

FOOTBALL

ON THE BRAIN

DID YOU KNOW YOUR BRAIN HELPS WHEN PERFORMING UNDER PRESSURE?

I'M YOUR
STRESS
MANAGER.

I HELP YOUR BODY AND MIND
PERFORM UNDER PRESSURE
ON THE FOOTBALL PITCH.

BUT TOO MUCH
PRESSURE? I START
TO STRUGGLE.

I'M STILL GROWING IN
ADOLESCENCE. THIS
MAKES ME VULNERABLE...

...BUT IT ALSO MEANS I
LEARN QUICKLY AND CAN
BE BRAVE AND TRY NEW
THINGS ON THE PITCH.

JUST LIKE LEARNING TO
PASS THE FOOTBALL, I
CAN LEARN TO MANAGE
PRESSURE AND
IMPROVE MY GAME.

CAN THE LIONESSES ROAR ONCE MORE? HOW WILL WALES MEET THE CHALLENGE OF THEIR FIRST MAJOR TOURNAMENT?

As defending European Champions, there is little doubt that the pressure is well and truly on for the Lionesses as they prepare for Switzerland 2025. Pressure isn't confined to the football pitch. Whether their boots are on or off, all eyes are on the England squad. No doubt the Lionesses try to block out external pressures; but how do they cope with the self-imposed pressure to perform at their best on the day?

Meanwhile for Cymru and their Red Wall, it's a historic debut. A proud moment and their first experience of an international tournament finals - the build up, the crowd numbers, the media coverage... how will they react to the inevitable nerves? Will they rise to the occasion? Will the pressure be too much or will it bind them as a team?



P SOARES/SHEKICKS/SPP

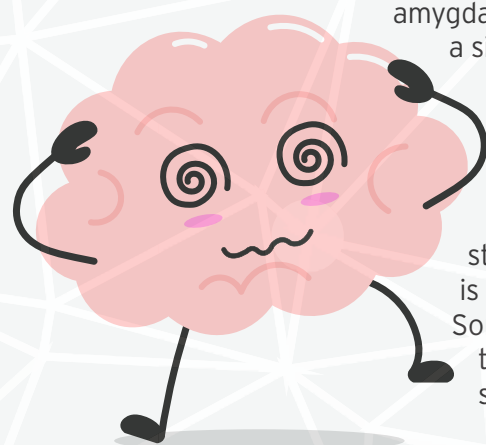


B EAST/SPP

WHAT HAS THE BRAIN GOT TO DO WITH PRESSURE?

Football isn't simply about skill - it's about handling all aspects of the game. Pressure is the feeling of excitement, anxiety or stress experienced by a player when a situation is challenging or difficult, such as when the result is crucial. A small part of the brain, called the

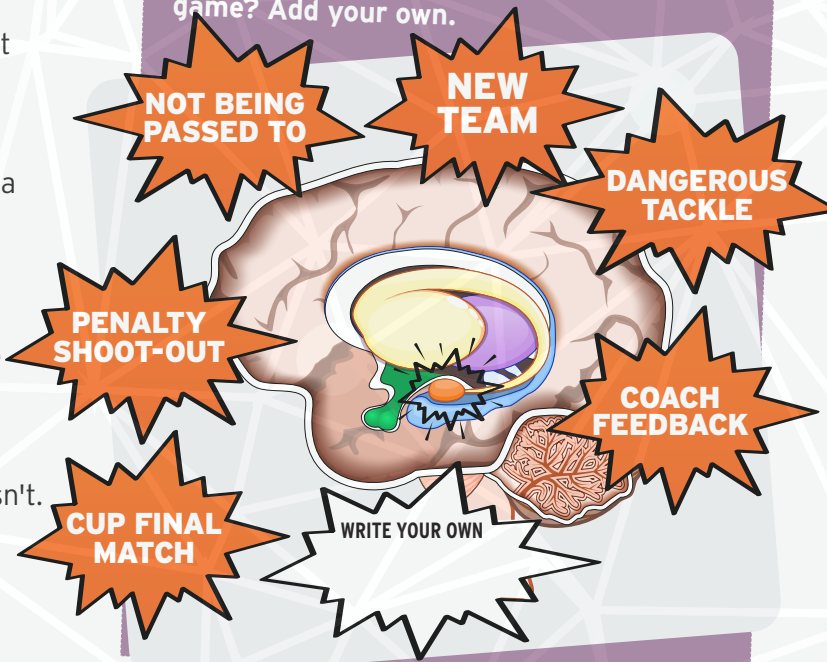
amygdala, assesses a situation and decides if it is a 'threat' or not. If it decides it is, the brain's stress response is activated. Sometimes this is helpful, sometimes it isn't.



