



# REFEREEING FITNESS TRAINING GUIDELINES

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# INTRODUCTION

Very few people, outside the refereeing fraternity have a deep understanding about the life of football referees.

Referees have different journeys; diverse experiences alongside some who have graced the biggest stages and others who were not as successful. But behind each of them lies a human story and like all men and women, they have dreams and aspirations outside the world of refereeing.

No human being is perfect just like how no referee is perfect. Similarly, no two human beings are the same, therefore, all referees share a different viewpoint and perspective, defined and shaped by their unique sets of life experiences.

Coaching education and learning opportunities are increasing for competitive-level referees. Football organisations are investing and delivering a huge amount of resources in coaching education programmes for both referees and referee educators. It is now accepted that, in order to present 'good football, we need good refereeing'.

After working with referees of different levels for some time, from the domestic, regional international arenas to the biggest stage – the FIFA World Cup, I was determined to define my own philosophy of the referees' craft.

But every time I thought I had a clearer picture, I was exposed to new challenges and findings. The 'goalposts' were constantly shifting. Soon, I realised that the nature of refereeing, especially but not exclusively, was changing day by day.

Change is an inherent part of life. Strength training and injury prevention, though absent in the 80s, are now an essential part of every elite team today. Football has evolved as players changed the way they trained and so too the expectations on referees.

We also witnessed the tremendous transformation that technology has brought in performance. From the early days of telemetry with the heart rate monitors, to the more complex GPS data, accelerometers, gyroscopes, and so many other technological devices.

In today's era of professional sport, new technologies are paving the way for greater collection of data collection, analyse and better understand events.

This is the beauty of technology. But there is still room to examine the challenges and opportunities and motivations presented by technology and this will be assessed in greater detail in the later part of this guide.

Meanwhile it is not suggested that it will not be useful for referee educators and coaches, this guide is written for the referees. The terminology used is simple and direct and the references are kept very concise to make the guide more user-friendly.

Alejo Pérez  
Leguizamón



## Dear Colleagues,

As I celebrate initiatives to enhance fitness education, I will be describing examples of preparation that from my personal experience helped to maintain peak performance levels.

I follow a flexible weekly training schedule that is adapted to my fitness needs as well as the matchdays.

Injury prevention is also an essential part of my sessions where I always spare some time to perform some exercises from the 11+ Injury Prevention Programme by FIFA.

Additionally, I also work on core stability and agility during a standard training week.

## Sample Week

TYPE OF TRAINING	
<b>Saturday MD</b>	It equals to a high intensity training.
<b>Sunday MD +1</b>	Recovery sessions by the pitch, gymnasium or swimming pool.
<b>Monday MD +2</b>	Rest day; to help the muscles recover and get ready for the next day or match.
<b>Tuesday</b>	High intensity training, including speed endurance, sprints and exercises that involve agility or change of direction movement.
<b>Wednesday</b>	Alternation of medium and high intensity sessions, depending on previous day training.
<b>Thursday</b>	Unloading; reduced training load for recovery from the previous days. If the next matchday is on Saturday, I will perform a set of brief exercises with short sprints. Ensuring to be fresh for the match and not affected by accumulated fatigue from training must be the focus.

### *Alireza Faghani (Islamic Republic Of Iran)*

2018 FIFA World Cup Russia 3rd/4th Place Playoff Referee

2016 FIFA Olympic Football Tournaments Rio Final Referee





## Dear Referees,

Fitness preparation is vital in our profession. Good physical condition helps referees to better control the game by being near to the incident which leads to more accuracy in decision-making.

To keep a high level physical condition it takes hard work, but through it the referee feels more comfortable during matches.

In my case, I usually worked with a fitness coach to plan the intensity and loads of the sessions ahead of the season. During the pre-season, I would train hard to reach the peak condition. I considered an “investment period”. Once the competition started, I would target at fitness maintenance.

Throughout my career I changed my training approach to adapt to the demands. In today's football, the fitness level of the referees must be higher than the one of the players. Nowadays, as the game gets faster, elite referees must prioritise agility (planned changes of direction), speed endurance and short sprints.

Recovery is another crucial aspect. After officiating top matches, I always needed around **three days** to be fully recovered. The methods I used were those I learnt during the 2010 FIFA World Cup South Africa: aqua gym exercises, stretching and contrast baths in hot and cold water. I would repeat this four times for about 3-4 minutes in each pool.

Quality training means to do it well when nobody is looking.

### *Ravshan Irmatov (Uzbekistan)*

2019 AFC Asian Cup UAE Final Referee  
World's record of FIFA World Cup matches (11)

# FITNESS CHALLENGES







**In your refereeing career, have you ever heard some, or all, of the following statements?**

- “Football is now faster, therefore referees need to be better prepared than footballers”
- “Referees must now be superfit 365 days a year; always ready”
- “What teams and players want is every decision to be right; no mistakes”
- “Referees should do the same as teams: train together, live together, etc.”

There are a host of other clichés that referees face regularly. The underlying message addresses the level of expectations: perfect preparation and perfect results. Unfortunately, a professional and full-time environment does not exist for most referees. There is, therefore, a misalignment of expectations and the reality.

**Looking at football’s evolution, it is evident that the physical demands of the professional football game have increased over the years:**

- + more matches and competitions
- + more high-intensity and more distances covered
- + more travelling time, resulting in less time for training, increased fatigue, and extra risk of illness
- + increased number of sprints, accelerations and decelerations
- less recovery time between matches

These are just some of the variables that clearly show the higher demands being placed on modern-day referees, not forgetting the additional off-the-field duties related to the refereeing fraternity: coaching, the assessing or mentoring young referees, attending courses, as well as giving public speeches and other forms of engagements with the football community.

# THE CONTEXT OF A REFEREE







## Other 'factors' to be considered when making comparison between players, athletes, and referees:

### • ATHLETIC AND PHYSIOLOGICAL PROFILE

Overall, referees come from a wide range of sport activities; some have played football at social and recreational level. Some have played at amateur and semi-professional level, but very few have played football or were involved in a professional sporting environment. Lacking that exposure to professional training environments prevents the benefits of accumulated fitness to and chronic (long term) adaptation fitness over long periods of time.

### • LAGGED STRUCTURED FITNESS PREPARATION

If a referee starts a structured regular fitness preparation programme at the age of twenty-five years old, the beneficial and chronic effects of fitness will take time, perhaps up to ten years. Ericsson's theory of deliberate practice states that "...it takes 10 years (or 10,000 hours) of deliberate practice to develop/master expert performance in sports, arts or science domains..." A reason why we should: a) begin to prepare referees at a younger age, and b) given the current scenario of entering structured regular programmes in referees' mid-twenties, we should not expect them to peak before 'a few years' of deliberate practice.

