

BALLS

THE SPORTS MAGAZINE FOR EDUCATION

**Nathan Robertson
and Gail Emms
on team cohesion**

**Biomechanics
of Commonwealth
diver Brooke Graddon**

**Darren Campbell, Chris
Hoy and Steve Williams;
A synoptic analysis of
Olympic gold medallists**

**Yachtsman Conrad Humphrey's
fitness training routines**

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BALLS SPORTS MAGAZINE: EDITORIAL

THANK YOU

for all your comments and suggestions for Balls Sports Magazine. We are very keen that the magazine represents the thoughts, needs and

views of PE teachers and students across the UK. You have told us where we are going right and where we can improve and we have been proactive in activating some of these suggestions (see the letters page).

Balls Sports Magazine is committed to staying fresh and offering a lively magazine that develops the pupil's knowledge and understanding. To help achieve this we have been working closely with the staff and students of Paignton Community and Sports College to ensure that we met your demands. However, as always your views will shape the magazine so please continue to email us your opinions and ideas so that Balls Sports Magazine will continue to be written by PE teachers for PE teachers.

OPTA index sports statistics and revision posters are just some of the new features inside as we try to offer articles that cover all areas of the specification.

Now every pupil in your school can receive a copy of Balls Sports Magazine with our great offer on PAGE 5. Your school can receive an electronic copy of all 3 issues this academic year, 10 PowerPoint Examination PE lessons, a teacher resource book and newsletter for only £69. Teachers will now be able to more effectively use the articles in lessons and set the tasks for homework.

Issue 2 is packed full of sporting role models that you can not help be inspired by. It is a privilege to gain an insight into the minds, techniques and lives of elite sporting performers. Darren Campbell was extremely motivational; he admitted he is not the quickest in the world and never run under 10 seconds – and yet he has used his ability, determination and confidence to win individual Olympic silver and as captain of the GB 4 x 100m relay team led his team to Olympic Gold.

As the students approach the summer exams they could use many of his methods to achieve their full potential.

Welcome to Issue 2, we hope you enjoy it.

Acknowledgements.

Balls would like to thank all the sports performers featured in this edition for giving up their time to help develop learning. Additionally Balls would like to acknowledge the role played by the following people in the completion of issue two; Laura Kettle (The Professional Sports Group), Layla Smith (Nuff Respect), Jamie Stewart (Human Kinetics), Ian Turp (Getty Images), Yvonne Boyd (Research Factor), Chris Rolfe (Sport England), Louise Calton (Sporting Champions), Vikki Cheung (Conrad Humphreys Racing), Joel King (UKGSA), Claire Williams (Williams F1), Aimee Wells (UK Sport), Gerry Cronin (Badminton England), Rui Gomes (Opta Index Sports), David Hoy, Kathy McKee, Stuart Taylor and Laura Cooper.

Once again special thanks to Nick Jackson (Crunch Creative). This issue is dedicated to the youngest Balls Sports Magazine reader Rylan Christopher Long (born 13/11/06!).

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INTELLIGENT SPORT

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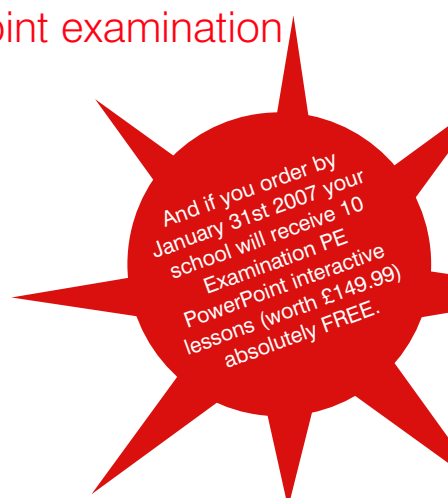
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LETTERS PAGE

Thank you very much for all your feedback. We really appreciate you taking the time to offer us your views. Below are some of your comments and our responses.



Congratulations to Anne Smith, Berkhamsted Collegiate School. winner of £40 HMV Voucher for giving feedback to help improve Balls Sports Magazine

We found your first issue an excellent initiative, pitched at an understandable level – for students and staff!

G, Morris, Minster College

ED: Thank you very much Mr Morris.

We would prefer the magazine was smaller in size e.g. A4.

J, Ferguson, Great Baddow High School

ED: A large percentage of our feedback forms mentioned this so Balls Sports Magazine will now be A4 so it fits into students folders.

Can you show students that there are opportunities in sport post 18 please?

P, Clarke, University College School

ED: What a great idea, thank you. We are now in discussions with Higher Education Institutions and our Sept 07 issue will have a special feature on this to help students.

Very good first edition. Informative, and written to A level students.

A, Gray, Westgate School

Please can we have the answers to the tasks?

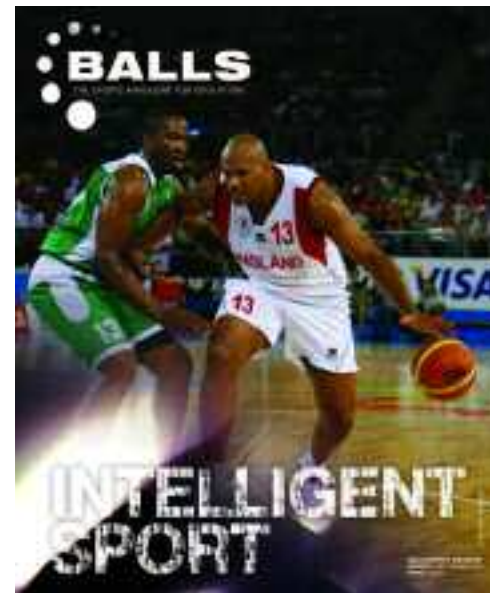
N, James, Colchester VI Form College

ED: A very good point. Please read page 5 for how your department can have the answers to all the tasks and receive 10 examination PE PowerPoint lessons.

Can we have more related to AS and A2 Examination?

P, Bignell, Chipping Norton School

ED: I hope issue 2 meets your needs.



Your thoughts for issue 3 Star Letter wins a Balls' Ball

Email us your sporting;

- Quiz Questions
- Stories
- Puzzles
- Jokes

info@balls-sportsmagazine.co.uk (Subject: Letters)

ULTIMATE ENDURANCE

Stuart Taylor, Lecturer in Coach and Physical Education at The College of St Mark and St John, Plymouth, studies elite yachtsman Conrad Humphrey's fitness training routines.

PHOTO: JON NASH

KEYWORDS

PERIODISATION; SPECIFICITY; DURATION; INTENSITY; REVERSIBILITY; RECOVERY; MUSCULAR ENDURANCE; CARDIOVASCULAR ENDURANCE TRAINING PRINCIPLES; CALORIE; CARBOHYDRATE; PROTEIN; FATIGUE HEART RATE; MUSCLE MASS.



PHOTO: JON NASH

He doesn't hold a record for being the world's strongest man. He has not run the 100metres in sub 10 seconds, so what makes yachtsman Conrad Humphreys such an impressive world class athlete? Balls Sports Magazine spoke to Conrad to find out just how he prepares his body for the ultimate challenge of racing "around the world."

Throughout this article we will look at the concept of periodisation focusing on the pre, during and post phase effects of exercise and fatigue that determine the success of a world class yachtsman in his attempts to stay in front of the rest.

For an elite athlete we know that preparation is key to optimum performance. To coin the phrase "if we fail to prepare we prepare to fail," Many athletes train their bodies for years in an attempt to grasp a moments success within their particular field of

activity. Balls Sports Magazine asked Conrad to explain how he prepares and what effects he feels pre, during and post competing in one of the toughest sporting events.

Pre-competition Phase.

Preparation and training programmes based on Specificity to the actual event is often one of the primary considerations in the pre competition phase. Not many athletes have to consider such a long duration as Conrad's competition phase. Most athletes' events last only a relatively short period of time; however Conrad's competition phase for the Vendee Globe Round the World race took an amazing 104 days at sea. What makes the preparation phase even more complicated is that Conrad is the only competitor involved, no team to share the physical burden just him, alone in this single handed event. So how does he prepare for such a grueling endurance race that not just tests his physical but mental endurance?

Conrad says, *"...for up to a year before the start of the race I was training regularly."* When you consider the pre-competition phase of most sports or activities it's possible to focus on specific components of fitness such as cardiovascular endurance, strength and muscular endurance. However, Conrad's competition phase, due to its nature, has no set duration or intensity; he has to be prepared for what the elements throw at him. How did he prepare specifically for the event? *"I had a personal trainer who helped me focus my training with strength and resistance exercises using weights and gym equipment; cardiovascular training by running, rowing, swimming and cycling; and my performance and fitness was monitored throughout the training."*



PHOTO: Jacques Vapillon/DPPI

“...for up to a year before the start of the race I was training regularly.”

Conrad's personal trainer applied simple fitness and training principles to cover every component of fitness that could be utilised during his time at sea. This 'general' conditioning programme prepared Conrad for any aspect of exercise that he may face, whether it was upper body muscular endurance needed to change sails or a high level of cardiovascular endurance needed to continuously work his yacht to its optimum level.

During this pre-competition phase Conrad continually fuelled his body with a balanced diet in order for him to train to a high level. Conrad was placed on a high protein and carbohydrate diet of around 4000 - 6000 calories a day, typically twice that of a normal male diet. Carbohydrates were ingested to fuel the muscle activity during the training phase and the all important proteins were essential for muscle repair and growth during his training.

Competition Phase.

For obvious reasons, due to the duration of competition, Conrad's body is constantly being physically and mentally stressed. However, unlike many other sporting activities where after a set period of time the athlete's body gets chance to recover; Conrad faces the difficult task to recover whilst still in competition. Conrad's sporadic high intensity exercise, followed by low intensity exertion patterns prove difficult for the body to recover fully whilst he competes.



PHOTO: JON NASH

Not only does his body experience high levels of physical fatigue during this period he also has to face yet another challenge caused by mental fatigue through sleep deprivation. Conrad says that, *"fatigue has a direct effect upon a skipper's performance. I would find it more difficult to solve problems and to cope with challenges during periods when I had little or no sleep."*

Imagine constantly climbing the 25m mast and the summing the strength required for trimming the sails on board whilst navigating your way around the world desperately apply tactics to get the most out of your boat - even thinking about it can make you fatigued! Conrad told us how at one point when his engines failed and his autopilot was down he was so mentally fatigued after a week of sleep deprivation that he simply had to lower all the sails and stop the boat to catch an hour and a half sleep just so he could physically continue to race.



