MINIMISING YOUR RISK & RECOVERING FROM ILLNESS

Evidence-based sport science and medicine guidance for developing athletes

PERFORMANCE PATHWAY TEAM

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These resources have been compiled by the English Institute of Sport / UK Sport Performance Pathways Team, based on the expertise and experiences of practitioners working with our GB Olympic and Paralympic programmes, together with current literature findings.

The aim is to bring the most appropriate and useful knowledge being applied at the top end of British sports to the athletes, parents and coaches who are currently at an earlier stage of their development journeys.

We are confident that if this guidance is followed from an early age, positive habits will be formed that will actively contribute to an athlete achieving a great deal of success, both in and out of competitive sport.

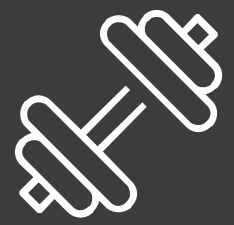
Editable and presentable versions of these resources are available on a case-by-case basis; if you'd like to request these please email us at talent.matters@eis2win.co.uk.

Dr Ben Holliss, PhD (Senior Performance Pathways Scientist)

Minimising your risk & recovering quickly from illness

There are lots of simple things that can be done to dramatically reduce your risk of getting ill

Understanding and balancing **"load"** and **"stress"**: the stress bucket and avoiding erratic ups and downs



"Over-training" vs **"over-reaching"** (tiredness for up to two weeks can be normal)

Become **your** own **expert** (monitor your training load and wellness)

Viral and **bacterial** infections:

1) reducing your risk
2) managing your symptoms
3) recovering quickly

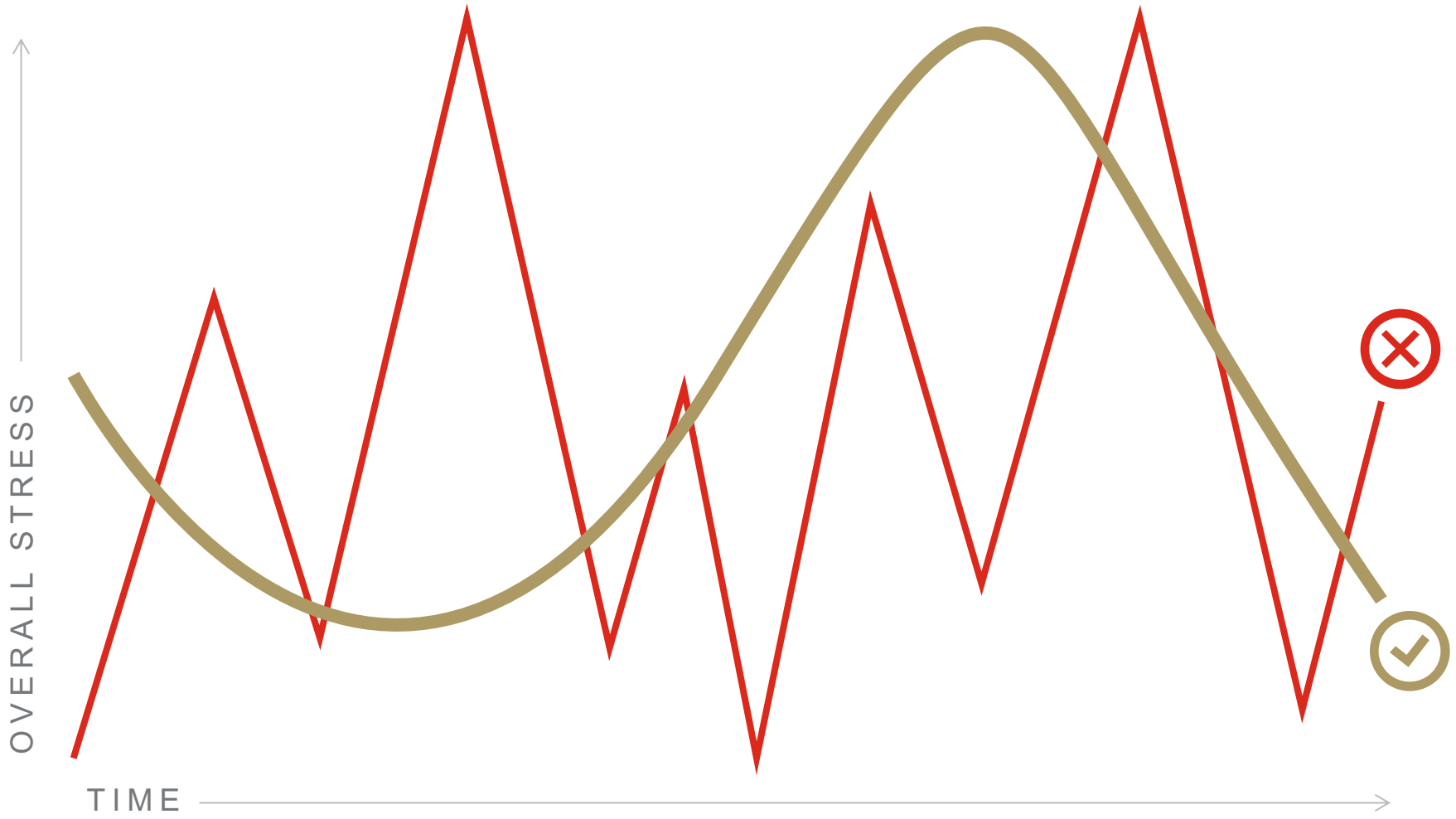
(Including upper respiratory tract infections, skin health, gut health, and dental health)