Deliberate practice or the gold standard of practice can be summarised as **an intentional effort to improve the performance in a specific domain. There is purpose, focus, specific goals and effort over a long period of time.**

### • REFEREES' AGE DISADVANTAGE

On average, football referees are ten years older than players. More often than not, referees have family commitments – children, chores, and other responsibilities – that are more time-consuming in comparison to those of players and athletes.

### • WORK COMMITMENTS

The majority of referees have jobs, trades or professions to earn a living. Refereeing is therefore an additional activity – a hobby of sorts in some cases. Finding a balance between the demands of work and life, family and officiating is challenging and similar to that found in amateur and most Olympic sports: schedules of training sessions, time away on refereeing duty, and so on.

In this context, the main question is: **how is a non-full-time referee – the most common scenario – able to fulfill the expectations placed on today's officials?** Another enigma is whether even a full-time and exclusively dedicated referee can realistically fulfill those expectations. Can we talk about a referee free of mistakes? Can we have referees that are fitter than professional players?

We would probably agree on some of the answers to the above questions and perhaps should aim to establish realistic goals: referees need to minimise errors, get as fit as possible, be injury free, be as ready as they can be. Certainly, we must apply some kind of metrics to measure those goals. For instance, in the last three editions of the FIFA World Cup, referees boosted their speed times on the 40-metre tests. We aspire to constantly improve, but can we realistically target an exponential, infinite improvement? In this case, we need to analyse the data, the profile of the referee, and set up evidence-based, realistic and achievable goals, rather than rely on general rules of thumb: *"we have to be fitter than players"*.

In order to set up realistic and achievable objectives in refereeing, football referees, administrators and policy makers must understand the context and culture of refereeing. Only then, will policy and training interventions succeed.



# SPECIFIC TRAINING FOR REFEREES





**A**thletes and professional players train as part of their regular routine, and the same applies to referees. Training or practise results in adaptation and familiarisation.

Training for referees requires simultaneous development in several domains. This means that there are various skills and capacities needed for refereeing, and all of which must be honed.

A simple definition of training for refereeing could be: **“a process to optimise physical capacities and skills to improve the refereeing performance”**.

Physical training for referees helps to achieve the ultimate goal of making fair and accurate decisions on the field of play.





## Integrating training and, perception and decision-making

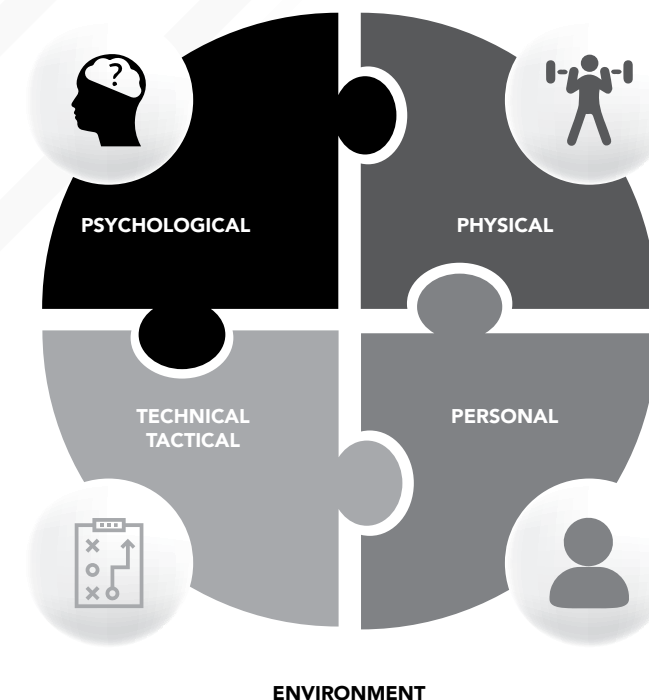


From the experience acquired from the preparation of refereeing teams, technical coaches and instructors who started a model of training called IPE (integrated practical exercises), we can conclude that it is feasible to simulate training scenarios that combine and integrate skills and areas in a single exercise.

By merging technical, physical, psychological/mental and body language training objectives into one single drill, we are offering a similar – but not identical, since replicating the exact match conditions is not possible – training environment that demands specific outcomes from the referee based on scenarios resembling real games. IPE training is the best way to simulate real-game situations. The downside of IPE is that, in order for it to be effective, it requires significant time and resources, and that it can be inefficient: too many resources may be needed to match the needs of a

small number of referees. The key element of IPE is that the technical, physical, psychological and body language (specific) objectives are fulfilled in the same drill. For further information on IPE, refer to the “Manual of integrated exercises and body language” (RFEF, Royal Spanish Football Federation, 2011).

Perception, and the whole process of decision-making, are fascinating and highly relevant subjects in terms of refereeing; how do referees perceive ‘key’ match incidents in a game? How do referees select and discard situations and events? How can referees prevent and predict events, whether they have previously experienced similar situations, or not? Perception and decision-making in refereeing are, though, beyond the scope of these guidelines.





# PHYSICAL DEMANDS FOR TOP REFEREES





## Physical demands during a professional-level match

Data from Dr. Carlo Castagna



- Total distance: 11-12 km total distance
- High intensity activities: 4-18% of the total distance
- Sprinting: 1-8% of the total distance
- Changes of direction: >500, mostly 30°-60° (degrees)
- Average heart rate: 85% of the maximum heart rate (HRmax)

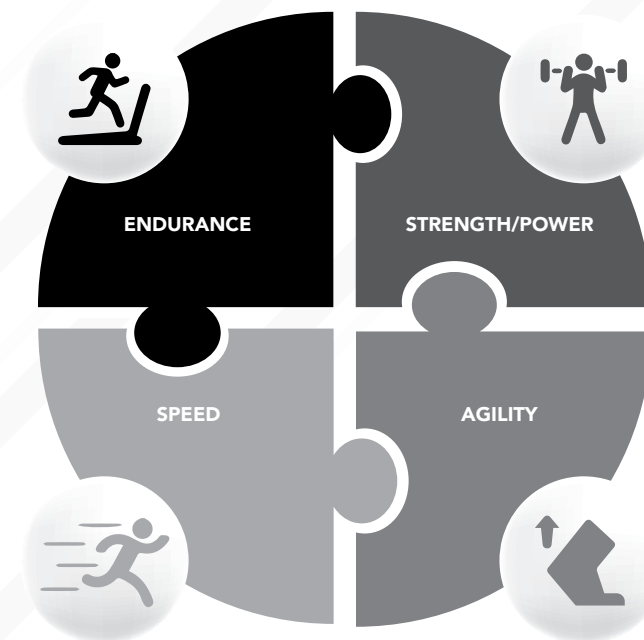
When looking at an overview of the physical demands a match places on a referee, it is fundamental to reflect on some considerations about training for competitions:

1. There are major differences (variability) between referees' performances, even in the same leagues/competitions.
2. Top referees MUST prepare for the WORST-CASE SCENARIO.
3. Match demands are NOT UNIFORM. Match intensities and demands depend on:
  - The quality of the teams
  - The teams' rank on the standings
  - The teams' tactics and style of play
  - The environmental conditions: heat, field, etc.

