decisions, try to avoid mistakes and create opportunities. They have contact with the ball no more than 2 minutes per game.

They play 50 plus matches in a 9-month period. In a week's training cycle they play, recover, train, train again, prepare and play again.

Applying KISS

What makes a player fit?

Genetics

Lifestyle

Mental approach and attitude

Training intensity, time, type and frequency.

Match demands

Football conditioning is simple and specific. Training should be based on the actual demands of the game and how your manager wants to play the game. For example, does he want the team to play a passing, a long ball or a high intensity game?

Sports science

Preparation, nutrition, recovery, understanding the demands of the game and the monitoring of players during training have greatly benefited from sports science. But as a conditioner you should always use your common sense, be realistic and remember it's about football first and foremost. You should adopt the best that sports science can offer, remembering that there is no magic wand out there or special secret training method. It's about what works for your current players.

Warm ups

Always follow the basic principles of the warm up, then 99% of the time you will avoid injuries and prepare players correctly. Basic principles include: raising body temperature through gentle CV work, followed ideally by dynamic stretching, then more specific football related movement (multi-directional and multi-paced), more stretching then several minutes of specific movements (ball passing etc). It's also a good idea to use other coaches to do warm ups to keep them and players fresh.

‘As a conditioner you should always use your common sense, be realistic and remember it’s about football first and foremost’

Recovery sessions

Keep it simple – 24 or 48 hours after the game, do 30 minutes of low intensity active recovery, 30 minutes of developmental stretching and have 30 minutes of massage. Recovery compression clothing can also be used, plus ice baths and hot and cold treatments. It is important to avoid altering or interfering with players' sleep patterns, as this could effect their recovery – unless of course you are aware of a player who is not getting sufficient sleep!

Speed work

I found that a little and often is best. It is important to mimic what happens in a game, so do 2–5 seconds sprints, to get the body and the so called 'muscle memories' used to producing powerful movement automatically through repetition.

Players

Educate the players. Most want to become better and conditioning can help this, so explain the benefits.

Psychology in football

This is a fascinating subject that continues to create a great amount of debate in the game. Opinion is divided amongst professional managers and coaches, with the majority swaying toward the use of a specialist sports psychologist. For me, it's simply about being able to understand how players learn, think and what motivates them. It's common sense coupled with good communication skills and if that takes a sports psychologist, so be it.

How does psychology affect conditioning? The following is based on what I have learned dealing with professional players over many years. Generally speaking, if a player thinks he is overtraining or is tired, their physical performance usually reflects this. If you tell players that they are in great shape and are fit, they generally physically perform better. Players who lack desire and passion will not go through the pain barrier, although they might think that they are doing so.

In this respect it is useful to use heart rate monitors to be precise and objectively see how hard a player is working. When things are not going well, players tend to look for excuses. They may believe that they need to work harder (and do so), but then they don't increase or improve their nutritional input and so feel tired again. My reply is – why were they not working harder before? Some players need to be loved, others need a kick up their backside; the secret is individual management – choose the right approach for each player so you get the best out of them physically.

Testing

Try to keep it as relevant as possible to what happens on a pitch. Any lab testing must have a purpose and an understanding of what you hope to learn from it. The findings should be translated to the training programme. I indicated the best tests to use in chapter 1 and in chapter 4 various additional and detailed speed tests and player performances were also provided.

Aerobic/anaerobic training, with or without a ball

I like to use a mixture of both. There are times when I would not use the ball, because I don't want any hiding place for any of the players. I will want to see them physically and mentally push themselves and each other at a high intensity level. Other times I use the ball because it's what the game is all about. In these scenarios the players see what happens with the ball when they get tired (decision making, quality and pace all suffer). See chapter 8 for examples of the sessions I use.

Nutrition

Food and fluid. It is essential to take advice from a nutritionist – it could give players an extra 5-10% more stamina and power.

Prioritising in football

As mentioned in chapter 3, which dealt with in-season training,

I have come to the conclusion that there is no magic wand or brilliant well kept secret when it comes to conditioning players. It is about players' genetics, lifestyle, abilities and attitude and getting them as fit, strong, agile and fast as you can within the numerous influencing variables. It's about using common sense. Preparation, matches and recovery will always take priority in the season. Then it's about prioritising the different conditioning components, always working with and around football training. It's about getting players positive and adapting the best that sports science can offer without losing sight of the real needs of the game. So keep it simple and specific. When you do get a new idea or method, have an open mind, if you like what you hear, try it out on two or three players and then take it from there. In chapter 10, I'll provide an insight into what I believe the football conditioner of the future will have at his disposal in terms of technology.

from a conditioning point of view, you will never be able to achieve what you would ideally want to because football training, preparation, matches and recovery will always take priority, and rightly so. So prioritise what, when and how to tackle conditioning issues in the time you have and always ask yourself, do the positives outweigh the negatives?

We recently had a highly respected former England coach take our first team football training for a two-hour session; his message was very simple and specific, 'practise, practise, practise the simple things of football well and the rest will take care of itself'.

Close-season: how to restore the player back to readiness for the next season

The close-season cycle has a direct effect on pre-season. This period of time used to be overlooked in the professional game, but no more. Players are now given detailed individual plans on nutrition, training and weight management. These individual programmes/schedules are usually presented in a smart folder and are given to the players the day before they leave for the close-season.