Take care of your mental health

(see our separate ***'maintaining positive mental health'*** resource)

LOAD, STRESS, OVER-REACHING AND SELF-AWARENESS

Understanding and balancing “load” and “stress”



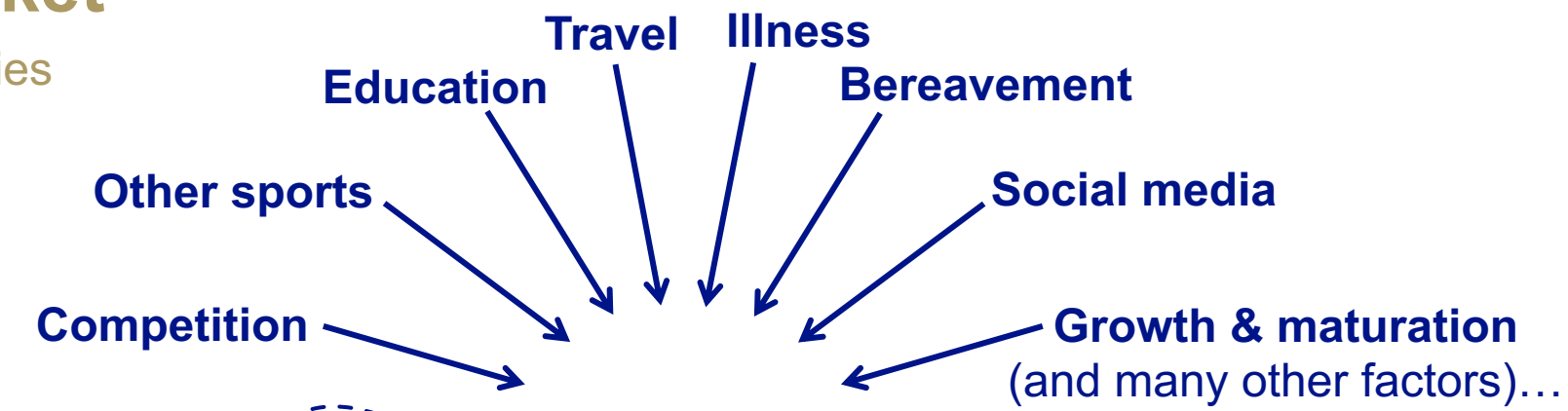
It is useful for athletes to understand and monitor their **training and competition “load”**. However, the physical and emotional **“stress”** caused by these exercise loads are **only one part of the multiple stressors** that an athlete is exposed to. In many cases **other factors can cause just as much, if not more stress** (such as exams, travel and relationships, etc).

