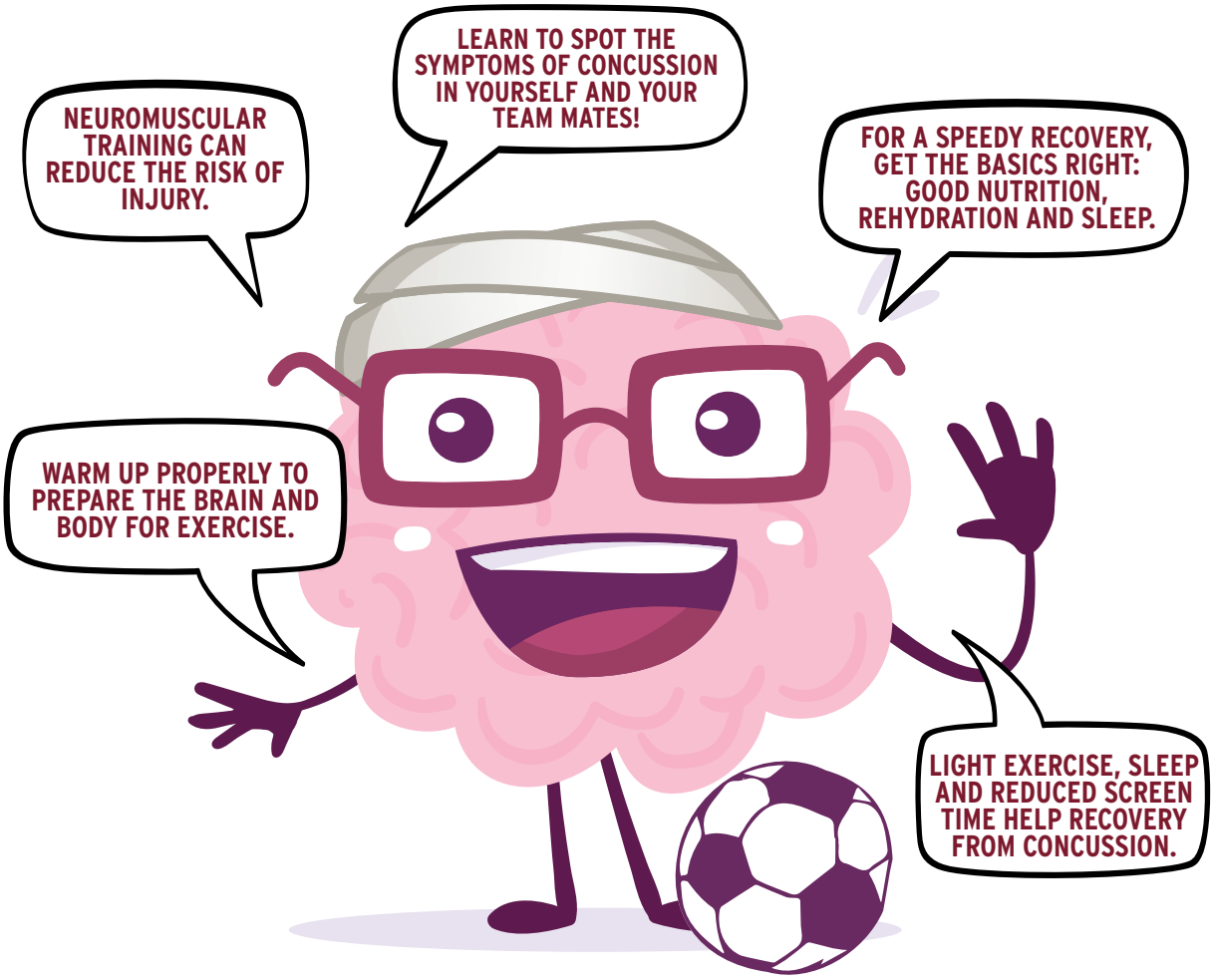
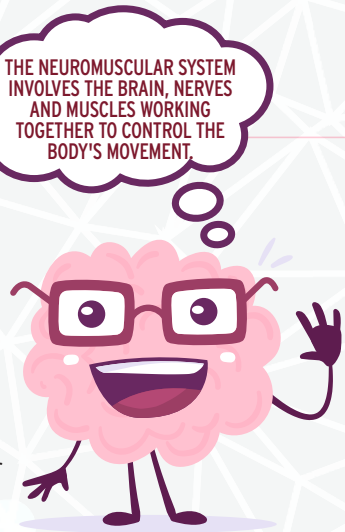
FOOTBALL
ON THE BRAIN