Match demands are, therefore, not a one size fits all.



### The Referee Fitness Puzzle



### BODY COMPOSITION





# SCHEDULED TRAINING



## Planning, Periodising



Generally speaking, training planning for competitive level referees (semi and professional leagues) should include a 'multiple periodised model'. That is, in short, the planning of training aiming to reach several performance peaks throughout the year. In practical terms, a referee may need to peak several times throughout a season, and at the same time, expected to be in top shape for elite seminars or match appointments.

The subject of periodisation and planning of training is complex and exceeds this publication.

**Some key elements that all referees need to keep in mind to sustain the physical needs for the season are:**

- An off-season period is required after the season. This period will be used to recovery physically and mentally from the season;
- A minimum of eight (8) weeks of preseason preparation is required;
- In-season training should have some prophylactic breaks –perhaps as short as 3-4 days– to recovery physically and mentally during the season;
- Regular tests and training monitoring should be carried in order to adjust the training programme and target the weak areas.

There are different ways to plan a training session. Periodisation is a common term that refers to the scheduling and rational organisation of training into periods of time around the competitions.

In football refereeing, scheduling a training is complex because:

- Calendars often change, and with short notice
- Referees' match appointments are often made known within a short period of time, for various reasons
- Football referees are not always available to train a planned session due to work commitment or personal circumstances
- Football referees have multiple competitions; elite, international referees participate in at least three

levels of competitions annually: Member Association championships, Confederation competitions and FIFA international competitions

### In conclusion, what is the best model to train referees?

An individual periodisation model; a schedule that takes into account the individual referees' physical profile (strengths and weaknesses), the specific competition's calendar (or a fairly accurate prediction of it) and a solid injury support and illness prevention programme to ensure a healthy and a lifelong career –remember referees' peak age comes late, often after the age of forty years old.

Developing an individual programme requires a qualified coach to spend time training and testing the referee. There are

no short cuts, apps or logarithmic models that can replace an individualised training programme. There are many elements that interact to produce the final outcome: physiology, biology, the mental and psychological aspect, the referees training experience as well as their ability to copy with 'hard or out of comfort zone training'.

For the purposes of providing with general guidelines, sample training schedules are described for three frequent scenarios:

- Training for one match per week
- Training for two matches per week
- Training for a pre-season period



# TRAINING LOAD





## Training Load



Any training session or training plan applies a given load, which is the product of the volume (duration, distance) and the intensity. Adequate training loads will result in specific adaptations to training and performance improvement.



### Terminology and Description

- **Strength:** Strength training session, either general or specific. It includes specific injury prevention exercises.
- **Change of direction (CoD):** Short and fast drills with unplanned or pre-planned changes of direction (agility)
- **HIIT:** High intensity, interval training.
- **Repeated Sprint Ability (RSA):** Short sprints interspersed with active or passive recovery periods. For example, 4 sets of 4 seconds sprinting followed by 30 second passive rest, repeated 6 times → 4 x 6 x 4" secs with 2 minute micropause between sets. RSA training is a multifactorial ability that improves speed, but also aerobic and anaerobic capacities.
- **Match preparation (MD -1):** Short training session involving mobility and short accelerations one day prior to the match. The session must be brief to both allow adaptations from previous trainings, as well as to save energy for the match occurring on the next day.
- **Active recovery (individual):** Recovery training session aiming to facilitate and speed up the recovery process the day after the match. It involves low intensity mobility and stretching exercises in the water (aqua gym, aquatherapy), or low intensity exercises on the bike. To help recovery, do avoid running exercises the day after the match.
- **Fartlek run:** Fartlek means 'speed play' in Swedish. It is a

natural continuous method that intersperses different running speeds, and it is generally conducted on natural environments, such as a forest. It improves both the aerobic and the anaerobic condition. There are different ways of running fartlek, but basically, speeds can be mixed as: fast, very slow (recovery phase) and medium. The distances and time can also vary. For example, a cycle of 30 seconds fast (16km/h), 60 seconds slow and 30 seconds medium (10km/h) during 20 minutes.



## Training composition: What do we do? When?

Each week of training – also known as microcycle – has been designed following a criteria and a number of principles that will, in the end, shape the activities and the sessions. From the criteria and principles, multiple plan options could be drawn; there is no one ‘perfect plan’ for all and the referees should constantly adjust it to the circumstances.

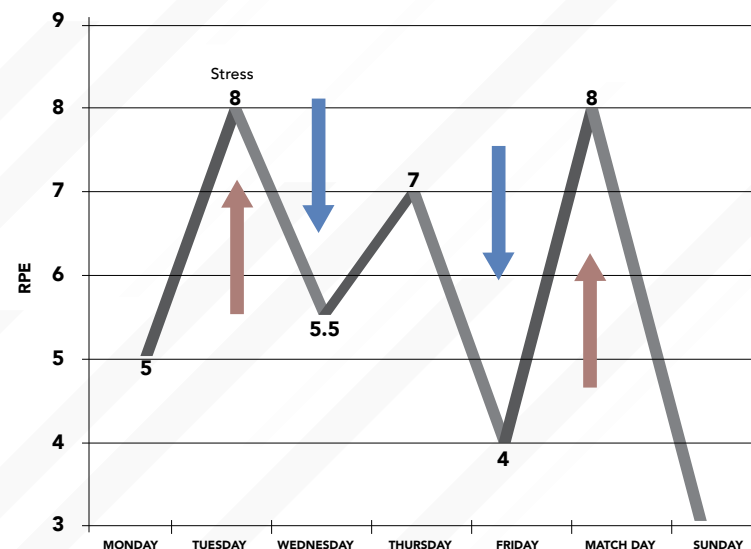
- Lower volumes and intensity at the beginning of the week. It will allow recovery and regeneration from past weeks game.
- A high intensity training session is scheduled on Tuesday to allow recovery after last game, and before the next one. Remember that a referee can take 72 hours to recovery from a HIIT session. Therefore, do not undergo HIIT (high intensity interval training) too close to the matches.
- The speed and agility sessions are set up closer to the game, as they do not result in significant cumulative fatigue.
- The day before the game and the day after, are dedicated to match preparation and recovery sessions respectively. Even if the matches are not particularly physically demanding, referees need to perform light sessions before and after the games. In addition, personal time is key in these two days. Do ensure to get enough personal time during this period, as it is vital to maintain a balance between a refereeing career and one’s personal and family life.

### Considerations

These guidelines provide general principles and may be useful for general training, however, they require specific adjustments to suit individual needs.