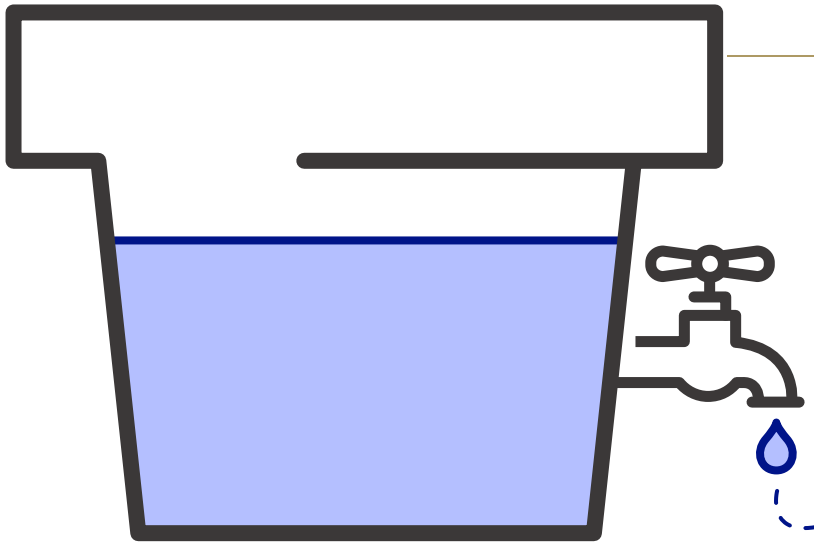
Whichever the source, and regardless of whether it is more physical or emotional, the resultant stress on an athlete’s body and immune system is substantial. **As such, just as major peaks and troughs in training load should be avoided, the same should be the case for other forms of stress.**

For example, during an academic exam period, when the emotional and mental load is particularly high, physical training load should reduce to accommodate this. And likewise, during a heavy training phase or important competition period, other sources of load should be reduced accordingly. **Otherwise, the likely result is that the athlete becomes ill, usually meaning set-backs in all walks of life**.

The stress bucket

What fills and what empties your bucket?





If the bucket overflows the result could be:

Illness
Injury
Mental health difficulty
Mental health crisis

Rest / sleep
Relax
Mindfulness
Meditation
Laugh
Friends
Exercise
Eat healthily
Read

i.e. self-care

Follow ***this link*** to see a video explaining this stress bucket concept, and see our ***maintaining positive mental health resource***.

“Over-training” vs “over-reaching”

The term “**over-training**” has been widely used to describe an extended phase when an athlete is underperforming, and it suggests that the *cause* of this underperformance is because of too much training. However, we know that there could be a whole host of other reasons, many of which could be nothing to do with training.

As such, the term **over-reaching** is more relevant, of which there are two types:

1

Functional over-reaching;

defined as a training or performance impairment that lasts **up to two weeks**, even after training and competition load has been reduced. This can be frustrating, but is usually beneficial, as a fitness **supercompensation** often follows shortly after.

2

Non-functional over-reaching;

defined as a training or performance impairment that lasts **longer than two weeks**, even after training and competition load has been reduced. In this case, medical advice should be obtained, as there may be other clinical factors, and it can lead to an extended phase of underperformance, and possibly to a clinical condition termed the “**unexplained underperformance syndrome**”.

Become your own expert!

Keep a training, competition and wellness diary
(to monitor your overall 'load', and the 'stress' that it is exerting on your body).

Scoring yourself daily or weekly on various aspects can help you to **understand how you're coping**, and when needed will contribute some **useful insight** to a discussion with your coach (e.g. your sleep quality and quantity, overall perceived stress and recovery, readiness to train).

Record your daily resting heart rate and give yourself extra recovery when it increase by **more than 10 beats per minute higher than your usual average** (at rest, taking it manually is perfectly accurate, so no fancy technology is needed!)

Manually count the beats in 30 s then x 2 = beats per minute

Don't rely solely on any technology or other people to tell you how you're coping – get to know yourself fully – **it can be a major competitive advantage!**

VIRAL AND BACTERIAL INFECTIONS

What's the difference and does it matter?

It can be difficult to know the **difference between having a viral or bacterial infection**, but your body has the capability to recover from both.

For example, the symptoms of a viral and bacterial throat infection are **very similar**, both causing pain on swallowing, high temperature and loss of appetite.

Some viral infections such as 'flu', **can affect the whole body**, causing aching and fatigue. Although you may feel more ill than when you have a bacterial infection, **there is no benefit in taking antibiotics**, which are ineffective against viral infections.

Bacterial infections are more **likely to be localised** (mainly affecting one part of the body). Examples include urinary tract infections, and pneumonia. However, infections which travel into the blood system (septicaemia) **can affect the whole body.**

VIRAL AND BACTERIAL INFECTIONS

You should contact your doctor if…

You have a **very high temperature** when coughing thick dark coloured phlegm, particularly if you are also short of breath or have pain in your chest.

You have **pain when you pass urine that lasts for more than 48 h** and doesn't respond to over the counter medication and drinking more water.