The days that players come back overweight and in poor physical condition have generally long gone. Fitness and football coaches, and players' education and awareness have changed many players' attitudes towards the close-season, but there are still some who lack self-discipline and return overweight or in poor condition and these players must be treated and trained separately from the rest of the squad.

The close-season period lasts from anything from between five and nine weeks, so you can see from the length of the time period, that it is a very important one and that you and the players must get it right.

Like many subjects in football, what happens in the close-season is much debated and there are several opinions out there. Some coaches and managers suggest that players should be working in this period, whilst others suggest they should be doing very little. Others give players two to four weeks off, bring them in for a week or so, let them go on holiday again and then start pre-season.

When planning the close-season cycle, it's important to

understand fully what has happened during the season, both physically and mentally. You will constantly see me refer to how the psychology side of football effects the close-season (see case study).

Splitting the close-season into three distinct phases has worked well for both me and the players that I have worked with over the years. The length of each phase can vary in regard to the length of the close-season:

Phase 1: Complete physical and mental rest (apart from mobility exercises)

Phase 2: Active rest

Phase 3: Preparation

My opinion is based on the following factors: over a season that lasts for nine or ten months, the body takes a pounding both physically and mentally. There are not many sports where you are expected to reach your physical peak 40-55 times (for games). This works out to be on average a game every five days or fewer a season. Teams then train hard between them to overcome weakness and to continue to improve strengths. Bodies are not machines; knocks, strains, injuries, playing whilst not 100% fit and mental fatigue accumulate during a season – this will eventually catch up with a player up and lead to underperformance. Another consideration is that players do not lose much aerobic fitness over four or five weeks as long as they look after themselves and adopt a cross-training policy (see chapter 8). What they do tend to lose first, however, is their ability to make decisions under pressure, their speed and power and their basic ball skills and agility, which of course you will re-establish during pre-season.

Close-season phases

The following programme is subject to when the season finishes and when pre-season starts, it can be as short as five weeks to as long as nine weeks.

1) Complete physical and mental rest (apart from mobility exercises)

This period can usually last between two and four weeks. I

CASE STUDY

Season 1: Ipswich were in their first season in the Premiership and the players returned to pre-season training. It was so obvious that they were in fantastic shape and their attitudes towards training were ones of excitement and enthusiasm. Testing showed an average of 8% improvement in physical shape on last season. They had certainly looked after themselves in the close-season and they were determined to prove themselves in the Premiership. That season the Club finished fifth in the Premiership and qualified for Europe.

Season 2: Next season the players were given the same close-season programme as season 1 (we thought, why change it?) and generally speaking, it was the same group of players and the same tests. On the first day back the spirit was good and attitude towards training was professional, although they showed no improvement in fitness. However, several players came back overweight and we picked up a few minor injuries in the first few days.

So, what had changed from last season? Same players, same close-season programmes, but now we were dealing with players who had played in the Premiership for a season and are on new Premiership contracts! Although I did not know at the time, I later realised and learned the hard way that some of the players' mindsets, attitudes and desires had changed. This, I believe, was not deliberate, but more on the subconscious level. This may have affected their compliance to the close-season programmes, their approach to pre-season and maybe even the rest of the season.

Additionally the team was not a surprise package anymore. It was clear to see, that opposition teams were very motivated to beat us! That season we got relegated but had a great run in Europe. Some of our player's attitudes had changed and so too had that of the opposition in the Premiership – the power of the mind cannot be overlooked!

encourage the players to have a complete rest physically. Note I also encourage them to reduce their food intake commensurately to account for their reduction in physical activity. And mentally I tell them to keep away from all forms of football (including TV) and to enjoy their holiday. In terms of physical activity I encourage them to take part in light intensity exercises only, like cycling, walking, swimming and lots of golf! *Rest*, physical and mental, is the priority during this short cycle.

GOLDEN TIPS FOR THE CLOSE-SEASON

1. Do not underestimate the benefits of 'mental rest' during the close- season
2. Encourage the players to rest during the close-season
3. Give the players a structured timetable of what to do during the close- season
4. Encourage the players to stretch throughout the close-season
5. Check their weight and body fat levels before and after the close-season
6. Players that have not played regularly during the season should have a more 'aggressive' programme to strengthen their physical weaknesses
7. Players who do not adhere to their programme or come back considerably overweight or with increased body fat should be treated separately. You don't mind players returning a couple of kilos over weight, they will soon burn it up!
8. Encourage the players to get their feet measured so that their footwear is the right size
9. Remind players to reduce their food intake during the close-season
10. Create a two-way communication with each player individually, prior to leaving for the close-season, to educate them and encourage them to adhere to the guidelines of the close-season programme
11. Some players, especially in the period leading to their return, like to train at the training ground, so make yourself available on a purely optional basis, you'll be surprised how many players do come back early

2) Active rest phase

This period lasts approximately two to three weeks. Some professional clubs will insist that players use heart rate monitors during this period; if you do, make sure that you take into account the fact that players' maximum heart rates may have slightly changed, due to detraining. In this period you ask/tell the players to work at a moderate intensity, ideally again using other sports, such as tennis, squash, badminton, swimming, cycling, gym work or even the odd run on a suitable surface. It's important to make sure that the players are still continuously stretching and that they wear the appropriate footwear for their activities. I encourage players to train three times a week.