These guidelines are designed for football referees, and not for assistant referees. Some of the training sessions can also be used for assistant referees, but they will need adjusting accordingly to suit the specific demands placed on an assistant referee.

### Training Load Fluctuations Throughout The Week (RPE)



# METHODOLOGY AND MONITORING TOOLS



# Methodology and Monitoring Tools



There are various scales for training load and recovery monitoring. Two common scales of perceived intensity and recovery are Rate of Perceived Exertion (RPE) and Total Quality Recovery (TQR).

## Rate of Perceived Exertion (RPE)

Rate of perceived exertion: A 10-point RPE scale is used to monitor and provide an expected training session load.

The question asked to the Referee should be:  
**How was your workout?**

RPE can be applied to the whole session (global) or to a specific part, for example, in a HIIT, we can expect an 8-9 RPE effort.

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



## Total Quality Recovery (TQR)

Adapted from Kentta

Rate	Descriptor
1	Very very poor recovery
2	
3	Very poor recovery
4	Poor recovery
5	
6	Reasonable recovery
7	Good recovery
8	Very good recovery
9	
10	Very very good recovery

A 10-point Global Recovery scale will be used to monitor total recovery from the last activity or training session.

The question asked to the referee should be: Overall, how recovered are you now?



# SAMPLES OF TRAINING PLANS







Both the fitness coach and the referees should have common understanding of the training load expected for each session, or set of sessions in a given week. The following graph shows a typical week of training, with one match.

## Sample week 1: One match per week

Week 1							
Day	Monday MD 1	Tuesday MD 2	Wednesday MD 3	Thursday MD 4	Friday MD -1	Saturday MD	Sunday MD +1
Type of Training (Main)	Recovery	HIIT	Strength & Prevention	CoD	Match Preparation	Match	Recovery
Type of Training (Secondary)	Off	CoD	Individual	RSA	Individual Off		Off
Expected RPE	5	8	6	7	4	8	4

## Referees' Training Plan

**Context:** Referees are assumed to have completed an active off-season period, pre-season preparation, and to be injury-free.

The responsible fitness coaches and referees must adjust training sessions depending on individual needs. One size does NOT fit all! This programme may be effective for some referees, but ineffective for others. Hence, the principle of individualization should prevail.

The training sessions should be supervised by the fitness coach, and individual, specific adjustments should be made to suit referees' individual needs.

Please, pay special attention to injury prevention exercises. If referees have any musculoskeletal complaint and suspect they have an injury, make sure that they get specialised sports physio and/or sports medical advice.

### Referees should not train if injured or sick.

Please check subjective indicators of intensity and fatigue:

RPE on CT-10 scale: 0 - 10 (max)

TQR- Total Recovery (self-monitoring): 0 - 10 (best)

## Match Day +1

**Objectives:** Recovery, regeneration

1. Warm-up with mobility exercises and gentle stretching. Duration: 10 minutes.
2. Recovery exercises at low intensity (approx. 70% HRmax), aqua gym exercises (pool: 90cm to 120 cm depth). Alternatively, low intensity cycling. Duration: 30 minutes.
3. Static stretching (focus on correct technique) exercises, holding stretching positions for 30 seconds. Important: work on specific "problem areas", such as hamstring shortenings, glutes and calves (Achilles).



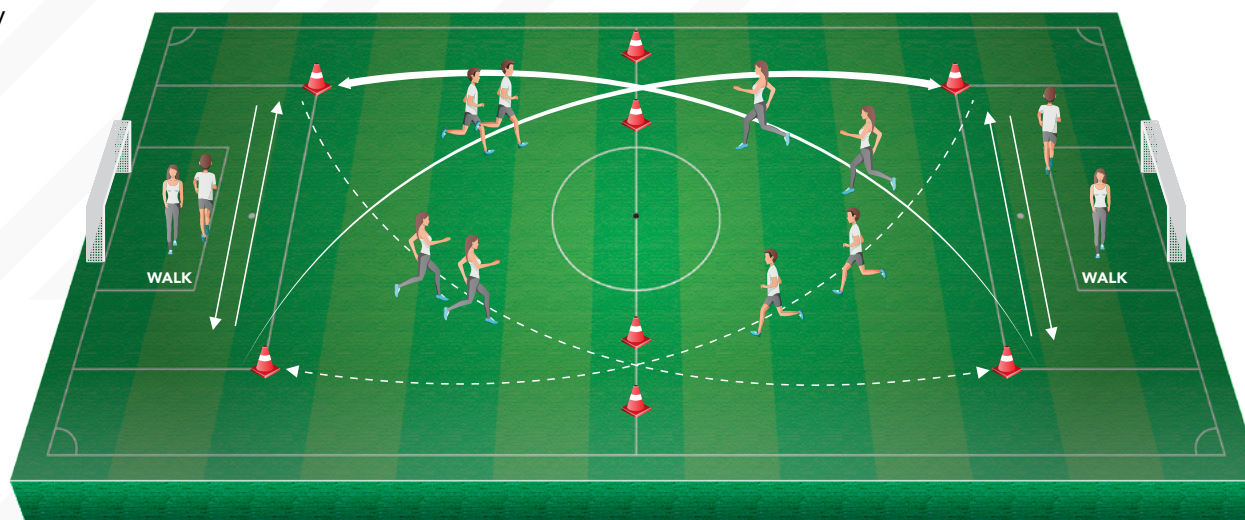
If a referee has a muscular complaint or some form of injury, please manage with RICE (rest, ice, compression, elevation) if needed. Report the complaint and request specialised advise if you suspect the problem needs professional attention: **DO NOT** resume normal training if injured!

**If total recovery score is below 5 or less, check it and change your programme.**

## Match Day +2

**Objectives:** Improvement of aerobic, HI intermittent capacity

1. Warm-up with jogging, mobility, and dynamic stretching exercises. Also, include some neuromuscular activation (skippings) drills.
2. Change of direction drills. Duration: 10 minutes.
3. High intensity intermittent exercise: 2 sets of 10 laps. Duration: 15-15 seconds. Sequence: Run, walk, and again. Macropause's duration: 3-4 minutes.



## Match Day +3

**Objectives:** Strength, injury prevention and individual

1. Injury prevention and strength exercises.
2. Core stability.
3. Individual: Example free fartlek run. Duration: 20 minutes. Exercise RPE 7.