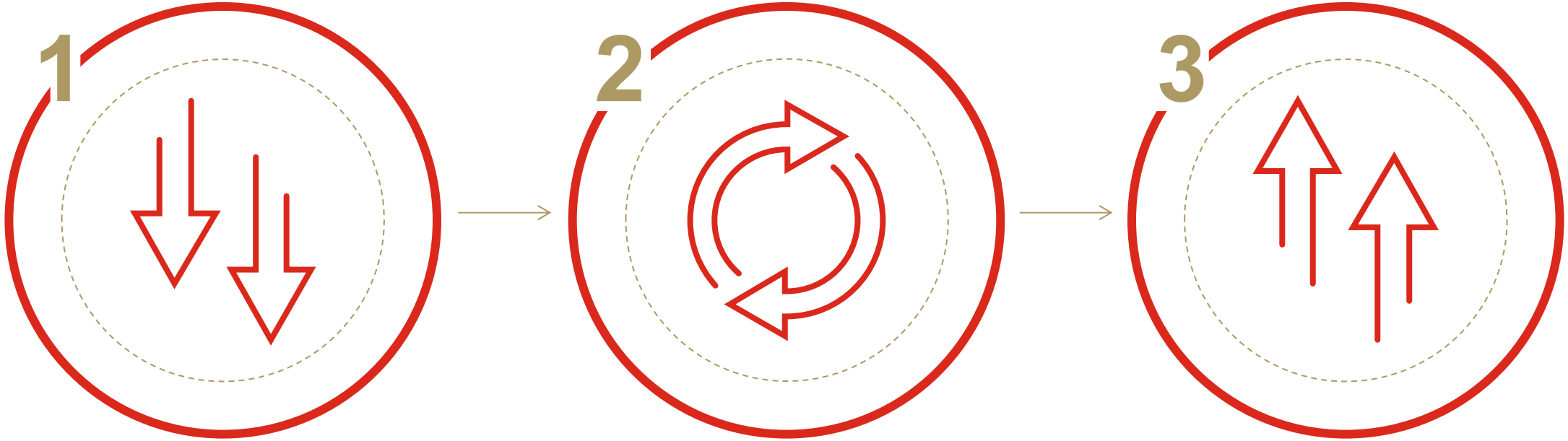
You have a **high temperature, headache** and **rash** that doesn't blanch when you roll a glass over it.

You have had **diarrhoea and vomiting for more than 48 h** which are preventing you from holding down any fluid (you may become dehydrated).

Your symptoms are **severe and worsening** rather than improving after 48 h.

You are **worried** about your symptoms.

A three stage process:



Reduce your risk of getting ill

Manage your symptoms

Recover quickly

By washing your hands regularly and properly

Wash hands **regularly** with **soap** and **water**

Use a **hand sanitiser** if soap is unavailable
(e.g. Invirtu / Byotrol or a high (>60%) alcohol gel)

Sneeze into your **elbow**
(or if using a tissue, dispose of it immediately)

Avoid hand to mouth, hand to nose, and hand to eye contact

NHS

Hand-washing technique with soap and water

cleanyourhands campaign

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Adapted from World Health Organization *Guidelines on Hand Hygiene in Health Care*

NHS National Patient Safety Agency

Follow this link to see a hygiene maintenance video from the EIS:
https://vimeo.com/user16923063/review/367767528/5b49b6f57e

REDUCE YOUR RISK OF INFECTIONS

By following these fundamental guidelines

Avoid large crowds, and avoid anyone who is or has been ill, especially anyone who has diarrhoea and/or vomiting (which is often still highly contagious for 48 h after symptoms have finished).

Get plenty of **good quality sleep** (people who on average get less than 7 h of sleep per night are three times more likely to develop a viral infection than those who get 8 h or more).

See our RECOVERY STRATEGIES resource for some specific guidance and tips on sleep.

Be aware that long-haul travel is associated with a five-times increased risk of developing a viral infection.

Ensure you had all of your **childhood vaccinations**, and **keep your vaccinations up to date.** See your travel nurse for advice when going overseas and consider having a flu vaccine each year.

Eat a **healthy breakfast** everyday, try to have a highly **varied diet with plenty of fruit and vegetables,** and **avoid carbohydrate depletion**.

Get plenty of **natural daylight** and sunshine to produce vitamin D, and consider taking a daily low-dose **batch-tested Vitamin D supplement** all year round, or as a minimum during the winter months.