PHOTO: Jacques Vapillon/DPPI

“The racing itself presented many exercises

which required strength, endurance and fitness, such as sail changes, sail trimming and mast climbs”, whilst to maintain lower limb strength he would, “exercise by doing squats whenever possible.”

The recovery period after exercise is crucial to all athletes, regardless of the intensity or duration of the competition. So how did Conrad include sleep and recovery within his competition phase of racing? *"I would sleep on average for a total of up to 4 hours per day.....taken as cat-naps in 15 - 30 minute sessions."*

Remarkably this was enough for Conrad to continue racing most of the time. However, due to the nature of yacht racing, when conditions are at their worst Conrad's state of alertness was heightened causing further fatigue through sleep deprivation and stress. Changing weather patterns, Icebergs, and other shipping traffic not only placed mental stresses on Conrad's body as this was often the time when sails needed changing or trimming causing further physical exertion to him. Conrad found that by sleeping in different positions within the boat he could alert himself to changes in the conditions stating that he *"never used or needed an alarm clock."*

With all these factors fatiguing Conrad's body with a minimum of recovery periods occurring over such a long duration event how did he continually work the boat and



race competitively? He stated, *"the racing itself presented many exercises which required strength, endurance and fitness, such as sail changes, sail trimming and mast climbs,"* whilst to maintain lower limb strength he would, *"exercise by doing squats whenever possible."*

Fuelling this grueling challenge followed a similar pattern to that of his pre-competition training phase with a high carb and protein diet. He used "day packs" that contained three main meals and four snacks boosted by high calorie energy drinks ensuring sufficient liquids were consumed daily. A High Calorie intake was especially important whilst racing through colder climates in the Southern ocean.

Conrad's bodily activity was continually monitored through a heart rate monitor giving both himself and his land team crucial information on how his body was coping with these overload situations. Conrad tells us that, *"my heart rate was directly related to the level of exertion when carrying out maneuvers on the boat."* These increases in workload were extended further during stressful situations like sailing through Iceberg territory showing how the human body responds to both physical and mental exertion.

Post-competitive phase

With the particularly long duration and sometimes high intensity event over Conrad's body eventually had chance to recover. Due to the nature of the round the world event yachtsmen's bodies go through a major period of exertion and fatigue. The principles of overload suggest that adaptations occur after such exercise, was this the case with Conrad? *"There was a noticeable change in the distribution in muscle mass and strength. I had more upper body bulk and strength due to the sail changes and trimming."* But with such specific 'exercises' or activities and the fatigue factor going on over such a long duration did he notice any factors such as reversibility from his original pre-competition state? Conrad told us there was, *"a reduction in lower body strength.....as there was a very limited amount of walking/running and stair climbing that I was able to do onboard, due to the limited space."* However, he did notice that due to his prescribed high calorie diet, both within the pre and during competition phases he only lost a total of 2 - 3kgs over this sustained duration of exertion.

For further and more detailed information about Conrad's racing go to www.conradhumphreys.com or www.conradhumphreysracing.com

PERIODISATION;

Organising training to achieve optimal effect, this is done over a period of time and often segmented into phases.

SPECIFICITY;

One of the principles of training: Making training relevant and appropriate to the activity area taken part in.

DURATION;

A timescale given for the activity participated in.

INTENSITY;

How hard you train your body systems.

RECOVERY;

A period of minimal training or exertion: where adaptations to the body can take place.

REVERSIBILITY;

A deterioration of physiological state after training has stopped.

MUSCULAR ENDURANCE;

The ability of a muscle to make repeated contractions without a build up of fatigue.

CARDIOVASCULAR ENDURANCE;

The ability of your heart and lungs to aerobically respire for periods of time without fatigue.

CALORIE;

A recognised unit for the measure of energy.

CARBOHYDRATE;

A compound containing carbon, hydrogen and oxygen that forms the easiest accessible source of energy for the sports performer.

PROTEIN;

An amino acid based nutrient that supplies energy and assist in tissue growth.

FATIGUE;

A stage reached when the body has been stressed physically or mentally and is unable to rejuvenate itself.

HEART RATE;

The number of times that the left ventricle contracts per unit of time, in beats per minute (bpm)

MUSCLE MASS;

The amount of muscle fibres relating to body composition.

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PHOTO: JON NASH

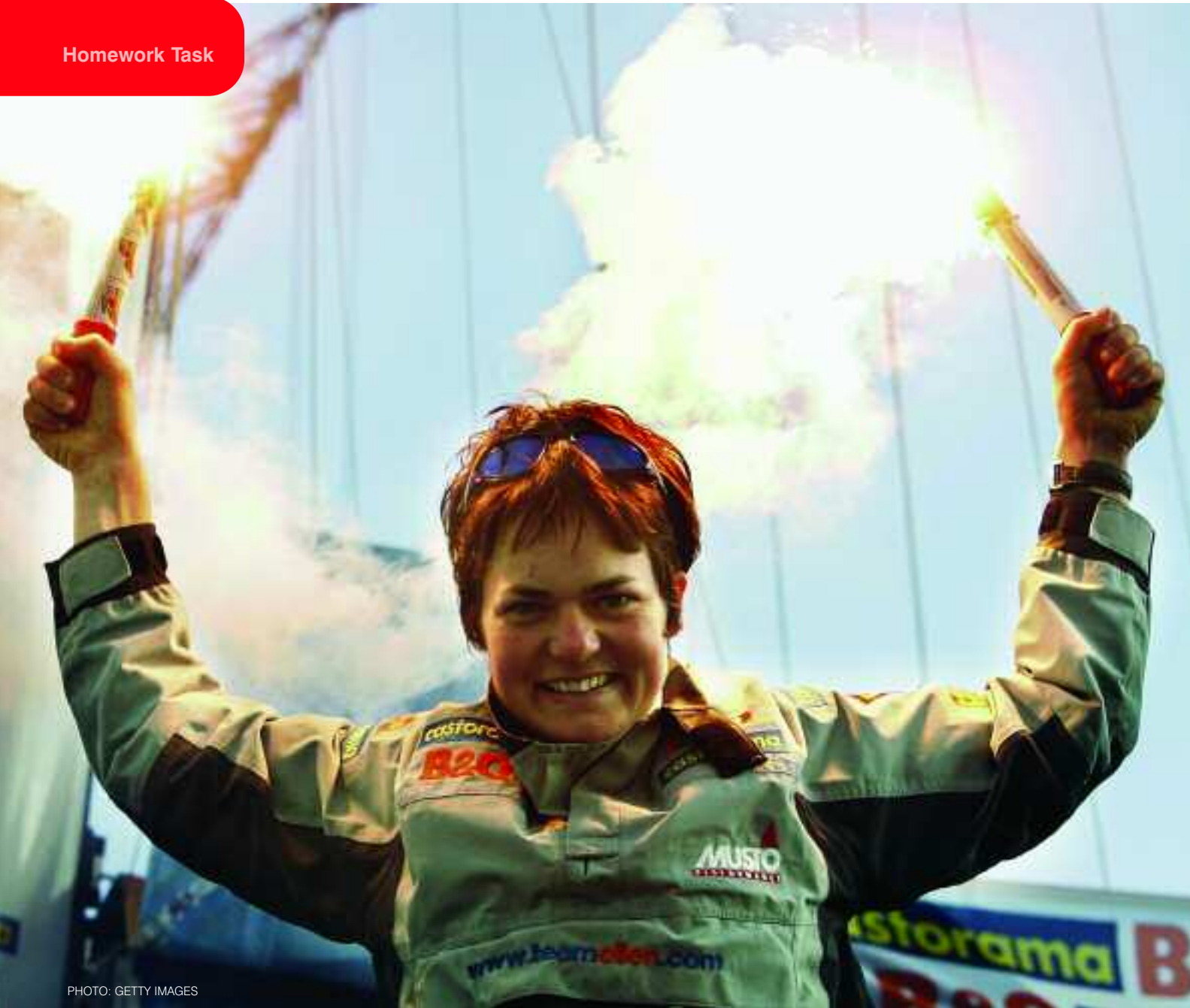


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BRAVE HEART

What happens to your body when you 'fly' downhill at 65mph with no brakes? Balls Sports Magazine strapped a Heart Rate Monitor to UK Street Luge Champion Len Stokers to find out!

Chris Smietanka, Lecturer in Applied Sports Coaching at The College of St Mark and St John, Plymouth, analyses the results.

EMAIL ELLEN MaCARTHUR YOUR QUESTIONS

THIS IS YOUR OPPORTUNITY TO ASK A TOP SPORTING
PERFORMER A QUESTION TO HELP YOU WITH YOUR EXAMS.

Email info@balls-sportsmagazine.co.uk (Subject: Ellen) the question you would like to know the answer to; remember it should relate to the specification you are studying.

Using the power of gravity alone, athletes ride either against the clock or with up to five others down tarmac courses. The equipment used in Street Luge is a cross between a skateboard and the more traditional Ice Luge, on which the rider lies down feet first. The board is predominately made from steel, aluminium and/or composite materials. To manoeuvre the luge the rider moves their bodyweight, by either sitting up and leaning or rotating their body and hanging off the board. There are no brakes on a luge therefore the rider has the option to wear modified shoes and drag their feet on the road. This is a very effective way to stop rapidly. A Street Luge can reach speeds in excess of 70mph while only an inch or two from the ground.

With little protection, the athlete moves down a series of turns and stretches throughout the race. For most of the race the body is extended into a long and tight position. The athlete needs to be both heavy enough to gain speed and momentum going down the



track, and weightless enough to maneuver through the air and gravity forces. Street luge crashes can be both spectacular and fierce, and there's little to protect the athletes once they're bouncing and scraping along on the surface of the track. Fine muscle movements and subtle steering are essential. Street luge takes a tremendous amount of body awareness. Street luge athletes who participate in other sports will generally have some degree of understanding of how their body moves through space (Kinesthetic Awareness). Since street luge is a high-speed sport requiring relaxation and quick, subtle reactions, athletes who participate in sports like gymnastics, BMX, skateboarding, swimming or snow boarding may be good candidates. These are all athletes who have good coordination and are able to isolate their body parts for specific movements. In order to be able to feel the gravity forces as you go through the turns. A good start has a major bearing on the race. Upper body strength is critical to being a first rate street luge athlete.

In street luge, the start is one of the most important parts of the run. As this is the only time, the athlete actually has any control over how fast the luge is accelerating. Furthermore, it requires a high degree of strength to drive the luge down the track and confront the 2-5 g-forces a street luge athlete experiences in the turns. Strength of the neck, upper body, stomach and legs are critical during various stages of the luge run. In addition to upper body strength, upper body power is vital. The ability to be explosive and accelerate the luge over a short distance during the start is significant to achieving the maximum speed possible.