WHAT 'KICKS' YOUR AMYGDALA OFF?

Everybody is different. The same situation might be 'exciting' to one player and cause a mental block to another.

Do any of these things affect you in the game? Add your own.



WHAT DO PLAYERS THINK ABOUT PRESSURE?

We asked the University of Oxford Women's Blues Team for their thoughts about performing under pressure. This interview was just days after the 140th Blues Varsity Match between Oxford and Cambridge, one of the oldest regular fixtures in global football. The match was played at the Cledara Abbey Stadium in front of thousands of spectators - a high stakes match for the Blues.



DOES THE TEAM'S RELATIONSHIP WITH THE COACH HELP?

"I think it makes a massive difference because if you have a coach who is always negative, you just stop backing yourself." **Anastasia Storey**

Players say they perform worse under constant negative feedback due to reduced confidence. By contrast, a coach that gives balanced or positive feedback helps players feel empowered and play better.

POSITIVE FEEDBACK ACTIVATES THE BRAIN'S REWARD SYSTEM AND PROMOTES LEARNING. NEGATIVE FEEDBACK, IF POORLY DELIVERED, CAN TRIGGER A STRESS RESPONSE AND HINDER LEARNING.



HOW DO INTERNAL AND EXTERNAL PRESSURES COMPARE? CAN TEAM COHESION HELP MANAGE PRESSURE?

"I think internal pressure is actually a bigger problem than external pressure... if I played in front of a crowd of 10,000, the amount of pressure I'm putting on myself would still be bigger than the crowd's..."

Kate Parsons
Tottenham Hotspur U15-U21;
Republic of Ireland U19

Players agreed that team cohesion improves their ability to deal with pressure and makes the game more enjoyable. Players praised the positive and supportive environment of the Oxford Blues in comparison to other 'cliquey' teams.



GOING INTO VARSITY, THE PINNACLE OF THE SEASON, WHAT STRATEGIES HELPED YOU DEAL WITH THE PRESSURE?

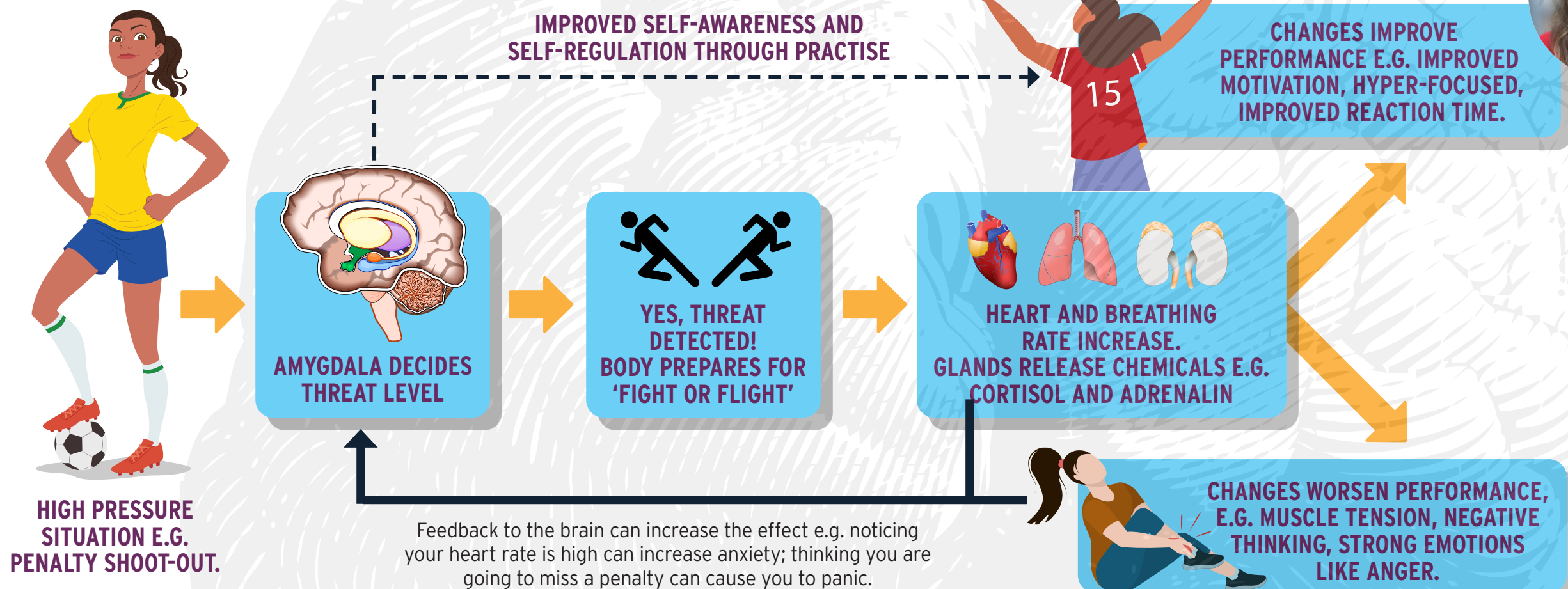
"The Varsity match is rooted in history, so it is a unique pressure. I try and think of it more positively - it's a privilege to play in - and that helps."