See the NICE guidelines and Informed Sport products.

By staying properly hydrated

Your urine should be plentiful and its colour should be in the well hydrated zone. If not, start drinking immediately.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

WELL HYDRATED ← → DEHYDRATED

Why?

Fluid losses as low as 2% of body weight can have a significant impact on exercise performance.
Negative effects of dehydration include:

- Fatigue
- Reduced concentration & reaction times
- Compromised immune system
- Reduced adaptation to training

When?

Start each training session fully hydrated. Check the colour of your morning urine for a quick indication. If your urine colour is greater than 7 on the above chart, you are probably dehydrated and need to increase your fluid intake immediately. If your urine is often dark, make sure you increase your fluid intake in future.

Rehydration is more effective when fluids are drunk over several hours, rather than immediately after exercise all at once.

How much?

Fluid requirements will be different for each athlete.

Weigh yourself (ideally wearing underwear only, to avoid confusion from sweat soaked clothes) before and after training sessions; for each 1 kg lost in body weight replace with 1.5 kg of fluid.

This is even more important when training or competing in hot and humid environments.

What to drink?

Water is good, but not always the best choice for athletes.

Look for drinks which contain sodium (salt), the major electrolyte, as this helps the body retain the fluid you drink, thereby assisting hydration. These are often called ‘isotonic’ sports drinks, and are usually effective for rehydration.

If in doubt, seek the advice of a qualified and experienced sports nutritionist.

Weight loss (kg)	0.25	0.5	0.75	1.0	1.25	1.5	1.75	2.0
Volume to drink (ml)	375	750	1125	1500	1875	2250	2625	3000

Reduce your risk of upper respiratory tract infections

Ensure that any respiratory conditions (e.g. asthma) are well managed and that you have a **regular review with your asthma nurse** or doctor.

Maintain proper **hydration**, and in particular **avoid having a dry mouth** or nasal passages (especially during intensive training / competition and when travelling by plane).

Avoid getting too cold (enjoy a warm shower and get changed quickly after training, and wrap up warm during the winter months).

Wash your hands thoroughly after going to the toilet and before eating, and minimise how often you touch your eyes, nose, and mouth, especially when in high risk situations (e.g. when others are ill, around a competition or an intensive training block, during training camps, and when travelling).

Use a **hand sanitiser** (e.g. Byotrol or Invirtu foam, or a gel with at least a 60% alcohol content) as additional protection when in high risk situations (as per the above).

Key guidance for all athletes

Six main themes for good skin health

Clean skin

Wash hands with a washing cream (e.g. Dermol 500)

Rinse with plain water

Avoid soap

Also use a non-alcoholic hand foam such as Byotrol, especially when travelling

Shower soon after exercise

Dry skin

Keep skin dry

Pat don't rub

Wear loose clothing

Management during training and competition (e.g. dry skin with a chamois, change socks during sessions, empty sweat from a prosthetic liner, etc)

Barrier function

Moisturising = strengthening

Use unperfumed emollient moisturiser, especially at night

Micro-climate

Be aware of sweat and the wetness of your skin

Do not use anti-perspirants excessively

Seek medical advice if you are worried about how much you sweat

Calluses

If a callus becomes too thick it will eventually tear

Use an unperfumed emollient moisturiser

Shave the callus down to 50% using a pumice stone or foot file when skin is soft (e.g. when in the bath)

Equipment

Ensure optimal fit

Keep it clean and hygienic

Consider materials that help manage sweat

Six big messages for optimal skin management

HOWEVER, these are only guidelines, and we are all different, so the priority is to learn what works best for you!

Be vigilant
(awareness of any early signs of skin issues is key)

Eyes on skin
(ensure someone is checking any risky areas regularly)

Minor irritation = potential danger
so act quickly!

Report irritation early
(to your medical team / doctor and coach)

Broken skin (lesions) require **medical assistance**

Even more attention to maintaining clean and dry skin in **hot and humid climates**

Sun and ultraviolet light protection

Ultraviolet light comes from the sun, or artificial sources such as sun beds, and it damages the skin.

Skin tanning causes skin damage and is not healthy.

Ultraviolet light damage temporarily removes the protective acid mantle of the skin barrier, which causes burning pain, premature ageing, and increases your susceptibility to rashes, infections, and skin cancer.