Strength and quickness are the two key factors. The strength element comes in rocking back and forth and projecting forward the athlete's own body mass and the luge. The need for quickness instantly comes into play as the athlete paddles the surface with gloved hands to generate more force. This paddling action requires extreme upper body and hand strength. To build strength for explosive starts, street luge athletes may include exercises like weight training and cross training that would incorporate swimming and speed exercises. In order to engage the luge through the turns street luge athletes subtly move their shoulders, legs and hands to maneuver. Assuming an aerodynamic shape with arms



and legs outstretched, they absorb every bump and fight the gravity forces that envelope them. When encompassing a turn on the track, powerful G-forces press upon the body and then subsequently release coming out of the turn. To endure these pressures, the athlete must be in superb condition.

From a physiological perspective at the beginning of each race, the athlete generates momentum by using their upper body. After the initial push off, the muscles of the upper body quickly propel the luge in a forward motion for approximately 3 – 5 seconds. This high-intensity movement causes physiological adaptations to the anaerobic energy pathway. Small energy stores (high energy phosphates) present in the muscles can rapidly make energy available through anaerobic processes. The immediate energy system utilises the muscle store of phosphagens known as ATP-PCR.

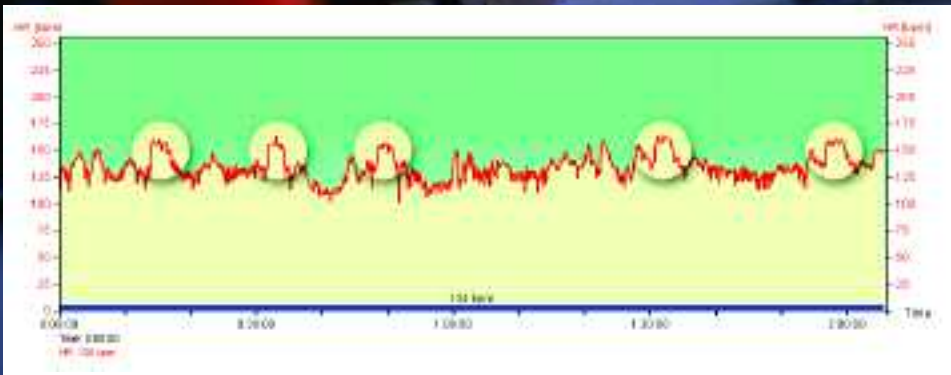
ATP - Adenosine Tri-phosphate is a complex chemical compound formed with the energy released from food and stored in all cells, particularly muscles. Only from the energy released by the breakdown of this compound can the cells perform work. The breakdown of ATP produces energy and ADP – Adenosine Di-Phosphate. PC - Phosphate-creatine is also a chemical compound stored in the muscle, which when broken down aids in the manufacture of ATP. The combination of ADP and PC produces ATP.

To train this energy pathway the athlete would have to work at 80 – 90% of maximum heart rate. One of the benefits to the street luge athlete would be the ability to have a higher tolerance to lactate build-up, which will enhance anaerobic endurance and fight fatigue.

In street luge, the start is one of the most important parts of the run. As this is the only time, the athlete actually has any control over how fast the luge is accelerating.



Figure 1 depicts the athlete's heart rate throughout the five races. At the start of each race the athletes heart rate elevates between 156 – 164 beats. min-1. This can be linked to the initial push off and the duration of the race that approximately lasts 75s. To ascertain if the athlete has been working anaerobically. It is possible to calculate their max heart rate and see if the athlete is working at 80 – 90% of max heart rate. In between each race the athlete has a fifteen minute recovery period which will enable him to prepare for the following race.



TASK: WORK OUT YOUR ANAEROBIC TRAINING ZONE

Competition can cause athletes to react both physically (somatic) and psychologically (cognitive) in a manner that can negatively affect their performance. Stress, arousal and anxiety are terms used to describe this condition. It is possible to assess an athlete's anxiety at the start of a competition through the completion of the Sport Competition Anxiety Test (SCAT). The athlete completes this questionnaire before competition. The measure of sport anxiety must take into consideration cognitive anxiety (negative thoughts, worry) and somatic anxiety (physiological response). Anxiety includes dimensions that can show the athlete both their cognitive and somatic symptoms. An athlete with high anxiety trait (A-trait) is likely to be more anxious in stressful situations. To help the athlete control competitive anxiety somatic techniques (relaxation) and cognitive techniques (imagery) could be used.

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TASK: FIND OUT HOW RELAXATION AND IMAGERY TECHNIQUES CAN BE USEFUL IN DIFERENT SPORTS.

Len Stokers
This year Len was joint 1st with Joel King in the UKGSA championships. The highlight of the year for Len had to be his top 16 place in the World Championships held in Switzerland.

The UKGSA
The UKGSA was set up in 2004 in order to bring together the sports of Street Luge, Downhill Skateboard, Gravity Bike and Soapbox. Their aim was to organise and sanction Gravity Sport events giving participants a safe environment to ride, increase the profile of the sports and attract more participants.

TEAM COHESION

Nathan Robertson and Gail Emms are England's most successful ever mixed doubles badminton team and achieved considerable international success.

Together they have formed an extremely successful team and achieved,

- 2004 European Champions
- 2004 Olympic Silver Medallists
- 2006 Commonwealth Gold Medallists
- 2006 World Champions



So Balls Sports Magazine was very keen to ask them how they work together so well and understand the group dynamics and relationships between the two of them.

Please tell us the process that saw the two of you form such a successful team?

NR: We started as a partnership back in junior badminton aged 15. We formed a successful junior partnership, winning European junior titles and numerous national titles. We split up as a partnership when Gail went to university. We reformed the partnership in 2001.

Since joining up again things have only gone up and up and it would be hard imagining playing with anyone else now.

GE: It started pretty simply – Nathan and myself played a few Grand Prix tournaments together to see how we'd do and it worked well and we were successful!

Since then it's been 5 years of working hard to keep the partnership winning and hopefully improving all the time.

Once you formed the team were there ever any initial issues or discussions to formulate your roles and responsibilities?



NR: I think the initial issues when we started again in 2001 were just seeing if we could develop a sort of natural partnership where almost everything feels good on court.

We seem to just be almost perfect partners for each other with our playing styles complimenting each other very well.

GE: We are pretty lucky in that aspect in that badminton mixed doubles roles are already defined and Nathan's style of play gels with mine and vice versa.

I think if our styles of play were not suited then we'd have to do a lot more work or maybe not even play together.

Bringing two talented individuals to interact successfully together is very difficult – what have been the reasons why you 2 have successfully achieved this?

NR: It is very difficult (especially in mixed doubles) to form a partnership that runs smoothly, we are very fortunate that our styles of play have worked perfectly together.

We have over time become friends on and off the court and our partnership has gone through a lot of ups and downs (mostly ups fortunately).

We are able now to be very honest about everything now so there are never hidden problems. We are also more driven and motivated by the success of the past.

GE: Having a good support network!

I think our coach Andy Wood has been the key. He knows exactly how each of us ticks and what motivates us.

Also the friends and family around us keep us going and make us the individual characters that we are to be successful. Nathan and I are complete opposites but underneath we are two sportspeople wanting to be the best we can possibly be.



PORTRAITS COURTESY OF THE PROFESSIONAL SPORTS GROUP

Working in a team can have the difficulties of one player having a poor game – how do you handle this type of situation?

NR: In the beginning it is harder to handle when one is having an OFF day.

Now we seem to be able to identify early in the games if some part or one of us isn't playing well and then the other player will encourage and say certain things to try and make a change in the mental state of the player who is having a tough time.

When we are both playing badly, we sometimes just take a second and joke that it can't get any worse so we try and relax and enjoy it!

GE: I think respect is the key here.

It's important to respect each other and have a 50/50 relationship on court. That way, if I or Nathan is having a bad day, there is equilibrium in the partnership so one of the pair can pull the other up without person feeling bad or intimidated. We also know how each other tick; know how we respond to certain words and what works! And each others moods!

Do you socialise as friends together away from the court? Is this important to your success?

NR: Yes we socialise off court, we don't go out our way to spend time together off court but when you travel the world as a team and myself and Gail have often been the last 2 players left at a tournament it is normal to have dinner together or just relax watching films or things like that.



I believe it is almost impossible to form a very successful partnership with someone who you don't like or get along with, if you have negative thoughts about a person whether its their personality or the way they play it will only result in poor performances.

GE: I feel it is important to 'get along' because sport is such an emotional roller coaster with so many highs and lows that you need to be able to 'connect' with each other.

I do feel that you need to be able to get on in social situations! But you do need time away from each other too. That way your lives are not all about each other as a team and badminton.

What are your team goals as you head towards the next Olympics and how did you decide these goals?

NR: Our goals now are of course to go one step up the podium at the 2008 Olympics, which is the big aim. In between now and then we have the World Championships in Madrid and we want a medal this time (They won gold so one goal met and we sincerely hope they achieve their other goal)

GE: Deciding these goals involve small meetings with myself, Nathan and our coach. We discuss what is happening now in training, tournaments and lives. Then we see if anything needs changing to enable us to reach our targets.

Our targets are pretty simple: World Domination!! Ha Ha! Or just being the best mixed doubles pair in the world!

Tasks

1. A successful group requires social interaction, task interaction and verbal communication.

Define each of these terms and provide a quote from the article to support your definition.

2. Important factors for successful team cohesion are,

- Stability
- Similarity
- Size
- Support
- Satisfaction

Describe the factors that are important and provide quotes from Nathan Robertson and Gail Emms to support your answer.

3. Nathan Robertson and Gail Emms have achieved tremendous 'productivity' as a team and won many honours together. This requires coordination, cooperation and motivation.

Use academic theory and the article to support this statement.

WIN A CARLTON BADMINTON RACKET PROVIDED BY BADMINTON ENGLAND.

How many points is a game of badminton mixed doubles normally played up to? Send your answer, name and postal address to info@balls-sportsmagazine (Subject: Badminton Competition) and the first three correct answers will win a racket.



ALL PHOTOS: GETTY IMAGES

Goal Setting

Driven Performers

Balls Sports Magazine asked Formula 1 drivers Mark Webber and Nico Roseberg how they prepare for the demands of such a physically and psychologically gruelling sport.

Specifically we focused upon how goal setting was crucial to their success.