3) Preparation phase

This is the phase just before pre-season. It lasts for approximately two weeks and the players train every other day. It is a structured period of moderate intensity work and rest. I try to encourage players to do multidirectional work on grass during this period, to prepare their bodies for this type of movement, which will become a regular part of pre-season training and of course matches and training once the season is in full flow.

It is interesting to note that on the continent, mainly in Mediterranean countries (subject to fixtures), they often only let their players have a maximum of five/six weeks off and no more during the close-season. When they return, they tend to look at preparation and development more than their English counterparts. They are also not afraid to give players more time off after their return to pre-season. This means that players can maintain better condition and are less likely to be over-trained.

How to get and maintain football condition

As a conditioning coach you must have a repertoire of workouts that you can use with players at various times of the season. You should also use cross training methods to break up the training intensity and maintain the players in peak playing shape. Examples of both these types of sessions are provided.

For me, three of the more challenging jobs in professional football are 1) keeping the non-starting 11 players match-fit; 2) Monitoring and then interpreting the data of every day's training, in terms of intensity ie have the players worked too hard or too little; 3) making sure there is enough time for the players to continue their physical development programmes.

Working with the non-starting 11 has to be planned

Working with non-first team regulars is a challenge – especially if they are not playing regular football in reserve team matches. And in regard to the latter it has to be said that its standard is not that of first team matches, which means that match fitness can be lost quickly. These players therefore have to work harder during the week to ensure that when the chance comes to play they are as fit as possible. I have to stress that in my opinion, there is no replacement/substitute for playing first team football in front of supporters when there is plenty at stake. However, with good planning, motivation, communicating, training drills and monitoring I believe you can get 90% of the way there.

Monitoring and interpreting training intensity

The second challenge, which reflects one of the most asked

‘Remember you can’t do everything that you know is right; preparation, matches, recovery and technique work will always take priority, so prioritise carefully’

questions in world football is how hard do you train during the season and between games? There are thousands of opinions on this, but I have yet to hear a complete and concrete answer with evidence to back it up. It would seem that the teams that win have got it right, but is it more a reflection that they have the best players? Yes, the training has obviously worked for those players in that season, but when other clubs try to replicate that team’s training (or when the team’s manager moves on to a better club) results are, more often than not, nowhere near as good. This probably reflects the fact that you are dealing with a different environment and different individuals and different motivational issues. This is why following the ‘FITT’ acronym becomes important in shaping training. FITT stands for ‘Frequency, Intensity, Time and Type’ and I constantly apply this to the conditioning I am doing to try to ensure that training is as effective as it can be both in and outside of the season. The mental attitude of players must also be added to this (cross training – of which more later – is also a valuable training tool in this respect, enabling players to maintain shape in a fun and energising way).

Finding the time

The third challenge is allocating sufficient time to achieve conditioning goals. Remember you can’t do everything that you know is right; preparation, matches, recovery and technique work will always take priority, so prioritise carefully.

So, once you have factored in the above concerns (and their myriad spin-off issues) the next crucial decision is what drills are you going to use to achieve these aims?

I have provided a small sample of drills that can be used during the week (as long as your team is playing Saturday to Saturday matches) to meet the above challenges.

Note: the difference between a professional football player and a good amateur one is between 10 to 25% – timings/standards in the following are based on professional players – so adjust accordingly.

Selected anaerobic and aerobic football drills

Drill 1

Name: half-pitch figure of 8 high intensity, interval training, anaerobic drill.

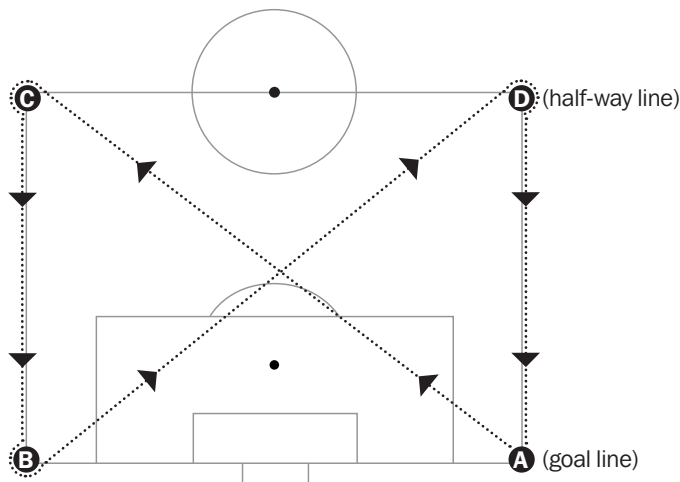
Purpose: To work the anaerobic system

Suitable for: full backs, midfielders and mobile centre forwards

Equipment: Half a pitch (dimensions of full size pitch 106m by 67m), 4 poles

Time in training year: this a good drill for pre-season, especially when you are happy that the players' aerobic foundations are in place.

Description: Using half the pitch, place a pole at each corner. Corner poles are marked 'A' and 'B' and half-way line poles are 'C' and 'D' – as shown:



Players in small groups start at A and run diagonally to and around C and then straight to and around B, then diagonally and around D and finally straight back to A

Professional players do this in 40-45 seconds. There are four reps in one set and a rest is taken between each run – depending on fitness – of between 90-120 seconds.