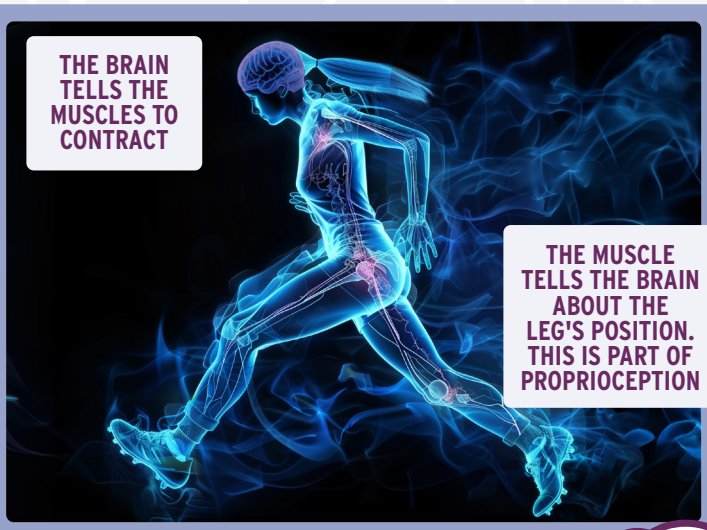
DID YOU KNOW YOUR BRAIN IS IMPORTANT FOR INJURY PREVENTION AND RECOVERY?



WHAT'S THE BRAIN GOT TO DO WITH INJURY?



We all know how good exercise is for health, but every sport carries a risk of injury. Impacts can be short or long term, affecting both player and team performance. The most common injuries in football involve soft tissues (muscles, tendons and ligaments) in the leg. Other parts of the body can also be injured, including the brain itself!



The brain plays an important role in both preventing injury from happening and speeding up recovery. If correct movements are repeated, the relevant neural pathways are strengthened. However, if movements are repeated with poor form, it increases the risk of injury.

WHY WARMING UP MATTERS!

A good warm-up gets the muscles and brain ready for football. It breaks down football movements to activate neural pathways, preparing them for action. This reduces injury risk as the body learns good technique. Research has shown that completing a PEP warm-up as part of your training and pre-match routine reduces serious knee injuries by up to 50%.

Avoiding injury means you can play, train and learn more... and become a better player!

PEP STANDS FOR **P**REVENT INJURY AND **E**NHANCE **P**ERFORMANCE

Power Up to Play was set up by medical professionals to help prevent serious knee injuries in grassroots sport. Watch their warm-up video by scanning the QR code, then have a go at the quiz opposite.

POWER UP TO PLAY

YOUR 10 MINUTE PEP WARM-UP

STEP 1: GET WARM (1.5 MINS)

Raise heart rate and body temperature to get oxygen to relevant muscles.

Example exercises:

- Jogging
- Side stepping
- Backward jogging

DID YOU KNOW?
DURING THE WARM-UP YOU ARE ALSO PREPARING THE BRAIN FOR ACTIVITY BY WARMING-UP THE LINKS BETWEEN THE BRAIN AND OTHER AREAS OF THE BODY.

STEP 2: STRENGTHEN (3 MINS)

Strengthening muscles in key areas of the body reduces injury, promotes muscular endurance and improves performance.

Example exercises:

- Walking lunges
- Hamstring curls
- Single leg toe-raises

STEPS 3 & 4: GET MOVING

Train the neural pathways to perform relevant sport-specific movement patterns for explosive power and agility.

STEP 3 PLYOMETRICS (2.5 MINS) Example exercises:

- Vertical jumps
- Lateral hops

STEP 4 AGILITY (3 MINS) Example exercises:

- Bounding runs
- Diagonal runs

WHAT ABOUT STATIC STRETCHING?