Goal Setting is generally thought to affect performance in the following ways,

ATTENTION Setting goals provides the performer with the focus for successful performance

MW: "The race weekend starts on Friday for us, so we prepare mentally probably a day beforehand in order to get ready for the event. As a driver, it's very important that I'm in a good mental state during the race – meaning I need to be well rested, have minimum distractions and aim to focus on all the things I can control"

NR: "My preparation is about 1 hour before the race where I go through a series of warm up procedures and some exercises for concentration"

EFFORT Setting goals helps the performer achieve the necessary effort to accomplish that goal

MW: "The uniqueness of F1 and wanting to compare myself against the best drivers became an important desire for me"

NR: "I always set myself goals....to make myself fight on and on and on. My motivation has been increased this year because I know in F1 you need to be the best in every area and therefore work a lot harder"

PERSISTENCE Goal setting helps a performer maintain their effort over a period of time

MW: "I was very, very interested in F1 from quite a young age. I had huge motivation to reach F1 because I knew how tough it was for drivers to get there and I wanted to race the best cars in the world"

NR: "Car driving was always one of my strongest sports and I was motivated with the will to succeed and be the best"

NEW STRATEGIES Goal setting helps the performer to devise effective strategies to help them achieve their goals

MW: "It's really about breaking the race down a little bit and not getting too far ahead of yourself in terms of what's happening next. I generally focus on the immediate situation and on driving the car on the absolute limit. Part of my mind will be thinking about how the opposition might fare in the race and how we can use our own race strategy to finish as high up the order as possible"

NR: To help you keep up the concentration (during the race) you need to be very fit, eat proper food before the race and also drink during the race to reduce the amount of dehydration.



TASK

Study the following statement from F1 driver Mark Webber about the goals he has set himself during his career.

"Over the course of my career my goals have changed – sometimes you have to settle for more realistic goals than the ones you set yourself in the first place. When I started racing in F1 I thought that if I could get points one day that would be the first step. In fact, that happened relatively quickly for me. I then had to think about scoring as many points as consistently as possible, which was the next challenge in my 2nd and 3rd years of F1. I was very happy with what happened in that stage of my career in terms of my goals.

The next goal was to get two podiums and win Grand Prix's but this has taken a lot longer than I had planned – the last 2 seasons have been pretty tough in terms of results but I know in the future I can win in F1 and I'm still highly motivated to do that – so that is still my goal"

Explain the different types of goals Mark Webber has set himself and provide an example for each to support your answer.



Biomechanics of Diving

Sporting Champions

Sporting Champions has been developed and funded by Sport England. It brings World Class Athletes into schools and local communities to inspire and motivate young people to take part in sport. It aims to inspire young people to participate in sport as a lifelong activity and forms an important strand of PESSCL, the national strategy for school sport, and works alongside a range of other measures to help create a new generation of physically active people.

The scheme consists of an annual programme of nearly 500 visits made by Sporting Champions, organised through the School Sports Partnership and County Sports Partnership networks. A small number of other visits are also available to help promote community sport to young people. The Champions deliver a range of different activities in schools and the community, including coaching workshops and interactive sessions, as well as targeted activity such as supporting gifted and talented pupils, and contributing to curricular work around citizenship and leadership.

For more information, visit: www.sportingchampions.org.uk

ALL PHOTOS: GETTY IMAGES



Balls Sports Magazine asked Commonwealth diver and Sporting Champion Brooke Graddon to describe her perfect dive. Bill McKee of Colchester Sixth Form College describes the biomechanics involved with the dive.



Brooke Graddon's 'Perfect Dive'

I would choose my reverse 2.5 as is my most consistent dive. It is placed at the end of my list and it has enabled me to qualify for the Semi Final of the World Championships as well as other competitions. It is a dive that I like to compete under pressure and one that I can rely on.

For a reverse, I stand facing the pool. Before I get to the board, I will stand on the 7.5 metre board and physically run through what will happen after I take off. Getting to the board, I will take a few seconds to concentrate and run through the best 2.5 I have ever done, glance at the pool below me. I swing my arms, bend my legs ensuring that I don't jump too far away from the board or too close.

I reach my arms for the rotation, make a tuck shape and look for each somersault, spotting the pool on both the first and the second rotation. After the second rotation, I look and spot a marker to kick out, my body is dished, as I am confident on the kick out, I then reach back with my arms, form an arch shape ensuring that my hands are together, grabbed with my left hand on top of my right and look for the rip entry making sure that there is very little splash.

I can usually tell if it is a good dive, but there is always a doubt until it is confirmed by the judge's score. My coach will always try to see a positive in whatever I have done within a competition, therefore giving me a positive before going straight into the next dive. I use video analysis after the competitions to enable me to visualise what I have done.

“I can usually tell if it is a good dive, but there is always a doubt until it is confirmed by the judge's score”

Figures 1, 2(a), 3, 4 and 5 are free body diagrams. They show the subject removed from its surroundings but with arrows showing the real forces on the body, from its surroundings. The forces are shown acting from a point, a dot on the diagram. Figure 2(b) is a vector diagram which shows the real forces added (the force arrows follow on from each other) and show the single force that the real forces add up to – the resultant force.

Centre of Gravity. This is the point where the entire weight of a body can be considered to act. It may be inside the body, for example in figure 1 it would be in the chest of the diver. It can, however, be outside of the body when the diver's shape is changed as in figures 3, 4 and 5. In a somersault the body rotates about this point.

Figure 1 shows the diver in balance in preparation for the dive. The two external forces acting on the diver are their weight, mg and the support force, R , from the diving board. The two forces are equal and opposite along the same line. The weight acts down, at the centre of gravity and the support force acts up, through the base – the diver's feet. The support force, R is the reaction force to the diver's feet pushing down on the board. If the two forces mg and R , were not along the same line, then the diver would be unstable – they would topple.

Newton's First Law tells us that if the sum of the forces acting on a body is zero then the body will have constant velocity. One common example of constant velocity is being at rest, as with the diver in balance at the preparation stage for the dive.

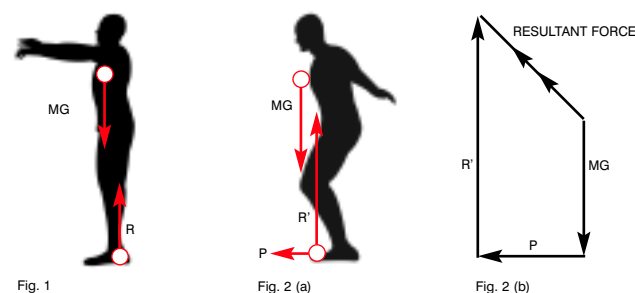


Figure 2(a) shows the diver in the start of the take off phase. The support force, R' is now bigger than their weight because they have pushed harder on the board through their feet. As well as the vertical reaction force, R' , the diver is pressing the board backwards (to the right on the diagram) and receives a frictional push, P , back from the surface forwards (to the left on the diagram). This force will ensure that they move away from the board. P and R' are both really one force from the surface of the diving board, but they are generally thought of separately. The addition of the forces is shown in the vector diagram (fig. 2(b)) and the resultant is clearly going to cause the diver to move up and away from the board.

Newton's Second Law relates to situations where the forces do not sum to zero but form a resultant force. The resultant force in figure 2(a) will cause the diver's velocity to change along the direction of the resultant force.

During this phase of the dive, the diver's arms move forwards and upwards (clockwise as seen from this view) and later in their take off, the hip lift contributes towards greater angular momentum. The contact with the board is allowing the diver to transfer linear momentum to themselves (and in equal and opposite amount to the Earth) AND angular momentum to themselves (and oppositely to the Earth).

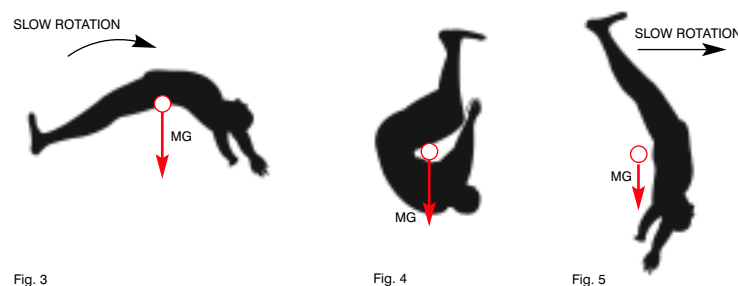
Newton's Third Law applies to bodies which interact by exerting forces on each other. In this situation the diver's feet exert a force on the board and the board exerts an equal and opposite force on the diver. It is this force from the board, which, when combined in a vector way with the diver's weight (mass \times 9.8N/kg) brings about the transfer of momentum to the diver.

Figure 3 shows the diver in the air in an extended shape and rotating slowly. In the air angular momentum is constant because air resistance is negligible over the time of this flight.

In figure 4 the diver has used their muscles to tuck. Pulling their limbs in and tucking their torso tight around the horizontal axis of rotation reduces their moment of inertia and, as a result, their angular speed of rotation increases (this is known as the conservation of angular momentum). Most of the rotation of two and a half turns occurs quickly in this position – a pike or a straight somersault is slower and therefore to complete the same number of turns needs the diver to get higher initially or gain more angular momentum from the launch.

Inertia is reluctance to changes in velocity. Mass possesses inertia and requires a resultant force to act in order to change its velocity, in size or direction.

Figure 5 - the diver needs to "spot" in order to know when to stretch out again, slowing their rotation and allowing them to enter the water in a straight position and near vertical. Their rotation cannot be stopped only reduced in its angular speed.



Summary :- Figure 1 shows equilibrium (the two forces sum to zero and there is no change in velocity – Newton's First Law applies). Figure 2 shows accelerated motion under the resultant force in the vector diagram (Newton's Second Law applies). Figures 3, 4 and 5 all have only one force acting – the weight and so Newton's Second Law still applies and the diver, moves steadily sideways and accelerates under gravity downwards at 9.8ms^{-2} until entering the water. In the air the diver's linear speed changes due to gravity and their rotational speed depends upon their shape around the horizontal axis - their moment of inertia.

Moment of inertia is the reluctance to changes in rotational speed. A diver can change their moment of inertia by tucking or stretching out. When they have a smaller moment of inertia in a tuck shape their angular spin speed will increase to compensate for the reduction in the value of moment of inertia. Conversely when they stretch out to increase their moment of inertia their spin speed falls to compensate.

DEFINING SPORT:

Are Free Running and Parkour classified as Sport?

Balls Sports Magazine met up with Rob Green an experienced and passionate participant in free running and parkour to determine whether these activities can be classed as sport.