Do: 4-5 sets in total (that's 16 to 20 runs)

Ideally you would put the players into small groups of 4 or 5 based on heart rate recovery. Each group would repeat each rep not on a 60-90 seconds' recovery basis, as mentioned, but to an average set recovery heart rate figure. For example as soon as heart rate has fallen to 160 beats per minute (this is based on players having a heart rate max of 185bpm). Throughout the session, taking into account the recoveries between sets, professionals' heart rates would not fall below 130bpm across the entire session (that's including recovery during sets).

Drill 2

Name: dribble, sprint, change direction and pass

Purpose: develops multi-directional speed endurance with ball

Suitable: for all players

Time in training year: any time after the conditioning foundations have been laid

Equipment: one ball and six cones per pair of players

Description:



Note: there are many variations to this drill in terms of the running order to the cones, so be creative

Set one: Players start at 'A'. One player with the ball sprints to 'C' and leaves the ball there and jogs back to A. The player without the ball sprints to 'D' then to 'B' and then back to C, collects the ball and passes accurately using two touches only to their partner who is waiting at A. They then dribble the ball to C again and leave it there for the other player who has jogged back to A to go again. Each player repeats the drill 6 times continuously at maximum effort and speed – 90 seconds recovery should be taken between sets.

Do: 4 sets (each player – 24 efforts)

As players get tired you will notice three things, generally in this order,

1. The pace decreases
2. Quality with the ball suffers
3. Thinking process (decision making) suffers

Key coaching points:

- Make players aware of the above consequences so they can try to combat them
- Players must relax with the ball
- Coach turning techniques – for example, low point of gravity, bent knees and so on

Drill 3

Name: full and half-pitch runs

Purpose: high intensity anaerobic interval training without a ball

Suitable for: all players, especially full-backs and wide players

Equipment: full size pitch (106m in length)

Time in training year: early season

Description: Split the players into three groups based on their anaerobic ability. One group works whilst the other two rest. The fittest group has less rest between reps than the other two groups (if you do this, you'll obviously have to sort the players into the right groups before the session and this should be based on their stats).

Players start at the half-way line, players runs to B, then C and back to A.

4-6 runs equal 1 set. Rest 2 minutes between sets.

Do: 4 or 5 sets.

Professional players complete this drill in 32-36 seconds and usually with a 1:2 ratio or 1:3 work to rest ratio, ie 1:2, run takes 35 seconds, rest 70 seconds. For this drill it is sometimes good to mix up the recovery times, using, for example, 70 seconds for

one period and 50 for another and so on. You can also use heart rate monitors to control recovery as indicated in drill 1.

Goal line	half-way line	goal line
B	A	C

Drill 4

Name: 4 v 4 small-sided game

Purpose: to improve player's aerobic/anaerobic fitness

Suitable for: all players

Equipment: playing area approximately 40m by 30m, 15 balls minimum and 2 goals

Time in training year: any time

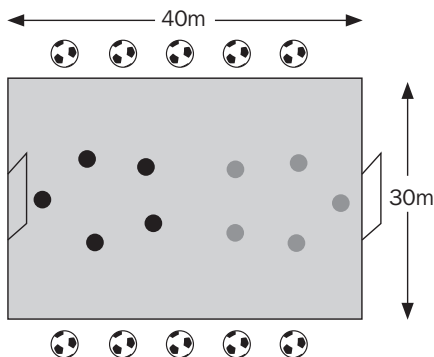
Description: Set up with two goalkeepers and 4 v 4 outfield players

Football is simply played at a high intensity with little natural recovery as spare balls are spread out in goals and around the pitch and these should be used as soon as the ball being played with goes out of play

This drill is organised by both the football and the conditioning coaches.

Emphasis is on high intensity work (and players must be made aware of this). Coaches must motivate the players to work hard and not stand still

Work for 4 minutes continuously. Rest actively for 90-120 seconds and then play again for 4 minutes. Four to six efforts required.



(spare balls to be brought into play as soon as the ball goes out of play)

Drill: 5**Name:** Speed/agility and aerobic runs**Purpose:** aerobic and anaerobic session**Suitable for:** mainly full backs and midfielders**Equipment:** a marked 300 metre running track/circuit.

Speed and agility equipment (see below)

Time in training year: first part of season**Description:** Set up a speed and agility circuit that lasts approximately 15 seconds, for example:

3 traffic cones

1 ladder

3 traffic cones

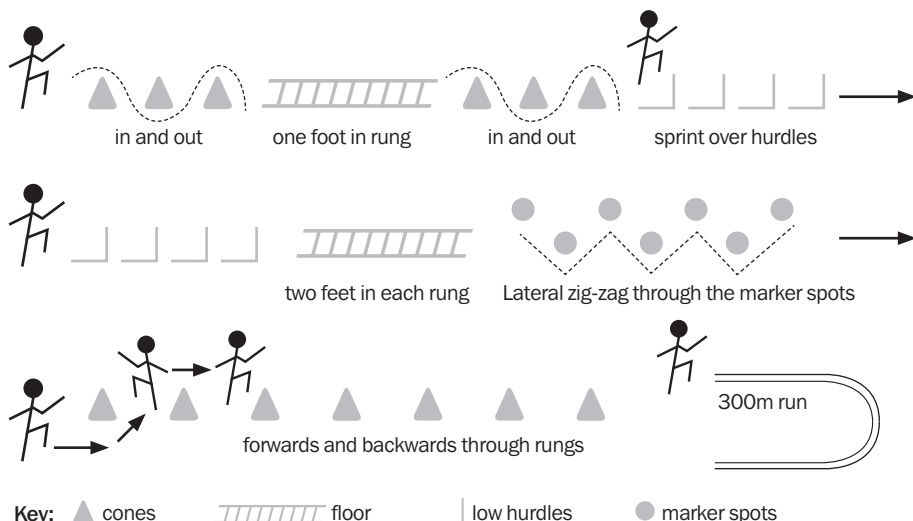
8 hurdles

1 ladder

7 discs in a zig zag shape

7 more traffic cones

The equipment is set out in a circuit fashion, perhaps in a rectangle, and the circuit should be completed as quickly as possible.



Set up in straight line or in rows with players sprinting back from the end of each lane to the next

Player movements for circuit:

In and out of the three traffic cones
Through the ladders, one foot in each rung
In and out of the next three traffic cones
Sprinting – one foot between each hurdle
Run through the next ladder – two feet in each rung
Lateral zig zag shape through the cones
Forwards and backwards through the traffic cones

Approximately 30 seconds rest between efforts. Repeat 4 times

Then complete a 300m run in 55 seconds, rest 60 seconds and then complete another in 55 seconds. Rest for approx 90-120 seconds or when heart rates come down to approximately 140bpm (based on a player heart rate maximum of 185bpm)

4 circuits plus two 300-metre runs equals one set.

Do: 4-6 sets.

As with some of the other drills the recovery can be based on heart rate.

Drill 6

Name: anaerobic box agility

Purpose: to develop speed and agility, with ball control and anaerobic endurance. Also develops leg strength.

Suitable for: all players

Equipment: 4 cones, several balls

Time in training year: in season

Description: Three players are required as shown as 'X1', 'X2' and 'X3'. All the balls start with X2

X1 = worker

X2 = server

X3 = receiver

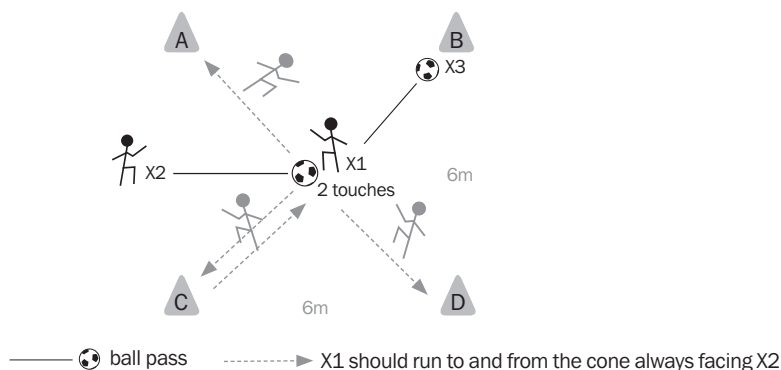
Distance between cones A, B, C and D is 6 metres (making a 6 x 6m grid)

X2 plays an accurate pass with pace to X1. X1 controls the ball, using two touches only (the ball must not leave the box on the first touch) and passes to either X2 or X3. As soon as X1 passes the ball he must as quickly as possible, touch three of the cones in any order, whilst always facing X2. As soon as X1 has done this, X2 passes the ball again and X1 repeats the drill. This is completed over the course of approximately 30 seconds. During the drill X3 is always changing positions to possibly receive the pass.

Emphasis must always be on quality ball control and technique, especially when mental and physical fatigue begins to take a hold.

Work for 30 seconds, rest for 40 seconds. Repeat 4 times; this equals one set. Take two minutes rest between sets.

Do: 6-8 sets.



Cross training for football – sample sessions

1) Swimming pool fitness sessions

Based on a 25-metre pool (shallow depth)

a) Aerobic session – swim length of the pool at a good pace and jog back (in water). Repeat for 24 minutes

b) Three swimmers anaerobic relay drill. Swimmer 'A' and 'C' are

positioned at one end of the pool with 'B' at other end. 'A' swims as fast as he can to other end of pool where 'B' is waiting. When he gets there he rests and 'B' swims to 'C' and waits there. 'C' then swims as fast as he can to 'A' is. The players perform the drill for approximately 15-20 minutes

2) Gym based static bike session – fitness session. The player performs a series of intervals in different riding positions on the bike. They compete 2 minutes seated cycling at a moderate intensity and then stand out of the saddle whilst maintaining the same pace for a minute. This process is repeated for 20-30 minutes.

3) Bike riding outside. Find a simple course of approximately 10 miles. All the players ride the course at a moderate pace to gain familiarity with the terrain. Then after a break they are put into teams of 5 and complete a time-trial.

Other cross training activities I have done with players include basketball competitions, indoor cycle classes, circuit style weights classes and even canoeing.