New research suggests that static stretching during a warm-up may have a negative influence on muscle performance. However, there is good evidence that static stretching after activity can improve range of motion in the limbs. This reduces injury and improves performance.

TIPS FOR GOOD FORM:

Keep hips, knees and ankles aligned.

Keep your upper body straight.

Do not let your knees buckle inwards.

QUIZ

Test your understanding of correct form. Put a tick or cross in the box below each picture to say whether or not Football on the Brain's researcher, Morgan Mitchell, is demonstrating correct or incorrect form for reducing the likelihood of injury!

RUNNING ☐ ☐

HIP-ROTATIONS ☐ ☐

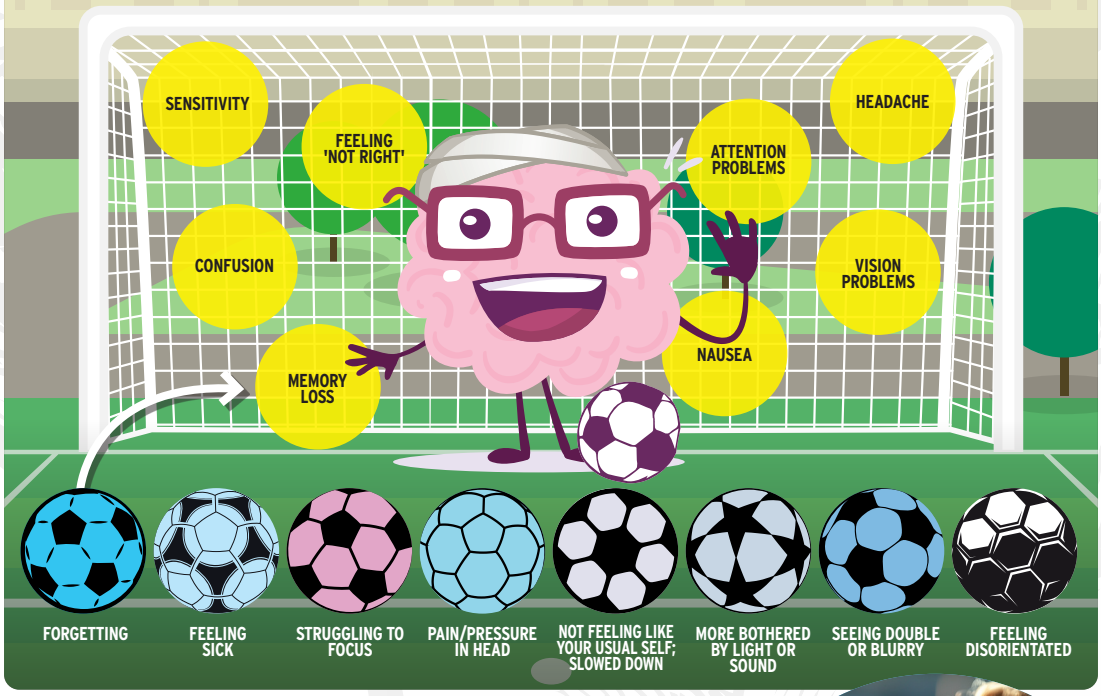
WALKING LUNGES ☐ ☐

VERTICAL JUMPS ☐ ☐

HEAD INJURIES IN SPORT

Sport is one of the most common causes of head injuries in young people. Being familiar with the signs and symptoms of concussion can help keep both you and your team-mates safe after a head injury.

TARGET PRACTICE – MATCH THE DESCRIPTIONS TO THE CONCUSSION SYMPTOMS



WHAT A CONCUSSION CAN LOOK LIKE IN ANOTHER PLAYER

- Moving clumsily
- Answering questions slowly
- Dazed, blank or vacant look
- Forgetting instructions
- Being confused or disorientated
- Losing consciousness, even if just briefly

TEST YOUR KNOWLEDGE OF HEAD INJURIES

Your risk of getting any injury is up to 2.5 times greater after a concussion.	TRUE ☐	FALSE ☐
The risk of getting a concussion is equal between men and women.	TRUE ☐	FALSE ☐
Symptoms of head injuries always appear straight away.	TRUE ☐	FALSE ☐
The FA's guidelines on heading the ball are the same for children of all ages.	TRUE ☐	FALSE ☐
After a head injury, the FA recommends waiting a minimum of 14 days before resuming full contact practice.	TRUE ☐	FALSE ☐

ANSWERS ON PAGE 8

THE STATE OF PLAY IN CONCUSSION RESEARCH

Most research into concussion is based on studies in male professional players. This leaves young and female teams underrepresented. More research is needed in these groups to better understand the impact of head injuries.