Jessica Young
Challenge SC and Vassar
College Women's Soccer

The Blues players managed the pressure by blocking out external distractions and spending time together as a team. This included several practices, strategy meetings and a pasta dinner in the week leading up to Varsity.



WHAT'S HAPPENING IN THE BRAIN, BODY AND MIND WHEN A PLAYER IS FEELING THE PRESSURE?



Dr Laurel Morris is a neuroscience researcher at the University of Oxford. She researches changes in the brain that take place when people feel stressed, anxious or depressed.

"Feeling stressed can result from changes in the body, like increased heart or breathing rate.

Changing your thinking around this biological feedback ("biofeedback") can be a helpful way of reducing the negative impact of pressure."

"Some of our research looks at how brain stimulation can shift negative thinking into a more positive mindset and support longer term health and wellbeing".

Jacinta O'Shea, Associate Professor of Cognitive Neuroscience at the University of Oxford.



Jacinta is part of the University of Oxford's BReal project. Researchers made 3 videos on the brain science behind resilience.

Watch them here:



WHAT HAPPENS TO YOU UNDER PRESSURE?

The changes caused by stress can vary depending on the individual and the circumstances. Which of these have you experienced before or during a big match?

- ☐ Highly motivated
- ☐ Thumping heart
- ☐ Fast breathing
- ☐ Butterflies in your tummy
- ☐ Negative thoughts
- ☐ Poor concentration
- ☐ Hyperfocused on the game
- ☐ Too excited to sleep

- ☐ Thoughts going round and round
- ☐ Getting emotional
- ☐ Feeling 'pumped' after pre-game pep talk
- ☐ Able to make quick decisions
- ☐ Getting angry or frustrated
- ☐ Feeling brave / confident to take a chance

- ☐ Think about how my team supports me and each other
- ☐ ...(add your own)

"Performing under pressure is key for elite football players. Our research found that elite players had lower levels of negative thinking. This suggests they are better at controlling negative emotions, and are more consistent in their preparation and training - factors that likely help them manage pressure more effectively."

DR LEONARDO BONETTI,
SENIOR RESEARCH FELLOW, UNIVERSITY OF OXFORD



DOES AGE MATTER, AND IF SO, WHY?

Adolescence (between 10-24 years) is an important period in football. At this age players may peak, sign professional contracts, or even drop out of sport.

The brain is developing rapidly, particularly in areas controlling emotions, so coping with stress can be challenging. However, a changing brain learns quickly, so it is an important time to practise strategies to manage stress and pressure (see page 8).

ADOLESCENTS MAY FIND IT MORE CHALLENGING TO REGULATE THEIR EMOTIONAL RESPONSES.



J WHITEHEAD/SPP

At the 2023 WWC, England's Lauren James received a red card for stamping on Nigeria's Michelle Alozie. James was only 21 at the time. England boss Sarina Wiegman said: "She is inexperienced on this stage and in a split-second lost her emotions." James apologised and said she would learn from the experience. Do you think her age could partly explain her hot-headed reaction?

MATCHING GAME

Can you match these changes during adolescence to their potential impact on football performance?