Cross training and football

It is important in football (and other sports) to employ cross training, as long as it is introduced at the right time. For me, we cross train for three reasons:

- 1) To keep the players mentally fresh
- 2) To maintain aerobic and anaerobic fitness through the playing of other sports
- 3) To work other muscle groups besides the main football muscles

Cross training can be done any time of the year. I like to use it a little in pre-season (see chapter 2) but especially in the last few training cycles of the season. Cross training can be a 'bit of a laugh and a bit of fun', but it can also be very tough, especially cardiovascular-wise and local muscular endurance wise, so its important you consider how much it will take out of the players. Not only will these sessions get the body working in different ways whilst maintaining fitness, but they will also provide players with a change of scenery, keeping them engaged and motivated.

Technology in elite football

During a recent TV interview new Derby County manager Nigel Clough recounted a comment his father Brian had said, perhaps whilst manager of the same club years gone by. Apparently the ubiquitous Clough senior was asked about all the technological innovations in the modern game. The great man replied, ‘we had those in my day too, they were called the manager (!)’. Technology is a highly prevalent feature of the 21st century game but is it all necessary?

Technology in football can range from the kit that players wear in training and during games to the high-tech computer systems that monitor physical and tactical data from matches, to GPS systems that monitor and record player movement during training and games. It can also be applied to nutrition and for example, to what players eat and drink the night before a game.

Whatever you may think of technology in football, the one thing that nobody can argue with is that it has arrived and it’s here to stay for as long as professional football has the necessary finances to support its advances – and as one of the seemingly few recession proof economies it seems that its prevalence will only increase.

Technology in elite football skyrocketed after the formation of the Premier League during the nineties, when top clubs increased their income substantially from TV rights. Also we started to see more foreign players and coaches coming into the game and they brought with them new ideas and methods, including sports science and conditioning coaches.

Clubs became cash rich and started to look for ways of improving performance. Attention to detail took off. More

football coaches were employed: specialists for goalkeeping, masseurs, more physios, nutritionists, analysts and of course conditioning coaches. With all these new backroom staff came the hunger to embrace technology and a much greater attention to detail.

Selected technologies in football

1) Match analysis and performance – ProZone

Founded in the late nineties ProZone Sports Limited, is in my opinion the leader in football performance analysis and sports information. It is a worldwide product that produces independently validated, in-depth analysis of matches, not only physical match data, but also technical and tactical data for every player. The physical data is highly comprehensive and includes speed, high-intensity distance completed and total distance covered. All this data and much more can be broken down into time periods. For example, we could tell that a full back is slowing in the final quarter of the game, in terms of the speed of their up-field runs and their frequency compared with data from the same match or over a number of matches. Training (or rest and recovery) could be adjusted accordingly.

2) Boots

Footwear continually changes, not only in fashion and style but also in technology. Speaking to several ex-professionals, they obviously commented on the high fashion aspect, but they did say that contemporary boots are lighter, more flexible and that the studs designs continually change to improve grip and traction. Famous brands are always trying to take boots to a new level whether it is size, shape, material (or colours!).

3) Kit

Likewise kit has developed incredibly in response to technology. The use of 'skins' or 'undergarments' has taken off recently. Also the use of recovery garments has increased due to recent research validating their effectiveness. Compression technology is a key feature in these advances.

4) Laboratory testing

Some clubs have used the latest technology to improve player testing in laboratories. There are numerous tests that can be done and these include VO_2max , biorhythms and heart rhythms and blood and hormone testing.

5) Dehydration testing

Players' hydration levels are crucial. A small level of dehydration can significantly reduce player performance. Consequentially players' hydration needs are assessed and relevant hydration strategies implemented. Tests can be done in the lab to assess electrolyte loss and produce very accurate information.

6) Heart rate monitoring

Many teams use these systems. Although not perfect, they are one of the best tools we have to monitor training intensity levels. Technology is now trying to develop heart rate monitors with GPS systems as one unit. This is not far away. There are also monitors and software programmes that measure the 'gap' between heart beats – which can provide a huge range of data relating to recovery (on and off the pitch), energy expenditure and sleep patterns.

7) Nutrition

Football has benefited hugely from supplements and energy drinks and advances in the science of nutrition and hydration. The introduction of these products has not only improved performance and recovery, but has also and just as importantly assisted in educating players that what you consume is crucial.

8) Scouting systems

Not an obvious one, but with advances in worldwide communication and access to this, scouting new players from around the world has become so much easier due to the technology and resultant ease of communication. This also applies to the scouting of our future opponents as well.

9) Analysts

Sports scientists (and even mathematicians) are now commonly employed in the professional game to analyse every aspect of it and produce specially edited DVDs of games for the coaches, individual players and teams and data reports. They also analyse training and even future opposition tactics, fitness, strengths and weakness.

10) GPS

Global positioning satellite systems within football are another technology that has recently taken off. As noted they track player movements and are used to analyse training. Due to advances we are starting to see increased use of the GPS systems in training and this may eventually include matches (once the size of transmitters are reduced to a minute size and are safe to use).

11) Physiotherapy

Most physiotherapists embrace technology and there are other alternate treatments to enhance/promote quicker recovery for injured players. These range from oxygen chambers (to increase red blood cell formulation and increase the supply of restorative nutrients to damaged tissue) to new electronic based treatments aimed again to speed up soft tissue repair. There are even under water treadmills used in swimming pools to reduce the load that the player's body is subject to allow them to exercise when injured and maintain fitness.