THE PODIUM INSTITUTE
FOR SPORTS MEDICINE & TECHNOLOGY

UNIVERSITY OF OXFORD

FIND OUT MORE ABOUT THE LATEST RESEARCH OF OXFORD UNIVERSITY'S PODIUM INSTITUTE HERE:

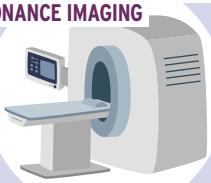
"At the Podium Institute, we reviewed the rates of concussion in the most popular sports across the UK. About 3% of professional footballers sustained a concussion in the sporting year."

DR LARA PRISCO, NEUROINTENSIVE CARE DOCTOR AND RESEARCHER.

ONGOING RESEARCH ON CONCUSSION AND INJURY IN SPORT:

ELECTRICAL ACTIVITY IN THE BRAIN

BRAIN SCANS LIKE MAGNETIC RESONANCE IMAGING

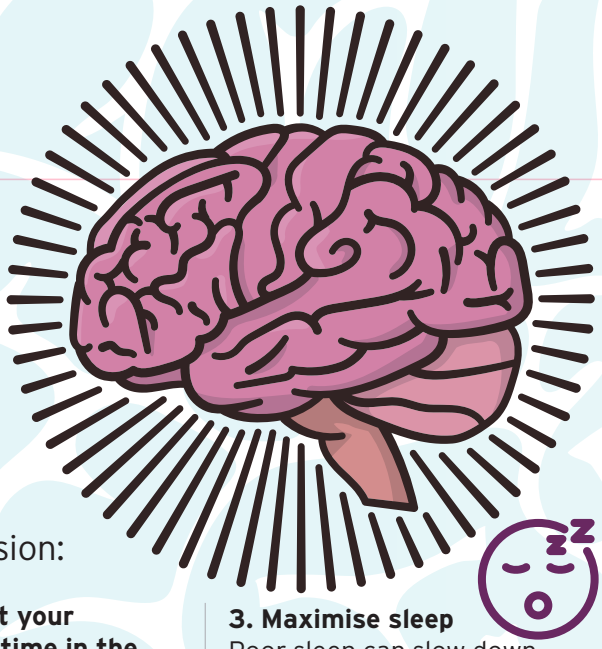


NATURAL MARKERS IN BODY FLUIDS LIKE SALIVA AND BLOOD

COMPUTER MODELS OF THE FORCES INVOLVED IN DIFFERENT INJURIES

FOOTBALL
ON THE BRAIN

CONCUSSION RECOVERY TOOLKIT



Here are a few things you can do to boost your recovery after a concussion:

1. Manage your activity levels
Researchers used to say rest improves recovery after a concussion. It has now been shown that light physical activity is a safe way to help recovery. Find the latest guidance from England Football here

2. Limit your screen time in the first 48 hours
Research has shown that those who limit screen time after a concussion recover faster than those who continued to use screens.

3. Maximise sleep
Poor sleep can slow down recovery after a head injury, so make sure you get enough sleep.

FOR MORE INFORMATION ON SLEEP, SEE OUR PULL-OUT FROM 2023

SHOULD WE CHANGE THE GAME TO PROTECT OUR BRAINS?

Playing football can exert forces on the brain, from rapid changes in acceleration or direct impact with the ball, other players, the ground or goal post. What do you think of these changes to training, tactics and rules to help look after our brains?

Heading impact:
- Play the ball shorter rather than high in the air.
- Train to receive the ball on the chest.
- Improve neck muscle strength.
- Correct ball pressure (not too firm!).