PHOTO BY ANDREW McDONALD 'NAT'

Lesson Starter:

1. Draw up a list of 'activities' (e.g. darts, cheerleading, surfing, world's strongest man, figure skating, archery, greyhound racing, skateboarding, horse dressage, poker, arm wrestling; plus some more 'conventional' and 'debatable' activities)

2. Vote on which 'activities' the students consider to be 'sports'.

3. To unpick why they voted the way they did ask the students to come up with a dictionary definition of 'sport'. Play 'devil's advocate' and challenge their definitions, do they cover all sports?

"Sport is an institutionalised competitive activity that involves vigorous physical exertion or the use of relatively complex physical skills by individuals whose participation is motivated by a combination of the intrinsic satisfaction associated with the activity itself and the external rewards earned through participation." (Coakley, 1998).

4. Students to break Coakley's definition into a list of criteria of what is a sport; Look at the photo's and read the interview; does free running and/or parkour match this definition?



PHOTO BY ANDREW McDONALD 'ADAM'



PHOTO BY ANDREW McDONALD 'ROB'



PHOTO BY DARYL WHEELER 'DREW'

Can you describe the difference between parkour and free running?

Parkour is the pursuit or ability to get from A to B in the most efficient way possible in order to be strong or effective in any situation for example escape, evade, rescue. Free running is based on that only there is more flare added so somersaults and flips are included. An example would be if you were running away from a lion, parkour would get from A to B in the most efficient and quickest way – free running you could stop on a wall and do a somersault which looks good but you just wouldn't do it in that situation.

The main thing is that parkour is definitely a discipline, it's an individual thing and it's not about bouncing around and showing off looking cool. When people actually ask me to do it I just flatly refuse because it's not the point.

It's something that everyone can take up for themselves and keep for themselves and no one can ever take it away from you and that's the thing to remember and that's why you should get into it not to just look cool. The cool stuff comes afterwards and if you want it you can have it and it is cool but don't do it to just be cool or show off coz there is so much more to it.

What would your definition be of parkour and or free running and how would you classify them?

It depends on each individual as everyone comes from very different levels of personal understanding and philosophy, but generally people say it's an extreme sport. I have been involved from the beginning and have perhaps a deeper philosophical understanding of it and I believe it's a discipline – it can be taken to an extreme level, which is where it gets the extreme sport label. It's a discipline much like a martial art, and there is a lot of philosophy behind it – it's not just running around jumping off big walls and stuff there's so much more to it. It's a way of life it's a total lifestyle.

Is there an organising structure/ governing body or is there no need for it?

There's no need for it at all although there's a lot of issues with insurance and stuff but only because no one really knows what it is. It would be cool but there's no need at the moment.

So is there a place for it in your view in the national curriculum?

Yeah totally –I'd love to teach it in schools – you'll never be last picked, you don't need money to buy equipment to do it, its as far as I'm concerned the number one liberating activity and it should be in schools coz kids are too pliable emotionally and characteristically to be forced into team situations.

Plus it's like swimming it trains every part of the body as well it gets you dead fit. I would push for it to be moved into the national curriculum.

Can you adapt Coakley's definition of Sport to best describe Extreme Sports?

Which Extreme Sports have National Governing Bodies and Competition structures?

Can you find any 'sports' that resist 'institutionalised competitive activity'?

What would be the arguments for and against Parkour and/or Free Running being included in the PE National Curriculum?

Is there a common background of participants? You said it was closely related to gymnastics, do the participants usually have a gymnastic background?

Yeah it's usually martial arts – karate, jujitsu, judo, and even cage fighting but gymnasts as well it's so physical that usually you have to have a good level of physical control and strength to be able to do this.

But from a different side as it's an individual thing you tend to get the types of people who don't necessarily fit into a team sport socially but who excel in parkour and really throw themselves into it and commit to it. You can also get your type of 'no fear' person who really has no fear of throwing themselves around. It's really open to everyone and all types of people.

There's a saying it doesn't matter how fast you go so long as you don't stop and that's kind of the philosophy behind it.

It sounds spontaneous and unplanned but you mentioned training, can you tell us a little bit about the training that you have to do for it?

Because it's a discipline you have to go out and practise all the time, every session you get a sense of achievement and self progression. Your aim isn't to be good but better than you were at the start of the session. There's a saying it doesn't matter how fast you go so long as you don't stop and that's kind of the philosophy behind it.

Unlike football or something like that where you may have like a set programme like 2 hours this day and 2 hours another when you will train, in parkour you just do it as and when you can do it. You don't need anything to train with just you and the right mood and anywhere you want to go you can just go for it.



PHOTO BY ANDREW McDONALD

Its good training on your own and you have to train on your own in order to fully develop but its better training in groups as people feed off each other and see things differently, there's also this competitive edge where someone does it and you feel I've got to have a go now and you get pressured to achieve more that you perhaps otherwise would.

You can't just do it whenever and get good, like if I picked up a football now I haven't played in a couple of years but I could still do like 50 'keepy ups' but with this unless you if you don't do it for a couple of weeks you do lose skill because of the whole psychological battle as well.

You mentioned that there are a lot of psychological and emotional aspects to what you do. Are there any moves you have to specifically prepare yourself for?

Gaps or precisions like when you have to jump from one point to another; they for me seem to be the most psychologically draining, like 95% of the time we won't do something unless we are sure we can make it. And then like that gap over there I've done it hundreds of times but if I'm not in the mood I just bottle it, and you're stood and nothing else exists apart from you and the gap just you trying to control your internal fears.

Rob mentions words like 'competitive edge', 'psychological battle', 'training', 'self-progression'; are these terms relevant to other concepts of physical activity (such as recreation, leisure, play)?

So is there an end product or is it purely self fulfilment?

For some of us the idea is to build a career out of it because obviously having a career doing something you love is every persons dream so some people do it totally to get good enough and have a show-reel and then do entertainment or media working in advertising events and stuff. But for most people it's just that feeling of self advancement every time you go out there's no real aim other than that.

So what would those careers be? You see it on the BBC clips and the music videos at the moment, is it things like that?

Because the media are loving it at the moment there's a lot of adverts using free running which is why I like doing things like this interview because no ones doing anything for parkour its all free running coz of



“For some of us the idea is to build a career out of it because obviously having a career doing something you love is every persons dream.”

all the flips and stuff like that. Some groups have disbanded as they all want to be stunt men so have followed that career path as a result of parkour so now they are all training individually as either stunt men or fight doubles in martial arts.

You say it's a way of life is there a fashion or culture that goes along with it?

No at the moment because anyone can do it anywhere with anyone and you don't need to buy any tools or equipment to do it its staying completely open ended no one has started buying into it yet. I'm sure there will be when there starts to be competitions and events and big sponsors and stuff but at the moment no there's no culture what so ever.

When looking at how winners are decided, sport is often categorised in to 'Game Sports' (where territorial domination is achieved through goals, runs, points, touchdowns etc), 'Gymnastic Sports' where movement and performance is judged qualitatively (e.g. surfing, diving, figure skating), and 'Athletic Sports' where time, height, weight and distance are used to determine the winners (e.g. F1, Weight Lifting, Rowing, Speed Climbing).

Can you think of a sport that does not fit into these categories?

If Free Running and Parkour had competitions which category would they fit in to? (Would they be in the same?

What is Rob's motivation for taking part?

Does motivation to participate differ between different concepts of physical activity (e.g. Physical Education and School Sport?)

If you could sum up what parkour has given you how would you do that?

It's a whole new lease of life everything looks different now like before it was like walking around blind you only see the paths people tell you or want you to see, now I just see everything. I reckon most people only take in 20% of their environment coz they're too busy thinking about what they're doing and where they are going, what's on telly and what they are having for dinner that night and stuff but now I walk around and everything I see; I see new paths and new ways to get across things its totally liberating in loads of ways.

It builds a lot of self confidence as you know your own boundaries and you become more aware of them and you just become more aware of what you're actually capable of. It's really good it's completely an all round totally beneficial way of life.

“It builds a lot of self confidence as you know your own boundaries and you become more aware of them and you just become more aware of what you're actually capable of.”



So if there was a student who reads this and is inspired to get involved what advice would you give them?

Don't do it on your own, don't go out and try and just do it. Find someone who has been doing it for a while and let them show you how to do it properly. Because it is dangerous and you could get hurt and plus if you just go round trying to jump walls you'll miss the whole psychologically beneficial side of it and the whole philosophy behind it, you'll miss it all, it will just be jumping off walls. So find other people who know how to do it. But the main thing is don't just leave it until tomorrow or something get on the internet the second you think about it start watching video's and don't let it go, don't ever let it go.



UK SPORT and YOUTH SPORT TRUST.



Balls Sports Magazine interviewed Sue Campbell chair of both UK Sport and Youth Sport Trust to find out the role of these two organisations in the development of sport in the UK.



Sue, you have been an international performer, international coach and PE teacher how have these roles helped you in your current post and how did you get to your current position?

I think they have all helped me in very different ways, my journey to where I am has been an interesting one in the sense that I didn't know this would be where I'd end up I didn't have an ambition to be a brain surgeon and gradually went on a path to become a brain surgeon. I loved sport so when I played it I played it as well as I could and when I taught it I taught it as well as I could. I then lectured in it and ended up leading organisations in coaching and in youth sport.

And I guess that what I've learnt from that journey is by doing what you're doing really well more opportunities come your way, and then it's about taking those opportunities. But my whole career has been sport, it's been my life really, my life's work.

Would you be able to clarify the main role of the YST and UK Sport?

UK Sport is the body responsible primarily for the Olympic and Paralympic teams, it's the organisation that funds the preparation of all our athletes across the Olympic and Paralympic disciplines. We will be responsible for 'The Team' in 2008 and 2012. It's what we call 'world class success' and it's our number 1 priority.

YST is at the other end we're responsible for really supporting the government's PE, School Sport and Club Links (PESSCL) strategy to ensure that we are making sure that we are getting as many young people are getting a positive and good experience in physical education and school sport. So at the one end I'm working in schools and at the other I am working in elite sport.

Visit www.youthsporttrust.org and www.uksport.gov.uk and find out how they may attempt to promote 'World Class Success' and PE, School Sport and Club Links.

How do you see the 2012 Olympics impacting on PE and school sport?

I think the impact will be at lots of different levels. The first and most importantly if we are all skilful enough, it will have a very big

inspirational impact on young people, not just those who want to perform and be talented but the whole ethos of the Olympics is taking part and having a go and being the best you can be.