Beware

It is very easy to lose sight of the basics of the game in this technological age with experts claiming that they have found the magic ingredient! Due to the amount of money there is in the game – especially at the professional and semi-professional level – there are many, many so-called 'experts'. They are all trying to get involved in, or 'milk' football, with the promise to turn your team into a title winning one with the claim that they have found the missing link. To this I say beware.

Psychology in football

Although this is not really a technology the use of sports psychology in the professional game has grown. In my experience more managers are in favour of using it than not. One top manager said to me that psychology in football is mainly 'common sense', but he would always listen to what the psychologists had to say, but not let them near his players! Another told me that 20% of the games is ability and 80% is in the head, therefore if a psychologist can give a player an extra 5% he would 'take it every day of the year'! It's also interesting to note that when the team is struggling that the psychologist is usually the first professional to be discarded!

Yes, we are always looking to improve our methods and some of these people who bring the technology and science have certainly done this and credit must go to them for it. However, for every new method or idea we take on, we have probably rejected five others. Often those that try to convince us don't understand the demands of football or players' motivation. Football has been and always will be about players and their attitude, passion, desire, dedication, skill, ability and mental strength. It's then about the manager and coaching methods. Conditioning comes next and finding that extra 5%, but only when you know you are doing the other 95% correctly. As an existing or potential football conditioner you should always have this in mind when thinking about future technological development and its use in football.

*“For every
new method
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The state of football and some crystal ball gazing to predict the future

Simon Thadani on Steve Foley...

I have asked Steve Foley, to help me write this chapter due to the need to have a football perspective at all times. His wealth of experience, his understanding of conditioning in football and his open-minded approach to all things new in football are invaluable. Steve was a professional player for 10 years and a coach for 30 years. He has seen all the ups and downs of the game as a player and coach (including promotion and relegation to and from the Premiership). He's seen football's development, trends and progress from close range.

A brief overview of the factors that affect player conditioning in the contemporary professional game

There is no doubt that football conditioning has changed in the last 10 years or so and that players are running more and running faster. ProZone clearly shows season by season, that Premiership and Championship players are increasing the overall distance they cover in a match and that they are performing more work in the 'high intensity segment', covering more distance and doing more sprints. Match analysis systems have never been so accurate than they are today – they have raised the bar by showing players that 'football performance' really is increasing.

So what has changed – and how has analysis and technology aided the conditioner?

● Lessons learned from previous seasons

Looking at previous training sessions, good and bad. Learning from them and the consequences and potentialities of them! Learning from match data and reflecting how the previous week's training affected this data and performance.

● Better training methods

Although training goals remain the same there are myriad different ways to attain them. The worldwide improvement in communication (notably the internet) has given access to new drills and methods of training, for example. Variety makes training more interesting and motivates players to work harder.

● Better planning

The maxim, 'fail to prepare, be prepared to fail' holds true. We do more planning on a weekly and fortnightly basis and prepare yearly plans, and those for close-season, pre-season and in-season than ever before.

● Improved implementation of recovery strategies

Preparing for the next battle smarter and quicker. The moment you finish a match, you are preparing for the next. Low intensity training, ice baths, massages, stretching etc. The education of players, coaches and managers has improved light years in these aspects of the game.

● Players' physical progression

Pro football is recruiting more and more athletic players at all levels from home and abroad. Sports science has then boosted this athleticism by systematically training players to higher physical competence.

● Enhanced general life style standards

Players are looking after themselves away from the training

ground much better than they used to. They are taking more responsibility for themselves and are better educated. It has to be considered that we – as the football conditioning team – only see the players approximately four hours a day for five or six days of the week – just around 24 hours out of 168! So it is important they ‘know’ what to do when we are not around.

● **Fatigue management**

As with the improvements in player recovery methodologies, we are much more aware of managing accumulated fatigue. We utilise massages, stretching, monitor fluid and food intake, and utilise low intensity training to help return and maintain the player in peak condition.

● **Diet and nutrition**

Although a key aspect of recovery and fatigue management, a systematic approach to optimising player nutrition is crucial for players remaining in peak condition. It was only 10-15 years ago when sports drinks were not a part of the game. Now all clubs employ specialist nutrition consultants and companies.

● **Equipment**

The development of boots and the array of technologies that they now feature is incredible. In the area of garments, underclothing, for example, has aided player training, reduced injury and aided recovery. We’re talking here about the modern sports fabrics used and compression technologies.

● **Pitches**

It is very unlikely that the contemporary player will have to play on quagmires as in the old days – this has definitely enhanced play.

● **Cross training**

More variety stimulates the mind! Cross training has become an important aspect of modern professional football conditioning.

● Better understanding of the actual demands of the game

Not only for conditioning, but also tactics, shape and passing completion percentages etc... ProZone has clearly shown what players do in detail and this has helped shape tactics.

● Managers buying fitter and faster players

Managers seem to be on the lookout for the 'complete modern player'. Players with big existing 'engines' (heart and lung capacity) or players with a great turn of speed and agility.