Reduce impact with players
- Minimise contact mid-air. Punish fouls.
- Punish high kicks and use of arms/elbows.
- Reduce full contact training.

Fall safely
- Reduce tackling from behind.

HEADING WILL BE PHASED OUT FROM THE START OF NEXT SEASON IN U7-U11 YOUTH GRASSROOTS FOOTBALL

MANAGING INJURY SPEAKING TO THE EXPERTS

I'M INJURED - WHAT DO I DO?

LUKE TAYLOR
S&C COACH AND HEAD OF ATHLETIC PERFORMANCE

"Use injury as an opportunity"
Maximise the time you've got by addressing other weaknesses and imbalances that you have, to make a strong return to the pitch.

"Target your cardiovascular fitness with cross-training"
Make use of machines such as a stationary bike, SkiErg machine, or cross-trainer. Out with a lower-limb injury? - Try seated boxing, one-legged rowing, or seated battle ropes.

AMY CRANSTON
PHYSIOTHERAPIST & HEAD OF MEDICAL SERVICES

HOW CAN I HELP MY RECOVERY IN GENERAL

DR JAMES BALDOCK
CLUB DOCTOR SPECIALISED IN EXERCISE & SPORT MEDICINE

"Get the basics right"

- ✔ Hydrate to replace the fluids lost during exercise through sweating and increased breathing.
- ✔ Fuel with a good dose of both carbohydrates and protein to replenish your stores and help your body recover.
- ✔ Focus on getting enough vitamin D for immune function, injury prevention and performance.

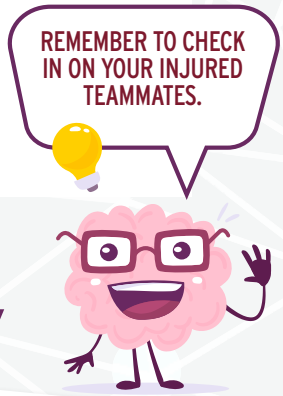
INJURY AND MENTAL HEALTH

"As well as being painful, injuries can sometimes make us feel sad, left out and a bit less confident than before.
That's normal – finding other ways to be active, lending a hand at training, and seeing your team-mates after school can all be helpful until you're back on the pitch."

DR CATHERINE WHEATLEY
SPORTS AND HEALTH PSYCHOLOGIST
PODIUM ANALYTICS

Interested in tracking injuries in your players?
"SportSmart is a schools and clubs programme from Podium Analytics that puts player welfare at the heart of decision making when managing injury. It gives a centralised view of all injuries across clubs and schools, helping you look after your players and keeping them playing the sport they love."

Podium ANALYTICS



ACTIVITIES TO TRY WHEN RECOVERING FROM INJURY

- ADDRESS OTHER MUSCLE WEAKNESSES / IMBALANCES
- PRACTISE DRILLS WITH YOUR OTHER LIMBS
- SHADOW AND ASSIST YOUR COACH AT TRAINING TO LEARN FROM THEM
- CROSS-TRAIN (SEE AMY'S SUGGESTIONS)
- PRACTISE MATCH ANALYSIS TO DEVELOP TACTICAL INSIGHT
- HELP OUT WITH THE TEAM'S SOCIAL MEDIA

Do you have any other ideas? Write them in the box!

ALTERNATIVELY, FEEL FREE TO SIT BACK, ENJOY THE EXTRA FREE TIME AND READ SHEKICKS MAGAZINE!

TRUE OR FALSE ANSWERS (PAGE 5)

1.True - Whilst the cause is uncertain, a concussion significantly increases risk of being injured in the future.
2.False - Female athletes are more likely to get a concussion than men.
3.False - Symptoms can sometimes take 48+ hours to appear.
4.False - Different ages have different guidelines.
5.True - See the QR code on p6 'Manage your activity levels' for more guidance about returning safely to the pitch.

FOOTBALL ON THE BRAIN

Compiled by Holly Jenkins, Izabelle Lovgren, Louise Aukland and the FOTB team, with the support of Jen O'Neill.

Football on the Brain is a four-year public engagement project involving researchers and football communities understanding more about how our brains are involved in football. Follow along on social media:
@FootballOnBrain #FootballOnTheBrain

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