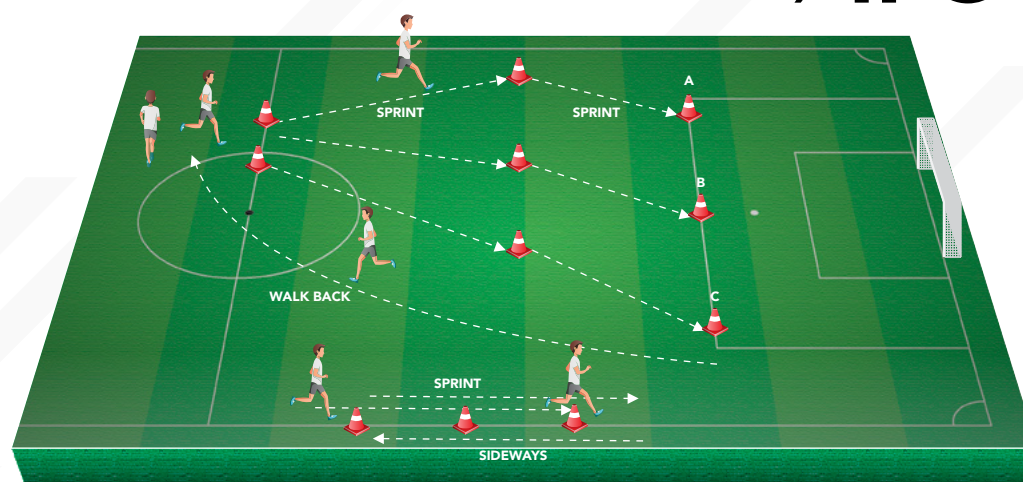
NB: Focus on correct **running technique** (avoid over tension of the arms, etc.) Intensity reference: HI run: 8 RPE



## Match Day + 4 / Match Day -2

**Objective:** Improvement of changes of direction and development of RSA.

1. Warm-up with jogging, mobility, and dynamic stretching exercises. Also, include neuromuscular activation and skipping drills.
2. Change of direction drills. Duration: 10 minutes.
3. RSA (repeated sprint ability) session.  
REF: Speed with Changes of Directions two times to points A-B-C. 2 minutes rest between sets.  
Return by walking back (about 30 sec.)  
AR: 3 sets of 6 repetitions: Sprint forward, return sideways and sprint forwards to simulate off/on side situation (better with flag). Return by walking back.
4. Core stability exercises: static and dynamic. Minimum time for each set is 40 seconds. Six different exercises in total.
5. Individual/optional: Fartlek run. Duration: 12 minutes. RPE 6
6. Cool down with 10 minutes jogging and abundant static stretching exercises (hold for 20 seconds).



NB: Focus on **correct sprinting technique** (i.e. avoid over tension and lateral rotation) and ensure you move explosively to develop speed.  
Intensity reference: Sprint: 9 RPE Jog: 3 RPE

## Match Day -1

**Objective:** Fine-tuning the body for peak performance at the match. Short type of session with slow jogging, mobility exercises and some short 15m strides or accelerations, followed by gentle stretching exercises. Avoid in-tense training.

1. Match preparation session. Short session on the field of play. Max 30 mins.  
Change of direction drills. Duration: 10 minutes.



## Match Day +1

**Objective:** Recovery, regeneration

1. Warm-up with mobility exercises and gentle stretching. Duration: 10 minutes.
2. Recovery exercises at low intensity (approx. 70% HR max), aqua gym exercises (pool: 90 cm to 120 cm depth). Alternatively, low intensity cycling. Duration: 30 minutes.
3. Static stretching (focus on correct technique) exercises, holding stretching positions for 30 seconds. Important: work on specific "problem areas", such as hamstring shortenings, glutes and calves (Achilles).

If a referee has a muscular complaint or some form of injury, please manage with RICE (rest, ice, compression, elevation) if needed. Report the complaint and request specialised advise if you suspect the problem needs professional attention: **DO NOT** resume normal training if injured!  
If total recovery is below <5, check it and change programme.

## Sample week 2: Two matches per week

Week 2							
Day	Monday MD 1	Tuesday MD 2	Wednesday MD 3	Thursday MD 4	Friday MD -1	Saturday MD	Sunday MD +1
Type of Training (Main)	Strength & prevention	Match preparation	Match		Match Preparation	Match	Recovery
Type of Training (Secondary)	Individual	Individual off		Off	RSA	Individual off	
Expected RPE	6	6	8	4	5	8	4



### Match Day +2

#### Objectives:

Strength, injury prevention and individual

1. Injury prevention and strength programme.
2. Core stability.
3. Individual: Example free fartlek run 10 minutes. Exercise RPE 7.

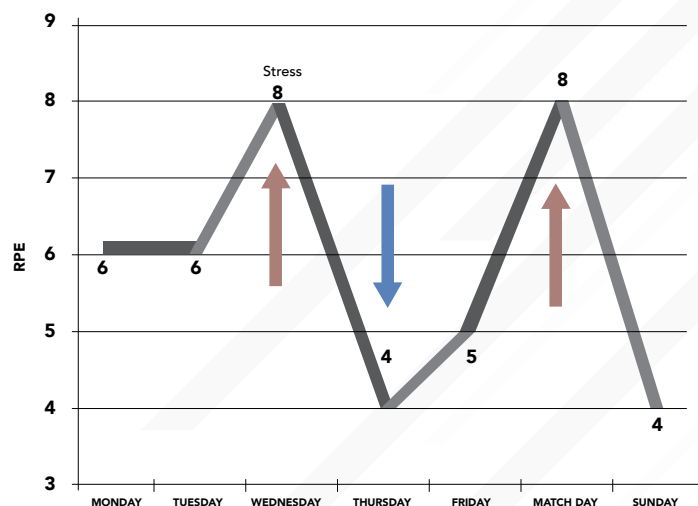
### Match Day -1

#### Objectives:

Fine-tuning the body for peak match performance. Short type of session with slow jogging, mobility exercises and some short 15m strides or accelerations, followed by gentle stretching exercises. Avoid intense training.

1. Match preparation session. Short session on the field of play. Maximum duration: 30 minutes.

Training Load Fluctuations Throughout The Week with Two Matches (RPE)





## Match Day +1

**Objectives:** Recovery, regeneration

1. Warm-up with mobility exercises and gentle stretching. Duration: 10 minutes.
2. Recovery type of exercises at low intensity (approx. 70% HR max), aqua gym exercises (pool: 90 cm to 120 cm depth). Alternatively, low intensity cycling. Duration: 30 minutes.
3. Static stretching (focus on correct technique) exercises, holding stretching positions for 30 seconds. Important: work on specific "problem areas", such as hamstring shortenings, glutes and calves (Achilles).