In the UK, the level of UV protection in sunscreen will be shown in one of two ways:

1

via a star rating

(1-5; the higher the better).

2

via a sun protection factor

(SPF; use at least SPF 15, but the higher the better)

Top tips

Avoid excessive sunshine, and avoid sun bathing and sun bed use (i.e. ultraviolet rays).

Cover skin up with loose-fitting, long-sleeved, light-coloured clothing, especially in environments with strong sun exposure.

Use a sunscreen daily from spring to summer.

Use a sunscreen that has good protection against UVA **and** UVB rays, as well as a high SPF.

In addition, in the spring and summer, use a daily moisturiser (emollient) that includes sunscreen (as indicated by a SPF).

Additional advice for limb deficient athletes

Limb deficient athletes **sweat more due to their reduced skin surface**, and this sweating increases the chance of friction and shear on the skin, and therefore **increases the risk of skin breakdown**.

As such, skin infections are in the **top five most common illnesses reported in limb deficient athletes**, and when they do occur they constitute the highest illness severity risk.

In addition to the previous advice to all athletes, **consider the following guidance** regarding hardware (prosthetics) and changes in your limb volume.

Additional advice for limb deficient athletes

HARDWARE

Socket fit:

If your socket fit isn't right, pressure hot spots will still form regardless of how good your skin care routine is. Get to know your prosthetists very well indeed – a good one will provide you with crucial support on your Paralympic journey!

Socket Hygiene:

Clean and dry sockets are as important as clean and dry skin, especially if excess sweating has occurred resulting in additional fluid collecting in the socket.

Liner technology:

Liners aim to reduce pressure peaks, absorb shear, improve suspension and reduce soft tissue displacement. Commercial liners are available (e.g. Willowood, Blatchfords, Ossur).

LIMB VOLUME

Limb volume **can change by up to 20%** in response to training, air travel, standing for long periods, having a hot bath / shower.

Keeping lower limb prosthetics on will reduce the effects of volume changes but considerations should be made around pressure areas.

Consider the use of a compression sock (e.g. JUZO or OTTO BOC Silver) or a Game Ready device **to minimise against limb swelling**.

Never drain a swollen residual limb with a needle.

If in doubt, consult your prosthetist and/or doctor.

Gut infections and food poisoning

Use separate chopping boards, knives and fridge compartments for raw meat / fish.

Ensure the temperature of **your fridge is between 2-4ºC** and your **freezer is colder than 18ºC** (buy a fridge thermometers to check).

Wash your hands thoroughly after going to the toilet and before eating, and use **Byotrol or Invirtu hand foam,** especially when others are unwell.

Avoid contact with anyone who has diarrhoea or vomiting for at **least 48 h after their last symptoms**.

Regularly **sterilise drinks bottles** with Milton tablets or similar, and avoid sharing bottles.

Tooth and gum infections

A tooth infection during a competitive phase can undo all the hard work that's been put in that season – **it's not worth the risk!**

If you experience pain or swelling in your gums, teeth or jaw, **arrange to see a dentist immediately.**

Even a slight tooth infection can play havoc with an athlete's readiness to train and compete, so every athlete should:

1. Be diligent with brushing teeth well, **at least twice** every day.
2. Floss their teeth **every day**.
3. Have a dental check-up at least **every 12 months**, scheduled at the start of each season, so that if further dental treatment is needed it can be arranged well away from important competitions.
4. Avoid sweets, sugary drinks, and generally **minimise the sugar in your diet** (if using sports drinks, do so sparingly, and only when needed).
5. Avoid having a dry mouth (drink plenty of fluids, **stay hydrated**, or rinse mouth regularly with water).

Upper respiratory tract infections

Even with good prevention measures, everyone gets a cold or other virus from time to time, and whilst most resolve within 7 days, if symptoms occur during an important block of training or competition, performance can be severely affected.

Aggressively managing symptoms and professional behaviours around times of illness can help you to recover more quickly and reduce the risk of spreading the virus.

Nasal congestion

Seek advice from your pharmacist, and consider using a nasal spray (e.g. Otrivine or Vicks Sinex), or an antihistamine (e.g. Piriton), but beware as the most effective ones can cause drowsiness and may only be suitable to use at night time.

Cough and sore throat

Hot drinks such as cordial and soup, or lozenges containing menthol and essential oils can soothe a sore throat. Honey has been shown to be more effective than cough medicines for the reduction of night time coughs. If your throat is very sore, use paracetamol, or ibuprofen to reduce the pain and inflammation.