STRONG EMOTIONAL RESPONSES

ADAPTABILITY

RISK-TAKING

SOCIAL RELATIONSHIPS

LEARNING

HEIGHTENED STRESS

DEVELOPING NEW SKILLS

RESPONDING TO COACH FEEDBACK

ARGUING WITH THE REFEREE

TEAM BONDING

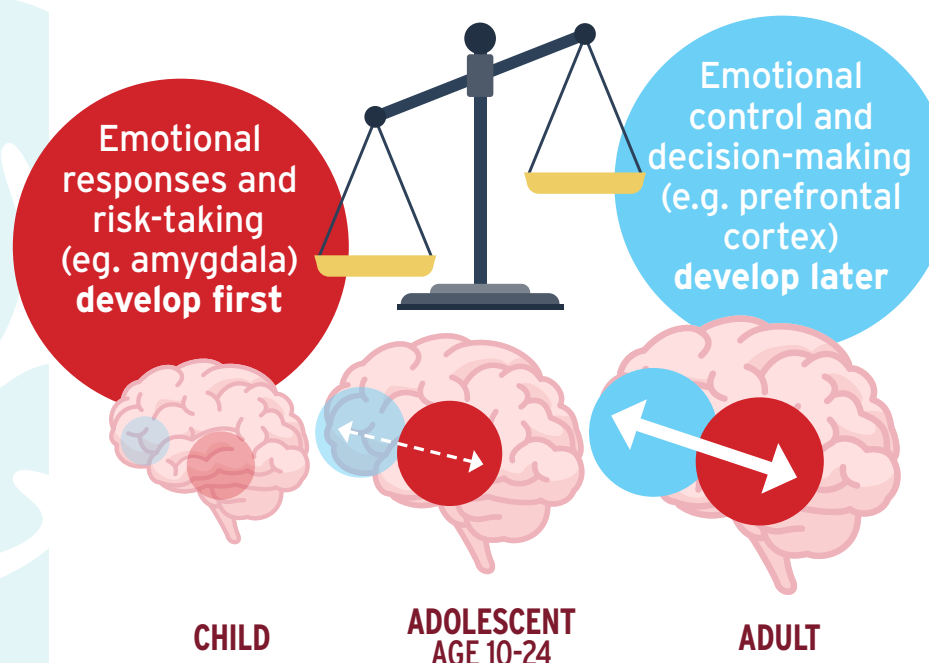
PERFORMANCE ANXIETY

TAKING CHANCES ON THE PITCH

ANSWERS ON PAGE 7

WHAT IS HAPPENING IN THE BRAIN?

The regions involved in emotional responses and emotional control develop at different rates. Communication between the different brain networks also improves with age (shown by the white arrows on the diagram below).



THE SOCIAL BRAIN UNDER PRESSURE

The brain is primed for social interactions - helping us to communicate, cooperate and compete with others. Emotions play a key role in these interactions - particularly under pressure. You may feel pride if your team wins, or frustration if your team loses. These emotions can drive your behaviour with others - such as celebrating together or clashing with rival spectators.



L ASMAN/SPP

ON THE PITCH - SOCIAL BONDING

Social interactions are crucial in a football match. How players behave towards their teammates under pressure can impact cohesion and motivation.

In the following scenarios, highlight the appropriate social response:

(1) A player is upset after missing a goal

- ☐ Show empathy and encouragement
- ☐ Ignore them
- ☐ Criticise them for missing the goal

(2) Your team is losing with 10 minutes left

- ☐ Focus on your individual performance
- ☐ Encourage more teamwork
- ☐ Give up and admit defeat

(3) Your team has a new player

- ☐ Exclude them from activities
- ☐ Challenge them to prove themselves on the pitch
- ☐ Involve them in play

BONDING UNDER PRESSURE

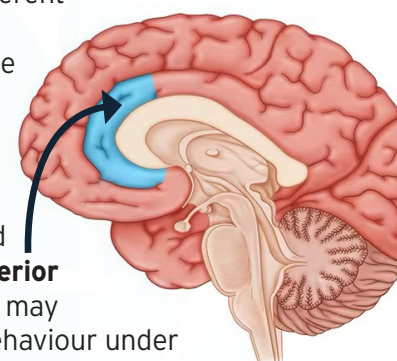
"Researchers from the Changing Lives Lab at Oxford's Centre for the Study of Social Cohesion have shown that suffering painful defeats in football increases fans' loyalty and commitment."