● Rule changes

Changes in the rules of the game have certainly affected player conditioning. Players often used to 'slow' the game down by passing it back to the keeper who would pick it up, roll it to another player, who would pass it back to the keeper again and so on, however the current back pass rule precludes this. Other time-wasting 'rule loop' holes are also now closed. Referees also play more advantage, a multi-ball system prevents long stoppages when the ball goes out of play, the new offside rule, substitution rules changes and more have all made the game faster and more demanding.

Old v New

We have been watching top league football for over 30 years and the players of the late 70s, 80s and 90s were certainly fit guys. But when people try to compare these eras to this one it's virtually impossible. Today we are armed with stats, in the past their availability was much less proliferate. The future of football will only bring more of the same and with it conditioning will become more rigorous and scientific and players will get fitter, faster and stronger

Crystal ball gazing: just what the tomorrow's world of football conditioning might hold:**● Raising the bar**

Bigger, stronger, faster, more mobile players! Scouting

requirements will change. Athletes before footballers! More mesomorphic type players, the introduction of genetic testing before recruiting a player. It's all potentially *scary*!

● **The search for new training methods**

Are there new methods out there to get players fitter, faster, more flexible and stronger! How far will sports science take players fitness levels? For example, will we see large enclosed domes to simulate altitude training or oxygen-assisted training? Will training methods be more specific to the individual player position and needs. What effect will future GPS system (Global Positioning Satellite) have in football particularly in regards to monitoring training! Will it work in conjunction with heart rate monitors!

● **Prozone**

Tags on shirts to give you real time data in the dug out! Real time data on the opposition (fitness data, team animation). Tracking and data production on every training session. Will this result in statistical over load? Or players playing to formulae?

● **More genetically gifted players recruited from all continents.**

Scouting goes world wide! Will every team consist of 'fast twitch dominant muscle fibre' players (players who will be genetically faster and more powerful).

● **Multi-ball introduction**

Will the introduction of multi-ball system make players even fitter because the ball will be in play more.

● **Individual conditioning**

More and more individual and specialist personal training based on the player's needs, age and playing position

● **Rule changes**

Could sin bins be introduced as they are in Rugby League and

Union and how would that effect conditioning. Other rule changes such as bringing on three or more subs with 20 minutes to go, as well as two others before. Goalkeepers only allowed to throw the ball. Rules on number of home grown players which will make academies even more important!

● **Drug enhancement**

Blood and urine sampling before games! Testing any place anywhere. On the flip-side what will the future 'chemist' come up with reference to illegal and legal football performance enhancement!

● **Psychologist**

Full time psychologist at every club! Psychologist in the dug out! Psychologist doing team talks! Personal psychologist! Will they do a full mental profile test of players that the manager wants to sign!

● **Diet and Nutrition**

Instant ways of measuring carbohydrate levels, better and faster ways of replenishing! Will players eat less 'normal' food and have their supplementation increased!

● **Clothing and equipment**

Will all players wear clothes like the British Olympic cycling team! Boot development, slip on/off sole development, ie multi studs to blades to standard six studs in seconds.

● **Player injuries**

More and more pre-habilitation in football, more advance re-habilitation. Quicker methods of getting players fitter, better scanning systems, more effective lasers and other physio kit, better surgeons, new synthetic and stronger tendons after operations.

● **Recovery and regeneration**

After matches, will players stay in hotels for 24 hours to recover, regenerate, re-hydrate, re-absorb and rest and sleep in a totally

control fashion! Testing players to make sure they have recovered before letting them go home!!

It is important we try to see where football might be going in the future, because this will have a direct effect on conditioning methods.

Further thoughts...

- Tempo of play, more furious. Faster and more accurate passing!
- More playing on the break with pace, especially away from home.
- Two referees or four linesman, goal line technology.
- Financial restrictions or limited funding, will this affect the foreign player invasion.
- Instant action replays. Fifth official for action replays. Will this slow the game down?
- 'Time outs' to satisfy TV coverage.
- As players get fitter, faster and stronger, will pitches get bigger?
- Changes to offside rules, offside at 30 yard line.
- Two footed players the norm.
- European league
- Points changes, ie extra points for extra goals.
- Development of artificial grass, changing stadiums to multi-use and multi- purpose.
- Ear-phone technology, managers to players during games
- Changing room personal TV for each player. Showing opposition clips
- Will goals get bigger? (goalkeepers seem to get bigger every year)

Finally, more food for thought... what would the players, managers and coaches of the early eighties have thought if they had been told that in 25-30 years time:

- The World Cup would have been held in Asia some eight years ago and the next one will be in Africa.

- There would be about 400 live games televised every season.
- There would be up to seven substitutes available every game with three to come on
- There would be twice as many non-English players playing in the top division than English players
- Goalkeepers would not be allowed to pick up a back-pass
- Tackling from behind would be banned
- There would be more foreign managers than English managers in the top division
- The majority of top clubs would be owned by foreign owners
- Four teams from the same country would be in the Championship League
- Foreign coaches would be national managers
- Liverpool would not win the domestic title for 25+ years, with Leeds in the third tier of football
- That you would be able to score a goal even though one or more of your players are off side!

Finally, how will all the above affect football? Will it stay the 'beautiful game' or will it be more robotic, athletic, about playing to the percentages, commercially dictated and highly predictable? Only time will tell, but football conditioning will be very much part of these changes just as they have been in getting the game and players to where they are now in the 21st century.

Notes