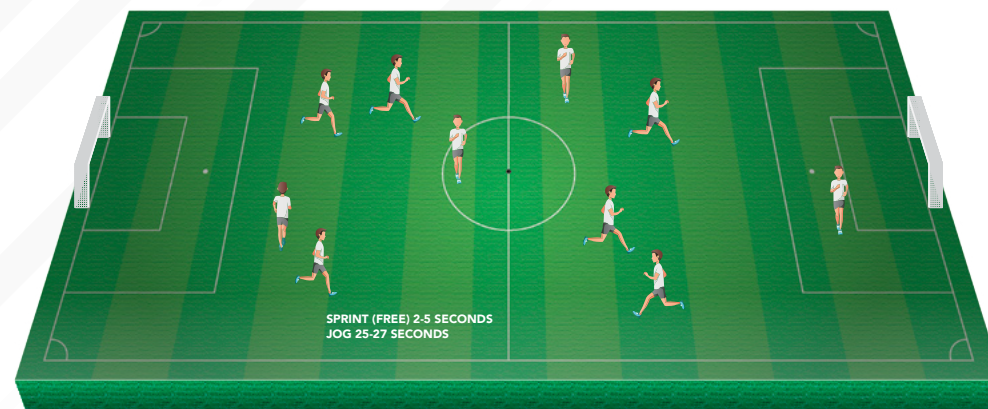


## Match Day -2 / +2

**Objectives:**

Improvement of speed endurance and RSA.

1. Warm-up with jogging, mobility, and dynamic stretching exercises. Also, include some neuromuscular activation (skipping) drills.
2. RSA (repeated sprint ability) session. 4-5 sets of 4 minutes: 4 minutes repeating the following drill: 2-5 seconds sprinting (any direction) followed by 25-27 seconds recovering by jogging slowly. 3 minutes rest between sets.
3. Core stability exercises: static and dynamic. Target time for each set is 40 seconds. Six different exercises in total.
4. Cool down with 10 minutes jogging and abundant static stretching exercises (hold for 20 seconds). Duration: 20 minutes.



NB: Focus on **correct sprinting technique** (i.e avoid over tension and lateral rotation) and ensure you move explosively to develop speed.

Intensity reference: Sprint: 9 RPE Jog: 2 RPE

## Match Day -1

### Objectives:

Fine-tuning the body for peak performance at the match. Short type of session with slow jogging, mobility exercises and some short 15m strides or accelerations, followed by gentle stretching exercises. Avoid intense training.

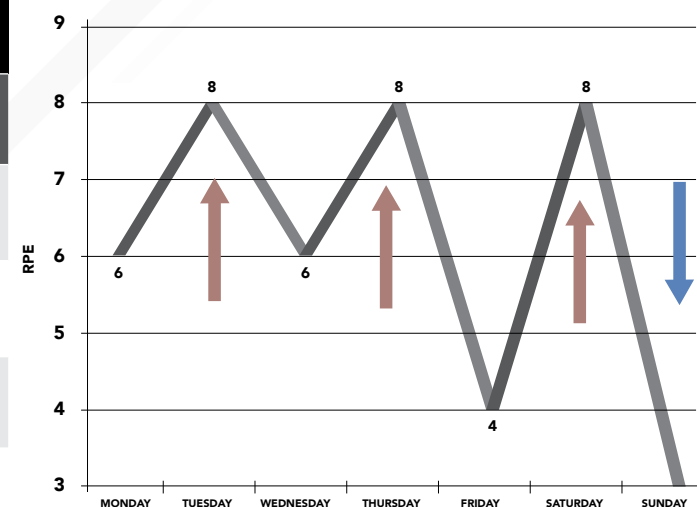
1. Match preparation session. Short session on the field of play.  
Maximum duration: 30 minutes.



## Sample week 3: Week of training with no matches

Week 3							
Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Type of Training (Main)	Strength & prevention	HIIT	Strength & prevention	RSA	Strength & prevention	LSA	Off
Type of Training (Secondary)	Individual	Aerobic medium	Individual	CoD	Individual	Aerobic medium	
Expected RPE	6	8	6	8	6	8	

Training Load Fluctuations Throughout The Week with no Matches (RPE)





## Monday

### Objectives:

Strength, injury prevention and individual

1. Injury prevention and strength programme;
2. Core stability;
3. Individual: Example free fartlek run. Duration: 10 minutes. Exercise RPE 7;

## Tuesday

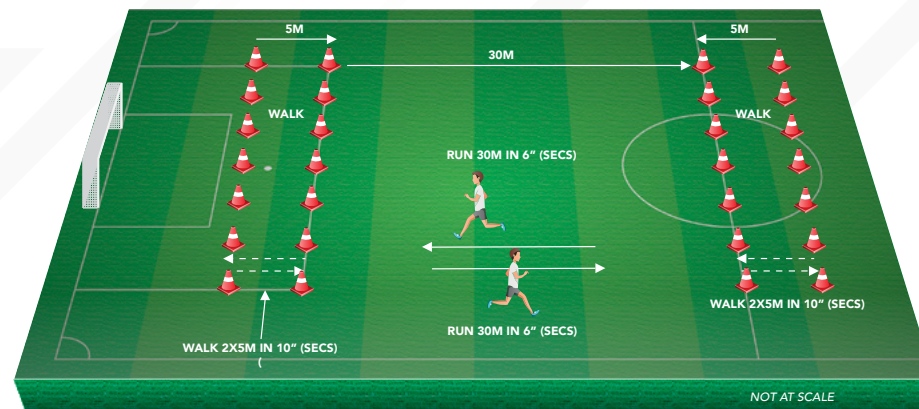
**Objectives:** Improvement of the aerobic capacity and ability to repeat bouts of acceleration and deceleration.

1. Warm-up with mobility, jogging, dynamic stretching exercises and balance and proprioception. Duration: 15 minutes.
2. High intensity intermittent exercise: 4-5 sets of 12x30m accelerations in 6 seconds. Recovery standing for 10 seconds. Macropause (rest between sets) duration is 2 minutes.
3. Jogging during 20 minutes at HR max 75%-80%. RPE 6.
4. Cool down with abundant static stretching exercises (hold for 20 seconds). Duration: 15 minutes.

## Wednesday

**Objectives:** Strength, injury prevention and individual

1. Injury prevention and strength programme.
2. Core stability.
3. Individual: Example free fartlek run 10 minutes. Exercise RPE 7.



Intensity reference: HIIT run: 8 RPE

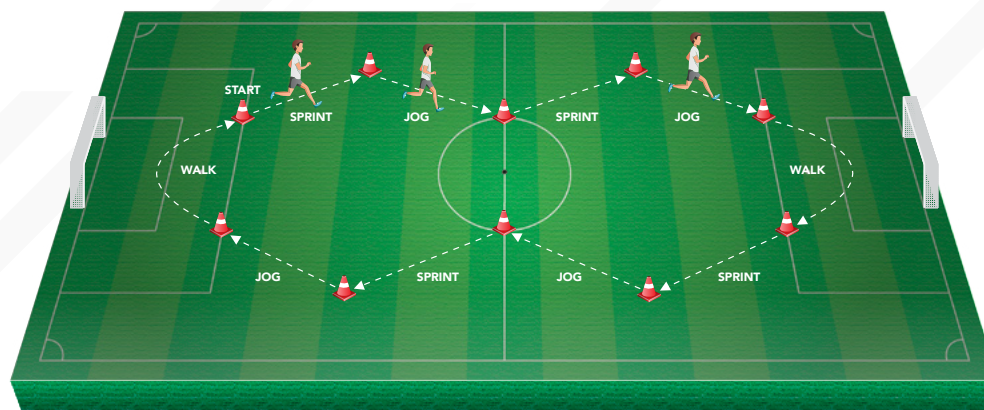




## Thursday

**Objectives:** Repeated Sprint Ability (RSA) training with changes of direction (CoD)

1. Warm-up with jogging, mobility, and dynamic stretching exercises. Also, include neuromuscular activation (skipping) drills.
2. RSA exercise with changes of direction (CoD): Two sets of 5 laps. Macropause duration: 4 minutes. One lap of 120m sprint distance.
3. Jog 15 minutes at HR max 75-80%. RPE 6.
4. Cool down with abundant static stretching exercises (hold for 20 seconds). Duration: 15 minutes.