I think we can use that and encourage a lot more participation in sport, get a lot more young people active and hopefully we can inspire a lot of them to go to become coaches, administrators and officials as well as athletes and performers. So I think it should really help us to encourage and inspire millions of young people both here in this country and internationally and I think that's important.

I think at another level, at a governmental level sport is now at a level of high profile

and importance that its never been at before and it will give all of us that are in roles of teachers, coaches, administrators and people who are involved in the structure of sport it will give us an opportunity we've never had before to really maximise this government interest and financial investment in PE and sport.

What do you think will be the effects of London 2012 on PE and School Sport?

Do you think it's one of the government's main aims to help PE and school sport or is it an additional benefit of the 2012 Olympics?

I think the government is very pleased with the impact that PE and School Sport strategy has had. We don't know the results of this years survey but we do know its very positive and with a fair wind we will hit the public service agreement target which is fantastic. It means people working everyday at the grass roots level have put in some huge extra effort and the whole thing has just turned – momentum is turning so I think the government sees or wants to see not just a successful Olympic games but it wants to see the impact of that on every young person and one way of making sure that happens is to continue to push and to drive the PE and school sport strategy. So I think it is now central to their thinking around this stuff, I don't think it is now on the periphery of things.

What other reasons may Governments have for supporting an Olympic bid from their country?

Your own roles, although at different ends of the scale, almost merge with this I suppose?

Yeah and its just been great you know I'm very passionate about PE and Sport and as you know when we started the YST 10 years ago we weren't in a great place and its fantastic to see the subject as a whole being respected the way it is, and at the grass roots level so many more kids engaging in it and enjoying it. I mean it's fantastic for me to see all of that.

10 years ago to be honest when YST was set up I despaired about the future of PE at all. I couldn't get people to engage with me or talk about it, at a political level people were telling me you know its getting less and less time in our primary schools and it was kind of oh my god! So to go from that to where we are today, and I don't think that we are anywhere near the end of the journey I think we are at the beginning really, and everyone on the ground is doing such a fantastic job.

That's the success – what would you say was the biggest challenge for PE and school Sport now?

Well I think its to continue to eek out more youngsters, and its about us being more creative as professionals and I think its about us thinking how we really use that core curriculum time to the benefit of all young people and that we use our after school and surrounding time in differentiated ways to meet the needs of different youngsters. Whilst that might sound simplistic I still think we've a long way to go on that.

Also we are doing a huge amount of work through Sports Colleges about the impact PE and School Sport can have on behaviour and attendance attitude and how we can use PE and Sport to improve learning in literacy and numeracy, science and ICT. So there's a huge

amount still to do, not just on improving PE and sport but really helping PE and Sport maximise its potential to engage and help kids learn.

What to you see as the future role of sports colleges?

I think they have two roles, one is to continue to experiment and develop the best teaching and learning within PE and School Sport whether that's with talented and gifted, special needs, disadvantaged kids whatever it is keep on pushing those barriers. The other is clearly how you do then use that to raise whole school standards? And I think they are the people that are exemplifying that and experimenting with that and developing that and I hope they will continue to be those research and development centres if you like.

Do you mean as in within all the specialist schools Sports Colleges are doing that more?

I think Sports Colleges because PE and sport is so distinctively different from classroom subjects I think that the challenge for us is not just being able to improve PE and Sport but its been about can we really get head teachers to appreciate and understand this isn't just about activity, its about learning and how it can really make a difference to the whole school development and so we are seeing sports colleges with very vastly improving A- C's and large numbers of students working in the community as volunteers – responsible citizens.



We are seeing large numbers of sports colleges doing work where their senior students are helping in primary schools. It's setting tone if you like and I think Sports Colleges' job is to be right at that edge the cutting edge of that subject and how that subject can make a difference to the whole school. Those are the two bits that I think Sports Colleges have to consistently push on.

Visit your local Sports College's Website; what evidence do you see of the college meeting the challenges outlined in the previous three questions?

In terms of our sporting structure, it's undergone quite a lot of change, how successful do you think our structures are for developing elite performers at the moment?

Well I think that the decisions that the government made which was to put all the elite sport under the banner of UK Sport and to give us 3 hundred million extra which is what they've done as of this April gives us a good starting point.

Things like the English Institute and the Talented Athlete Scholarship Scheme (TASS) are all now under the umbrella of UK Sport. So I think the first thing was to get one focal point for the thinking because I don't think it matters that there's lots of different people doing different delivery, but there has to be one focal mission, one way of doing it so we all work from the same end.

Sports Coach UK are an integral part of our thinking so what we are trying to do is make sure that we have a very clear mission and vision

about how you do generate elite performers? What does talent really look like? Because at the school and club level keep as many kids in the system as is humanly possible with lots of good coaches. That in itself is very challenging but good coaching for as many kids as we can,

But there comes a point where a kid has the potential to be the best in the world and its at that point almost that you're moving them into the special forces if you want to think of it this way, moving them out of the army and into the special forces, and I think we've got some really good and talented people now in UK sport and I think we know how to do that. We've got to make it happen and we are working with all the Olympic and Paralympic sports now to try and make that happen.

I think we have a very clear vision now for the first time about how we are going to do it, but connecting that piece to the school piece and connecting that to the good club piece and the development piece that's the challenge for us, it's how we connect all the pieces of the jigsaw. But the high performance piece I think we've got a very good and clear vision. The school piece we've now got a clear vision, the middle piece is much more complicated of course. By that I mean the governing body, clubs and coaching structure it's much more complex.

How does the English Institute of Sport and Sports Coach UK help to develop elite performance?

Are there any other organisations in the UK involved in helping to achieve this aim?

When you formulated this vision how much did UK sport look towards other countries? Is that something you need to be wary of or something that is very positive?

You can learn from everybody I'm a great believer in anything we do whether its school sport or you as an individual, you can always learn from everyone you meet and everything you see. What you can't do is take another countries system and dump it on your own. You've got to take the best, understand why it works what is working there and say right now how do I take that and bend it so it works here?

I think that too often we have simplistically looked at something for example Australia and thought they have an institute, we must have an institute! What we haven't done is looked at what it is about that that works why did it work in that particular moment in Australia's history? How is it now evolving in the modern day of elite sport? And I think when you do that analysis you can then take the best of that and bend it in to fit into your own system.

As you can look at American competitive structures or you can look at the great work they are doing in Finland in participation, there's something to learn from everywhere but I don't think you pick it up and simply drop it somewhere else.

How is the structure of elite sport different in other countries e.g. USA, Australia and France?

What would you say was the most change the UK has had to make or should still make in the future?

There are so many bits of it but I think it's creating real clarity about this pathway, I mean what we know is from all the research carried out worldwide is it takes somewhere between 6 – 8 years for a youngster once you put them across to the special forces, (so I'm not accounting for all the great work that's gone on in school or in fact what's going on in clubs, but that moment we know this is a podium bound athlete we know it we aren't just guessing it, they're not 11 and look like they've got ability – he or she really has a chance once they are moved from there we know it takes 6 – 8 years from there on in) and what I think we are trying to do is manage that 6 – 8 years much more effectively than we've done in the past.

Often its been broken up because the youngster has gone from secondary education to further education or from further education to higher education or school to work, We are trying to manage that process for the athlete first and surround the athlete with everything they need to be successful, good sports coaching, good sports science, good sports medicine. So we have gone to a very much athlete centred model where you don't start with a system you start with what does the athlete need in this sport to be the best and how do we ensure we surround them with that? I think it's an exciting time for us in high performance sport.

I see the organisation of sport in the UK as a Christmas tree! The tree base is the YST, the trunk is Sport England and the clubs and the top representing England is UK.

Draw this 'Christmas Tree' structure. Where would you put the other organisations mentioned in this interview and other ones you have found?

How would the structure look like for another country?