Runny nose and sneezing

Antihistamines are widely used in common cold medications, and they can reduce overall symptom severity. Regular steam inhalation is another safe and effective way to manage a runny nose.

Fever

Paracetamol, and ibuprofen can all be beneficial in reducing fever, with ibuprofen having an added benefit of reducing inflammation in the throat and nasal passages. **If fever is present, rest from training.**

IMPORTANT - all supplements or medications may include ingredients that are banned for use in competitions and/or training, and supplements can be contaminated. Be cautious, and if in doubt, check the UKAD and Global DRO websites for advice.

Gut infections and food poisoning

Isolate yourself from others until at least 48 h after symptoms stop, to avoid spread.

Don’t be concerned about eating if you are vomiting.

Sip water and a rehydration drink such as **Dioralyte**, regularly, even if you are sick afterwards, as you will absorb some of it (but avoid drinking large amounts in one go).

Avoid very sugary drinks like Lucozade and orange juice.

If your diarrhoea is very regular consider a medication such as **Imodium**, but this may slow the rate at which your body expels the infection.

If you vomit frequently for more than 48 h, contact your doctor for advice as you may become dehydrated, especially if you also have diarrhoea.

When you are feeling better, for 2-3 days eat small amounts of bland food regularly, rather than returning to normal meals. Avoid acidic and dairy foods and drinks for those days, to allow your gut to settle.

Upper respiratory tract infections

In addition to managing your symptoms, below are some interventions that may help you to recovery quickly from respiratory infections:

Vitamin C and zinc

Use a batch-tested high dose (100 mg - 1500 mg) vitamin C supplement and zinc lozenges as soon as symptoms start (certainly within 24 h), but only for 3-5 days, and not on an ongoing basis.

ColdZyme and/or Vicks First Defence

Use either of these products as soon as symptoms start, and regularly until symptoms subside.

Exercise

Low to moderate intensity exercise can help with recovery, but intense training will likely worsen symptoms and prolong the illness. Rest from exercise completely if the symptoms are below your throat (i.e. in your chest).

Probiotics

Consider taking a daily batch-tested probiotic supplement, in particular from autumn and through the winter months (whilst this won't reduce your chances of getting ill, it will speed up your recovery, as long as you've been taking them for four weeks or longer).

In addition, when trying to recover from any illness, you should pay even more attention to the strategies to reduce your risk of getting ill in the first place (with particular emphasis on sleep and rest, hydration and a varied diet, and emotional stress management).

FURTHER INFORMATION

See some of our other resources for some practical quality-assured guidance to help maintain health and wellbeing:

MAINTAINING POSITIVE MENTAL HEALTH

RECOVERY STRATEGIES.

This short video from the EIS describes the 'stress bucket' in an easy to understand manner.

This short video from the EIS describes the key ways that we can all maintain hygiene and reduce our risks of getting ill.

NICE vitamin D guidelines

Advise that all adults living in the UK should take a daily supplement containing 400 IU (10 micrograms) of vitamin D throughout the year, including in the winter months.

BASEM Health for Performance

Optimising health for performance. Raising awareness of Relative Energy Deficiency in Sport (RED-S) for all those involved with exercise training, sport and dance.

British Association of Dermatologists

This website was designed by the British Association of Dermatologists to provide helpful, impartial information and advice on living with a skin condition, and more generally on maintaining skin health in general (including quality-assured guidance).

ANTI-DOPING

UK Anti-Doping - 100% me

Supports and educates athletes by providing anti-doping advice and guidance, encompassing five key values: hard work, determination, passion, respect and integrity.

BASES expert statement - inadvertent doping in sport

Outlines the most common ways that athletes and support personnel inadvertently commit anti-doping rule violations, including contaminated supplements and foods, and gives suggestions to minimise these risks

Informed-Sport

A global quality assurance program for sports nutrition products. Every batch of a supplement product and/or raw material that bears the Informed-Sport logo has been tested for banned substances. Athletes are advised to use the search function and cross reference the tested batches listed on the product pages with the batches they are consuming.

Global Drug Reference Online (Global DRO)

Provides athletes and support personnel with information about the prohibited status of specific medications based on the current World Anti-Doping Agency Prohibited List. Global DRO does not contain information on, or that applies to, any dietary supplements, and can only be used for specific information on products sold in the UK, Canada, the US, Japan, Australia and Switzerland.

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