NB: Focus on correct sprinting technique (i.e. avoid over tension and lateral rotation) and ensure you move explosively to develop speed.

Intensity reference: Sprint 8 RPE | Jog 2 RPE

## Friday

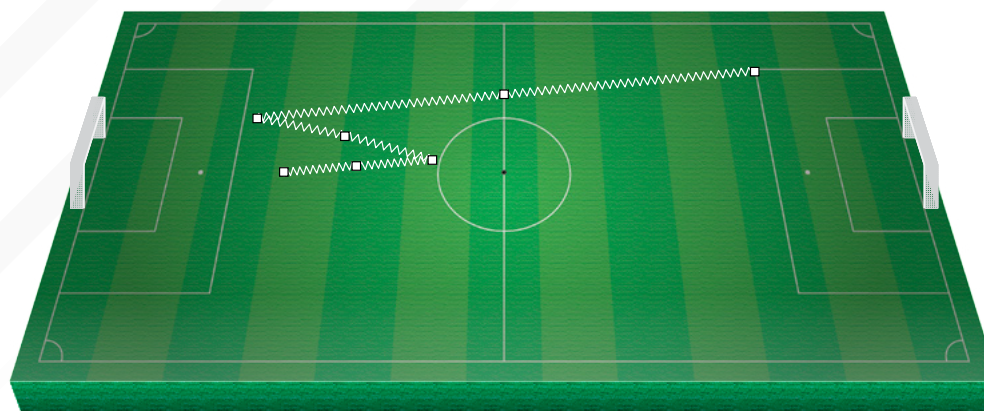
**Objectives:** Strength, injury prevention and individual

1. Injury prevention and strength programme: as instructed.
2. Core stability.
3. Individual: Example free fartlek run. Duration: 20 minutes. Exercise RPE 7.

## Saturday

**Objectives:** Repeated Sprint Ability (RSA) training with changes of direction (CoD)

1. Warm-up with jogging, mobility, and dynamic stretching exercises. Also, include neuromuscular activation (skipping) drills.
2. LSA exercise with changes of direction (CoD): 3 sets of 4 reps. 5-minute macropause. One repetition is about 165m (total) sprint distance to the centre circle, return and go to the opposite box.
3. Jog 15 minutes at HR max 75-80%. RPE 6.
4. Cool down with abundant static stretching exercises (hold for 20 seconds). Duration: 15 minutes.



NB: Focus on correct sprinting technique (i.e. avoid over tension and lateral rotation) and ensure you move explosively to develop speed.

Intensity reference: Sprint: 8 RPE | Jog: 2 RPE

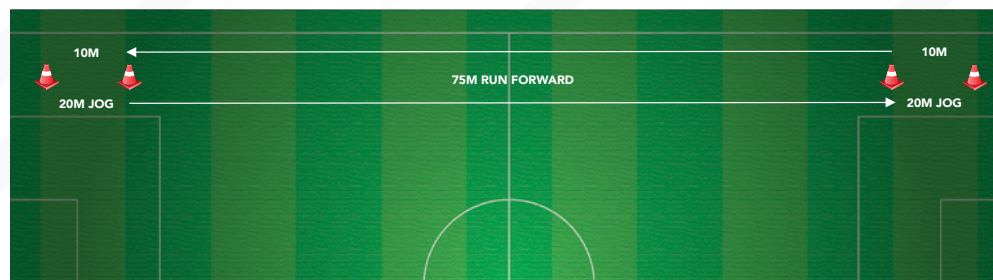
## Sunday: Rest



## Match Day +2

**Objectives:** Improvement of the aerobic, HI capacity and ability to repeat bouts of acceleration and decelerations.

1. Warm-up with mobility, jogging, dynamic stretching exercises and balance & proprioception (see the 11+, exercise 10). Duration: 15 minutes.
2. High intensity exercises: 75m in 15 sec. x 25m in 15 sec., 3 sets of 12 repetitions (one rep. = 75m+20m). Macropause duration between set 2 and 3 is 3 minutes.
3. Core stability exercises: static and dynamic. Target time for each repetition is 30 seconds. 6 different exercises in total.
4. Cool down with abundant static stretching exercises (hold 20 seconds). 15 minutes.



Intensity reference: HI run: 7 RPE | Walk: 2 RPE

## Match Day -2

**Objectives:** Improve speed endurance and changes of direction

1. Change of direction exercises, short and fast drills (4-5 seconds at maximal speed).
2. Injury prevention and strength programme.
3. Speed endurance exercise with CoD: two sets of 4-5 laps. Macropause duration: 4 minutes. One lap 120 m sprint distance.
4. Cool down with stretching exercises.

Additionally, alternative training sessions can be found on the appendix by category.





# RECOVERY





## Recovery

“Process to maintain or improve the ability to reach previous performances”.  
— Mujika et al.

The subject of recovery has gained momentum and interest in the sports' field. Referees are exposed to busy and challenging calendars so recovery from matches and training sessions becomes critical. But, what is recovery?

According to this definition, the aim of recovery is to achieve or even improve a previous performances. There are several factors that influence recovery in sports.

1. Type of exercise
2. Nutrition
3. Sleep
4. Recovery strategies

### Type of exercise

The type of exercise that the referees perform will induce different forms of adaptation.

What are the exercises that require longer recovery?

- High intensity, intermittent, such as matches and intense sessions that involve running, accelerations and decelerations.
- Fitness tests that involve both repeated sprints and a high intermittent type of exercise, especially if involving repeated accelerations and decelerations.
- Training that involves jumps, plyometrics or strength training, with special focus on eccentric type of contractions.

### Recovery strategies

Enhancing recovery time in busy football schedules can make a difference. There is increasing evidence about the benefits of recovery practices to accelerate the process and enhance performance.