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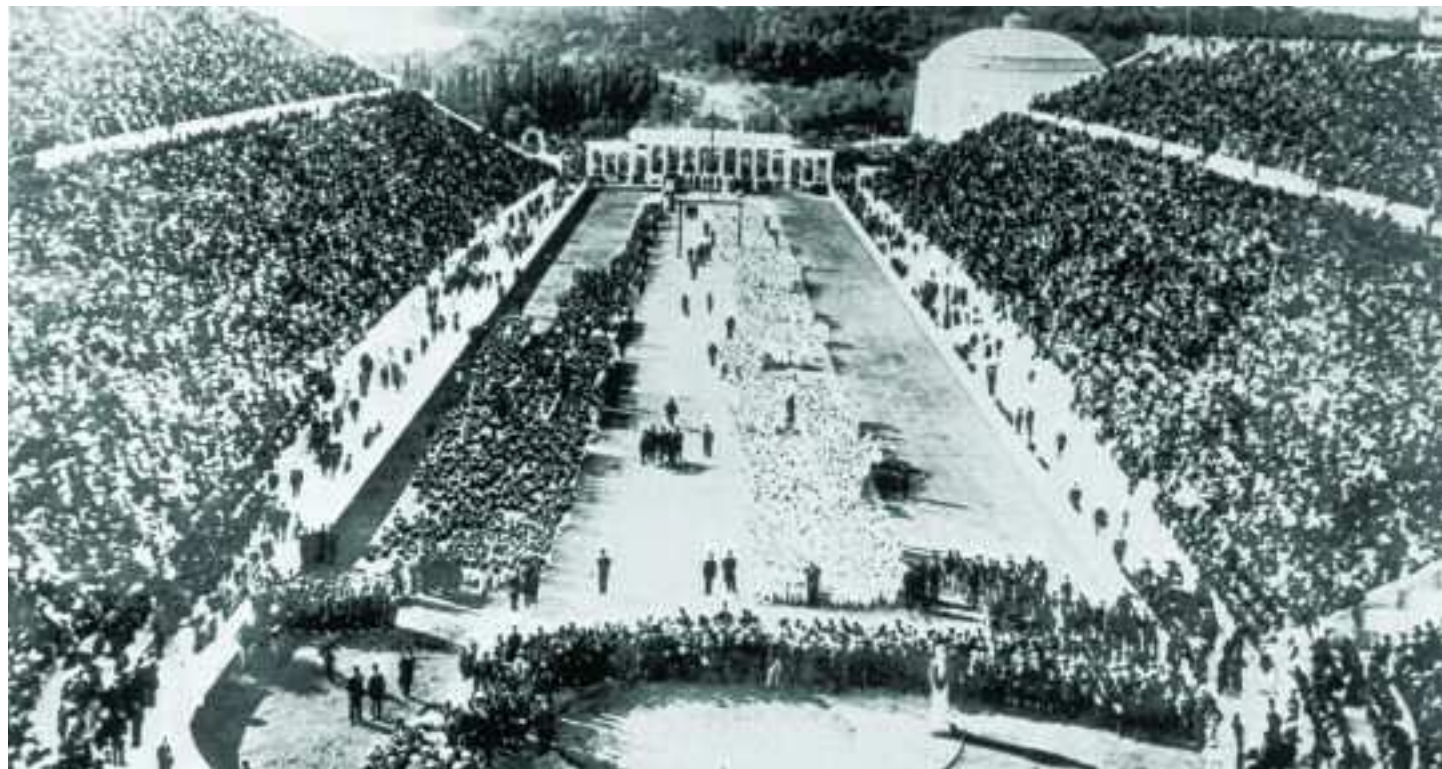
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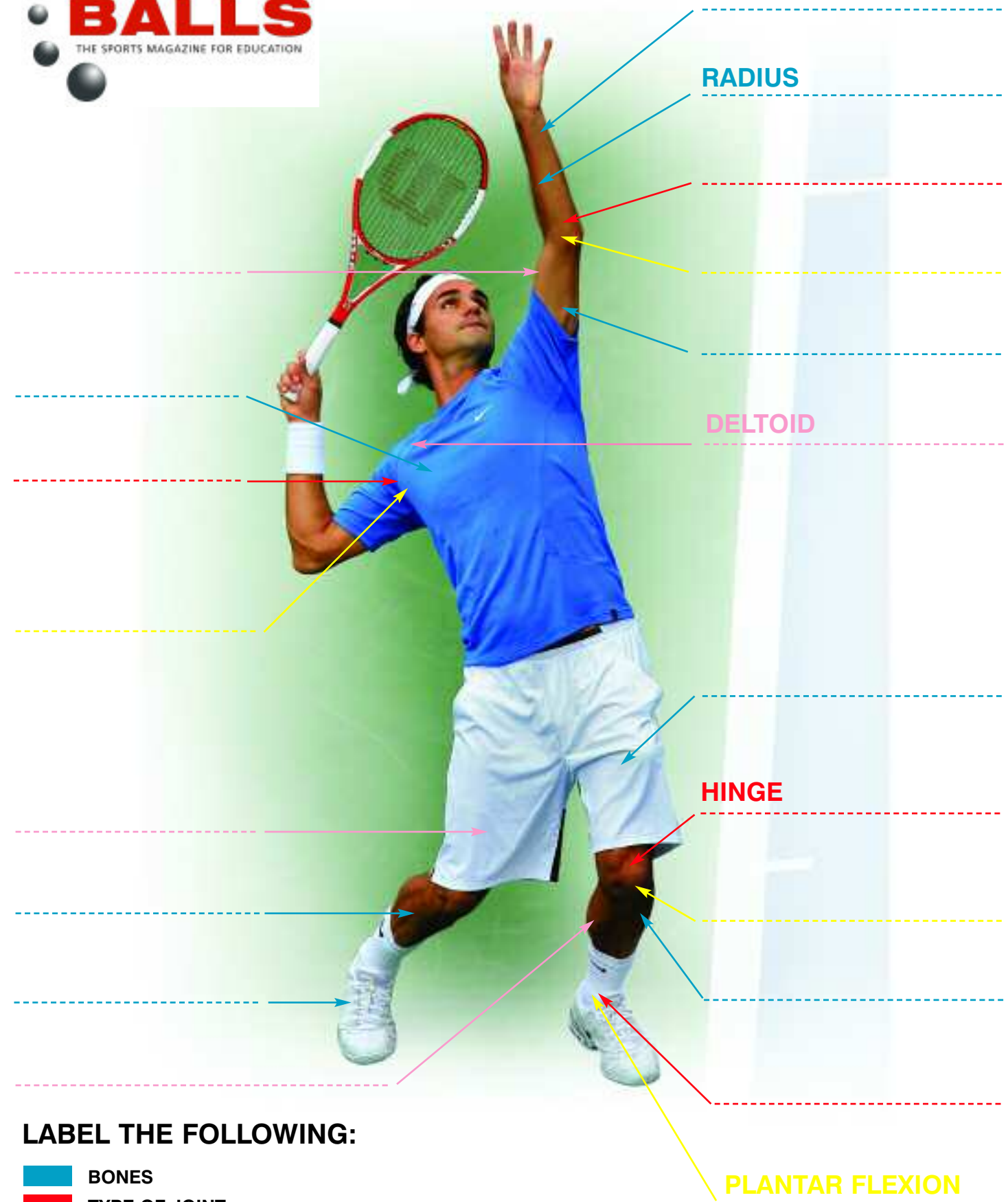
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Look at the two photos; how has sport changed over the last 100 years? You might use some of these headings;

Professionalism, Media, Commercialism, The Olympic Games, Spectators, The Performers, Technology, Globalisation, Sports Science, Equality, Politics, Rules.



LABEL THE FOLLOWING:

- BONES
- TYPE OF JOINT
- CLASSIFICATION OF MOVEMENT
- PRIME MOVERS

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ALL PHOTOS GETTY IMAGES



REACHING HIGH

"Sporting champions is great for helping athletes to give back to the community, but they also help to fund us through what we are doing, people get to meet sporting internationals and we get to share our stories and gain confidence." (Geva Mentor).



Task1: Read the following interview with England Netball's youngest ever player Geva Mentor.

- How did Geva progress to the top of her sport and does it match the player pathway shown in the diagram by England Netball?
- How is elite sport different to sport played at a lower level?

Extension work.

Task2: How does Geva's development within this pathway for Netball compare to another athlete in a different sport? (you may well find this information on a National Governing Bodies website).

Task3: Would a netballer in another country (e.g. Australia) follow a similar path to the top?

Task4: Go to www.england-netball.co.uk and find out how the National Governing Body for Netball encourages 'fundamentals of movement and of Netball'. How does High 5 Netball compare to other governing body games for similar ages?

You were selected to play for England at the age of 15, what was the process for this?

I was actually selected at 15 and gained my first cap at 16. At the time I was playing club and East Dorset County. At a local club tournament they had a few selectors there and I was selected to come along and trial for a talent programme where they have look at you and put you through a few tests. This was leading into internationals against Scotland, Ireland and Wales and I was fortunate to get invited along and I represented the U17 team in 2000 so I had quite a speedy entry into it so from doing it at school then to club and county and then straight into it (international competition). It was at this tournament where the national coach asked me to trial for the national team and at the end of the year I made selection into the national squad. So my story is a fast track through and it doesn't tend to happen often, but rather you go up the age groups, keep trying get knock backed a few times before you get through.

You mention tests, what did these involve?

It was fairly basic ones, like standing a couple of metres from the wall and seeing how many passes you could do in a minute. And having a look at different skills e.g. how far can you throw the ball, we also did the usual test like the vertical jump test, the multi stage fitness test and the medicine ball throw.

When you made you debut for England as a 16 year old how did you handle that physically?

It was against New Zealand and the world's number one shooter! I took in my stride and I was oblivious to what was going on and I just played my game and did everything that I did in training and I guess it's now you look back and when you take the court now you know the pressures and

what could go wrong but in those days I just took the court and played the game that I loved, I always have nerves and I had to control that.

Is the System that you came through still in place today?

Yes it's definitely still possible today, there are more scouts going around to local competitions, there had previously been a tradition that you must play for the under 17's, under 18's and you must go through all the age groups before you play at senior level, but we actually had an Australian coach at the time who said "if you are good enough you will be there" and I think that is still the case nowadays and you can come through quickly. If you need work then you can come up through the age groups and I definitely think it (the system) is better than when I began and now we look at talent rather than age.

Could you outline the history of the netball superleague and consider whether it has been a success?

Yes it started as a super cup played over three weekends, now it is a Superleague which is to provide a higher quality of domestic competition throughout the season from November through to May. England Netball decided that the National Team had been let down by its match play, so now we look to play intense matches week in week out. So the philosophy was to improve the national team but also provide a route through, a target for up and coming players to aspire to. Normally you would play school, club, county, regional then it would be age groupings for England and senior England but now they've (England Netball) changed it, they are keeping club but they have taken out county and put it through to Superleague development, it's a bit complicated at the moment and it hasn't taken full effect. So the league is made up of all the England players throughout the country and the top club/county players. The aim is to also invite whole teams from other countries like the Welsh Dragons and some teams have

invited Jamaican, Australian and New Zealand players. We are following the example from the southern hemisphere and a lot of our England players get approached by the Australian and New Zealand leagues.

You play for Team Bath as part of the University set up, how has the university structure helped you?

It has been my line through. I went up to check the high performance centre and they have a great structure there to help bring players through supporting them whether they are doing a-level's or GCSE's or going to university and finding them a course there and finding them a place to live, it's a netball working career up there; training in the morning, studying in the day and training in the evening. I don't actually go to Bath University but travel up, they have great facilities, great management and it's a big family really.

How would prioritise the development of Netball?

It comes down to money in the end. If you've got media and sponsorship you have got money to build more facilities and to target different areas around the country, but also targeting the other gender getting more males watching and taking part in Netball. Maybe a few celebrity games that would get the media coverage in, maybe the England football team playing the England Netball team on a mutual ground like playing basketball may help to get Netball known.

How do players' fund their participation?

Well National Squad players get Lottery Funding which helps with travelling costs, gym memberships, and training fees so we don't get paid as such. In the Superleague hopefully eventually you will get paid, a few teams have got money and sponsorship so they may get kit. We are looking closely at what Football and Rugby have done and trying to go along those lines

You were part of the commonwealth games team that won bronze, can you tell us about the process of how the team is selected and the preparation that goes into a major tournament?

Netball is set in a 4 year cycle, not much happens in the first year on the international stage, in the second year there is a lot more training and if you are eligible it is the world youth champs. The third year is the Commonwealth Games and the fourth year the World Netball Champs. So as you are going into the third year you are concentrating on the Commonwealth Games and the coach has normally selected a large squad of maybe 16 – 18. As we get closer we will have internationals against the top teams. This year we did a 'dress rehearsal' and we used the first week of the camp as if it was the commonwealth games so we played against different styles to the build up of the semi's and finals at the end of the week and that worked really well. This also involved lots of video analysis. We will look at what the weaknesses and strengths are and we will do this for a couple of hours each weekend. We have quite a big support team; our coach, assistant coach, our manager, our physio, we take a doctor, a video analysis guy and performance director.

