



With the cold weather setting in...

It is important to consider the environment in which you are refereeing. When a match official you must be primed for action irrespective of the weather and able to maintain focus and cognitive performance for the entirety of the game.

PGMOL Head of Sports Science, Simon Breivik has put together some invaluable tips and advice on how to stay warm on the field through the colder months.

A drop in core temperature can bring about a loss of stamina because of a drop in your maximum heart rate and a reduction in the oxygen being delivered to your muscles. What's more, your body's ability to generate power deteriorates, which means your sprinting ability suffers. And to top it all off, your risk of injury increases in the cold. Combine these factors with the ever-increasing pace of the game and you could be facing a testing 90 minutes.

The good news is that the detrimental effects of the weather can be prevented – providing you prepare properly.

WARM-UP

The first line of defence against the cold is warming-up. Structure your warm-up into stages;

Jogging – the most important element to a proper warm-up.

You should spend the first five to ten minutes jogging, starting slowly and steadily and gradually increasing your speed. This will increase blood flow, respiration, heart rate, muscle temperature and muscle flexibility.

Mobility – Once you've raised your core temperature and your muscles are warm, it's time to focus on mobility.

Skiping, backwards running, hip rolls etc. are all exercises that should be performed on the move so that you're maintaining body temperature. Once you've completed the mobility drills, you should progress to dynamic stretches such as forwards and sideways straight leg kicks, high kicks, high knees etc.

Sprinting – The final phase of the warm-up concerns preparing the muscles specifically for high-speed running and sprinting.

Using cones set out a small grid and perform increasingly longer high-speed runs. Then progress into all-out accelerations over 10-30m.

Incorporate movements that are specific to your role on the pitch. Assistant referees should perform side-stepping movements into acceleration whilst referees should perform some backwards running into forward curved accelerations as well as perform fast turns. Be sure to get plenty of rest between each repetition to avoid fatigue.

PRE-MATCH

The first hurdle is to keep warm between the end of your warm-up and the start of the match.

Wear the correct amount of clothing for your warm-up, the match and at half-time. Keep in mind that you will probably want to wear more during the warm-up than during the match. Good quality base-layers under your shirt and undershorts are a way of retaining body warmth and avoiding unnecessary heat loss.

The key to staying warm is being as active as you possibly can at all times.

KICK OFF

The amount you move around the pitch will dictate your body temperature during the match. The more you move the more heat you will generate.

Assistant referees have very little say in their movement during a match. If it's a one-sided game, there's a danger they'll be rooted to the half-way line for long periods of time without moving.

Referees have a little bit more control over their activity levels and can get away with jogging around a bit more than they normally might – but don't do anything over the top that will put you out of position.

HALF-TIME

Generally speaking, you should come off at half-time feeling warm. But beware you will cool down quickly once you've stopped moving.

The half-time challenge for referees is to stay as warm as possible. Move around, but don't stretch. Easier said than done given you're confined to a small changing room, but it's worth a go! Even jogging on the spot intermittently (thirty seconds on, one minute off) will make a difference.

It may be the case that you will want to have a spare set of clothes for the second half. Wet clothing will cool you down extremely quickly so this is particularly important for wet conditions – your body will lose up to 25% more heat if your clothing is wet.

POST-MATCH

Once you've blown the final whistle, you should get back to the changing room as quickly as possible and have a hot shower. Ideally a cool-down would be performed immediately after the match but this can be problematic at a football ground. Instead, you should try to perform an 'active-recovery' training session the day after your game. This should consist of 25-30 minutes of light aerobic activity – preferably swimming or cycling.

And remember...

Although you may feel less thirsty in the cold, don't forget to drink, as you are still losing fluid and therefore need to replace it – so be sure to rehydrate!