### Some strategies involve

- Cool/warm down
- Stretching (does not improve DOMS)
- Hydrotherapy (aquagym, exercises in the water)
- Cold water immersion / contrast baths
- Relaxation techniques
- Foam rollers
- Compression garments

### Effects of the different strategies and interventions

- Aqua gym, water immersion, exercises in the water

Cold water (<10C): lower muscle soreness ratings, reduced inflammatory response. 4 repetitions x 1-2 mins.

Contrast baths (7-30C): mixed results from evidence. Immersion time may need to be too long to achieve results. Perception of well-being. 4 repetitions x 1-2mins.

Aqua gym-exercises in the water (27-29C): walking, mobilisation and stretching. Assists to mobilise waste products. Positive feeling of well-being. 15-20 mins.

- Foam rollers

It helps with delayed onset muscle soreness (DOMS)

- Compression garments

It might help with local blood flow, blood waste products. Limited quality of research support these findings.



# NUTRITION





## NUTRITION

Food intake plays a key role in health and performance for football referees, the same as it does for top athletes. The type, quality and quantity of food intake influences health, performance and recovery status.

Human and sports nutrition is a fascinating field that has been changing its paradigms and recommendations in the recent years. There are different lines of work and approaches to sports nutrition. The author of this guide suggests referees to do their research and critical inquiry about nutrition strategies. Please consult professional accredited nutritionists for individual support and further advice.

### Nutrition for referees should:

- Respond to season and daily demands. This is called periodised nutrition.
- Provide regular provision of (macro and micro) nutrients across the day, before, during and after exercise.
- Incorporate sport-specific eating patterns that are healthy and individual.
- Minimise the amount of processed food or food that come in boxes, cans or packages.

### Key aspects referees should consider:

- Hydration strategies. Plan and decide what and when to drink fluids in order to maintain good levels of hydration.
- Carbohydrate (CHO) Pre-loading: carbohydrate loading starting 72 hours prior to the competition (potatoes, pasta, bread...).
- Carbohydrate (CHO) post-competition: Start within 45 minutes of the final whistle.
- Use foods rich in IRON: lentils, meat, fish.
- Consume mainly unprocessed foods, vegetables, fruits...
- Consider using probiotics to boost the immune system and gut function
- If considering using supplements, please ensure they are prescribed by an accredited medical and nutrition professional. Do not use any supplements without a medical prescription from a sport's medical practitioner.





# SLEEP





## SLEEP



Sleep is vital for human health and well-being, as it affects and regulates several biological functions.

Quality sleep is one of the most effective tools to help recovery. On the contrary, poor sleep, sleep deprivation (little sleep) and other sleep disturbances can have negative effects on concentration, mood, fat metabolism (weight gain), and physical performance.

### Strategies to improve sleep quality

- Quiet environment, dark room
- Room temperature: around 19-21C
- Sleep routine: consistent time to go to bed
- Avoid screens in bed: no phones, tablets, TV...
- Avoid caffeine ingestion prior to going to bed
- If napping, do it before late afternoon
- Nap: 30-45mins



# PREVENTION OF INFECTIONS





## PREVENTION OF INFECTIONS

Match officials are often exposed to travelling and changing environmental conditions. Find below some facts, frequent issues and strategies to prevent infections for football referees



### Some facts

- As frequent, travellers, referees are exposed to a higher risk of infection.
- Travelling through congested and overcrowded areas
- Exposed to different bacteria (food, water)
- Constant changes in environment conditions, such as temperature
- Intense exercise can affect the immune system

### Frequent issues for referees

- Upper respiratory tract infection (URTI): common among athletes and frequent flyers
- Flu like symptoms, fever, cold, coughing
- Hepatitis
- Skin infections

### Strategies to prevent infections (Walsh et al, 2012)

- Vaccines updates
- Minimise contact with sick people
- Keep a distance from people coughing/sneezing
- Wash hands regularly
- Use disposable papers and limit mouth and hand contact
- Do not share bottles or cups
- Use sealed, bottled water- avoid raw vegetables when abroad
- Carbohydrate load/reload after strenuous exercise
- Isolate yourself from members with infection symptoms
- Have enough clothing - avoid getting cold
- Get enough sleep - 7 hours at least
- Avoid crash diets or rapid weight loss
- Use slippers when in the hotel or swimming pool to avoid skin diseases
- Avoid very intense training sessions before travelling
- Keep other life stresses to a minimum

# PERFORMANCE TRACKING AND MONITORING DEVICES





## PERFORMANCE TRACKING AND MONITORING DEVICES

Training gadgets such as GPS, accelerometers, etc. can be appealing and tempting: for anyone working with referees, it is always interesting to get performance data from training sessions, fitness tests and matches. Performance data should play an important role at the time of assessing the performance of a referee, as we have the unique opportunity to define objective physical performance standards for refereeing. But this is an extremely complicated exercise, as we often do not have the tools and data to analyse a referee's match performance. Most of a referee's physical testing comes via fitness tests, not from their match performance.

### Match assessment

Almost exclusively, football referees are assessed subjectively; normally, a qualified technical assessor will rate the performance of the referee based on their observations from games. This also includes perceptions about fitness performance.

### Match performance

In a very few Member Associations, football referees are analysed with movement tracking systems that calculate motion, distances, peak speeds, acceleration, deceleration and other variables.

Wearable devices have limitations around different variables: an inability to transmit indoors, the frequency of sampling (how often data is captured), interference from other devices, the dedicated staff and time required to set up, operate and retrieve the data - amongst other limitations.

**When considering using technology, referees, referee educators and coaches, administrators and decision makers should ask several questions in order to find a solution.**

- How accurate are the devices? Is the data obtained reliable, valid and meaningful?
- How meaningful and practical is the data obtained?
- Is the equipment user friendly? Does it have an 'acceptable life span' (durability) and does it comply with high standard health regulations?
- Is the equipment optimising staff time? Or does it require significant resources to operate?
- Is it possible to easily retrieve the data and provide it as feedback to the referee for performance improvement?

Importantly, before purchasing any equipment, try to obtain some professional advice and, if possible, an independent comparison between similar products. This should be done by qualified professionals, without any conflict of interest from the industry.

**To conclude this section, I would highlight the need to draw a full picture of referees performance. This involves cross referencing data and information from different sources:**

- The referee: Subjective and individual perceptions about exercise and recovery. For example RPE and recovery scales.
- Objective data: External data about physical and physiological parameters. For example, data coming from wearables.
- Fitness coaches' observation: The supervision, analysis and interventions of the expert fitness coach will help put the 'puzzle' together. Data, performances at training and matches and a deep understanding of the referee physique, sports history, injuries, motivations and other factors will provide a fuller picture of the situation (diagnostic) regarding fitness matters.

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Shamsul Maidin  
Tamara García Lorenzo  
Graeme Duncan Anderson

## EDITORIAL

Isaac Christian Danielson

## DESIGN

Benjamin Lam  
Muhammad Syafiq

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