Professor Harvey Whitehouse



WHAT IS HAPPENING IN THE BRAIN?

Football fans show different brain activity! When watching their favourite team, there is increased activity in a brain region involved in emotions, motivation, and reward - called the **dorsal anterior cingulate cortex**. This may underlie their social behaviour under pressure.



OFF THE PITCH - SOCIAL IDENTITY

Football fans display many behaviours to express their identity and support their team. This strengthens their social connection to the team, and can promote feelings of belonging, passion, and pride. Can you spot 5 different ways these fans are supporting their team?



D PORCELLI/SPP



J WHITEHEAD/SPP

WHAT'S IN YOUR PRESSURE MANAGEMENT KIT BAG?

We know that stress can affect player performance, both positively and negatively. To benefit from the changes in the brain and body you need to know when your brain has triggered a stress response and what to do about it. Have a look at some of our top tips below.

TIP 1: GET TO KNOW YOURSELF BETTER



Become more self-aware through regular check-ins. Notice how you are feeling and thinking in different situations. Or how your behaviour changes at different times of the day or in response to events.

TIP 2: HAVE STRATEGIES TO HELP YOU DURING GAME PLAY



Check in during breaks in the game (after a goal, when the ball is out of play, or during a substitution). If your stress and emotion levels are high, 'reset' yourself using techniques like:

- grounding (move your attention into your feet) - maybe pull your socks up
- take a few deep breaths
- reframe negative thoughts and use positive self talk
- focus on enjoying the game not on the outcome.

TIP 3: LOOK AFTER YOUR WELLBEING OFF THE PITCH



Make sure you are looking after your wellbeing off the pitch:

- sleep and eat well
- develop healthy relationships with those around you
- practise mindfulness

- write a journal
- develop a positive mindset
- talk to teammates
- focus on what you **can** control

WHAT STRATEGIES DO YOU USE TO MANAGE PRESSURE?

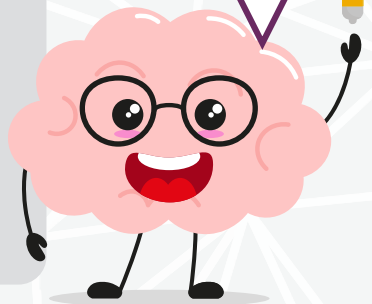
FOR PARENTS AND COACHES:



Your own behaviour is key to that of the players:

- create a safe environment where mistakes are seen as part of the learning process
- get to know and understand the players or young people ('person before player')
- give an appropriate level of challenge (this is how the brain learns best)
- Remember that non-verbal reactions (eye rolling/head shaking) will be noticed too!
- encourage open conversations

REMEMBER THAT THE MORE YOU PRACTISE THE BETTER YOU GET... AND THAT INCLUDES RECOGNISING AND RESPONDING TO HIGH PRESSURE SITUATIONS.



Compiled by Megan Groombridge, Yiming Wei, Sonam Shulman, Anastasia Storey and Louise Aukland 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



2025 SCHEDULE

KNOCKOUT STAGE											
		QUARTER-FINALS						SEMI-FINALS			FINAL
T	SUN 13/07	14/07 15/07	WED 16/07	THU 17/07	FRI 18/07	SAT 19/07	20/07 21/07	TUE 22/07	WED 23/07	24/07 25/07 26/07	SUN 27/07
7	23 NED v FRA 20:00 ITV	REST DAYS				28 WD v RUC 20:00	REST DAYS			REST DAYS	31 W29 v W30 17:00
				26 WC v RUD 20:00					30 W28 v W27 20:00		
	24 ENG v WAL 20:00 ITV										
		REST DAYS				27 WB v RUA 20:00	REST DAYS			REST DAYS	
			25 WA v RUB 20:00					29 W26 v W25 20:00			

GROUP A

SWITZERLAND (SUI)
NORWAY (NOR)
ICELAND (ISL)
FINLAND (FIN)

GROUP B

SPAIN (ESP)
PORTUGAL (POR)
BELGIUM (BEL)
ITALY (ITA)

GROUP C

GERMANY (GER)
POLAND (POL)
DENMARK (DEN)
SWEDEN (SWE)

GROUP D

FRANCE (FRA)
ENGLAND (ENG)
WALES (WAL)
NETHERLANDS (NED)