How will England improve on Bronze?

By cutting down our error rate, giving the ball away, giving the wrong pass. Shooters will work hard on their shooting statistics getting them up into the 90% and improving our through court defence. We are working a lot on fitness but when it comes to the tournament its working on the actual tactical stuff



England Netball Athlete Development Model Incorporating LTAD (Long Term Athlete Development)

Process for Accessing

Competition	Pathway	Talent Development System for Delivery
International Tours Super League	NATIONAL SQUAD Training to Win	National Coach and National Squad Performance Coaches to support & assist
Super League, Netball Europe U19 Champs	TASS Super League and England U19 athletes Training to Win	National U17 / U19 Coaches Performance Coaches Level 3
Premier League, Netball Europe U19, U17 Champs	TALENT 1 and 2 U17 and U19 Squads Training to Compete	U17 / U19 Coaches Performance / Level 3 Coaches
National and Regional Club Competition	REGIONAL TALENT PROGRAMME Training to Train	Level 2 Coach working towards Level 3
	SATELITTE /COUNTY PARTNERSHIP ACADEMY Learning to Train	Level 2 Coach

FUNDAMENTALS OF NETBALL 9 – 11yrs HIGH 5 FESTIVALS Schools, Junior Clubs, After school sessions	High Five Coach with Fundamentals experience
FUNDAMENTALS OF MOVEMENT 6 – 8yrs MULTI-SKILL FESTIVALS	Fundamentals Coach, teacher/ Adults other than teachers, to cover all sports

www.england-netball.co.uk

“I went up to check the high performance centre and they have a great structure there to help bring players through supporting them whether they are doing a-level's or GCSE's or going to university and finding them a course there and finding them a place to live.”

ARSENAL V LIVERPOOL; MATCH ANALYSIS.

TASK – Optimising Performance

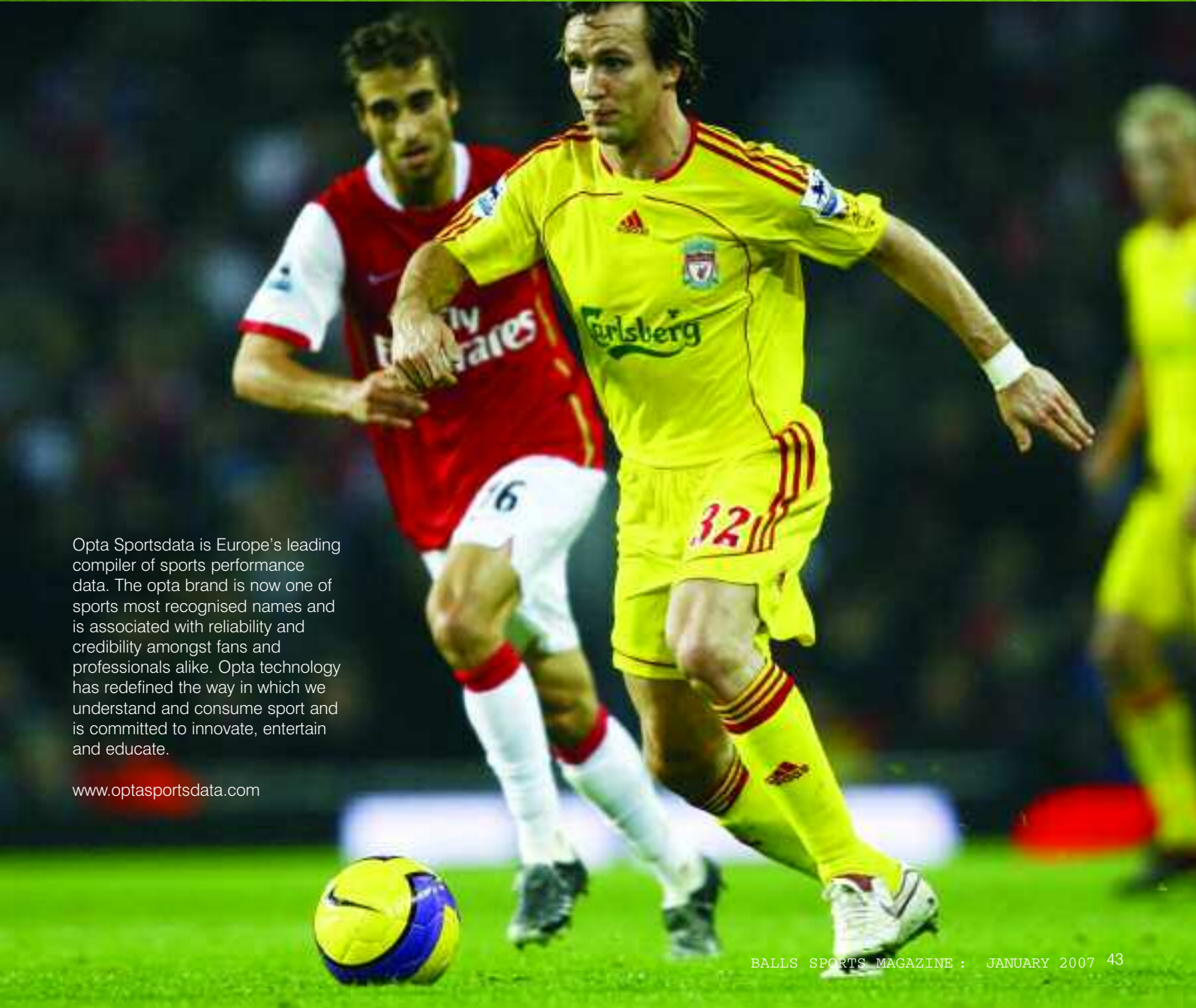
Task 1 – Based on the data shown, and considering that football is said to be a “possession” game, work out the overall pass completion for the red team as a %. Work out the same total for the yellow team. From these two percentages suggest which team should be the eventual winners?

Task 2 – Using the data provided, suggest reasons why there is a vast difference in the number of successful passes made in the player’s own and opposition halves.

Task 3 – Using your conclusions from Task 2, plan a selection of progressive, appropriate, skill based practices to optimise performance for these highlighted weaknesses.

Task 4 – The final result for this game was a 3 – 0 win to Arsenal. Consider your conclusions from task 1 and suggest reasons for this outcome based on the data provided.

	Francesc Fabregas	Steven Gerrard	Thierry Henry	Dirk Kuyt
Total Passes				
total	74	62	27	35
to own player	58	50	19	30
to opposition player	16	12	8	5
Overall pass completion rate %	78%	81%	70%	86%
Passes in Own Half				
total	22	23	7	10
to own player	21	22	5	10
to opposition player	1	1	2	
Own half pass completion rate %	95%	96%	71%	100%
Passes in Opposition Half				
total	53	43	22	29
to own player	37	29	14	22
to opposition player	16	14	8	7
Opposition half pass completion rate %	70%	67%	64%	76%
Crossing				
total	1	4	2	4
to own player	1	2		
to opposition player	1	3	2	2
Crossing completion rate %	0%	25%	0%	50%
Key Passes and Assists				
Key Passes (passes leading to shots)	1	3	1	
Assists	1			



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The Perfect Swing – Tiger Woods

ALL PHOTOS GETTY IMAGES



(01 – Setup)

Tiger Woods' setup position—hands under shoulders as shoulders are parallel and left of the target line. Weight is on the balls of the feet in perfect balance.



(02 – Takeaway)

The Modern Player keeps the club in front of the body during the takeaway.



(03 – Top of Swing)

The top of the swing shows very little hip turn but a tightly coiled upper body. The Modern Swing has a lower, more rounded look. The left arm covers the right shoulder at the top.



(04 – Clubdown)

Note how Woods brings the club down with his body, not his arms, a characteristic of the Modern Swing.

The shoulders are still coiled as the club comes down from a slight inside path.



(05 – Impact)

Woods' impact shows a body swing. The hips are open and the shoulders are square as the arms are extended.



(06 – Post impact)

The post impact position shows the tremendous extension of a player with a body swing. Note how the shoulders are catching up to the hips as the right side is aggressively moving through the shot.



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OBSERVATION & ANALYSIS WORKSHEET



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OBSERVED ACTIVITY: _____ SPECIFIC AREA: _____

The Perfect Model - Insert images from a digital camera or from the internet that show the three phases below. (see Tiger Woods 'Perfect Swing' as an example)

PREPARATION

CORRECT TECHNIQUES

1. _____

2. _____

3. _____

4. _____

EXECUTION

CORRECT TECHNIQUES

1. _____

2. _____

3. _____

4. _____

FOLLOW THROUGH

CORRECT TECHNIQUES

1. _____

2. _____

3. _____

4. _____

Using the PERFECT MODEL images and techniques from above, compare your observed performance outlining the main Strengths and Weaknesses.

PREPARATION

Strengths

Weaknesses

EXECUTION

Strengths

Weaknesses

FOLLOW THROUGH

Strengths

Weaknesses

Balls Sports Magazine interviewed Olympic 4x100 Relay Gold Medallist Darren Campbell on a range of topics read his answers and gain an insight into the thoughts and views of one of Britain's best ever athletes. Get ready to be inspired.

DARREN CAMPBELL



Darren Campbell on Team Spirit

The four guys have to trust one another, and each other's skills and abilities. Maybe the guy who you're running to does not get away out of the relay box as quick as another guy, you have to be fully aware of this. Jason Gardener who runs the first leg knows that my first three steps are not very quick but after that I accelerate extremely quickly so basically you have to be aware of that but you only become aware of that by practising this and then you fully understand what the person is capable of. In that same respect when I go down the back straight Marlon Devonish knows that I am not going to decelerate so he has to get out of the box as quick as he can as I'm going to be running all over him.

I think it (team spirit) comes naturally to someone like me because I have played a team sport, but we have to be honest, athletics is an individual sport and the three guys that you're competing with in the relay are normally your rivals. For that one moment at a major championships you have to forget all the rivalry and the fact you want to be an individual or he won the gold and you didn't, for that moment in time you have to let all those inhibitions go and forget them and come together as a team and when it's all said and done you have to be willing to die or hurt yourself for each team member.

If you ask me the four of us who won the Olympic gold medal are we the best of friends? the answer would be no. As we come together as a team we become friends and that's professionalism of being a 4x100 relay runner, no matter what you feel about a certain individual when you step out on to that track and the four of you have to go and do battle together then you know that has to be created and pretty much if

you're not willing to go out there and perform for the other three guys then you're not going to be in the team. So pretty much the British Athletics success has been based on the fact that when we all come together we have to be as one and that's why we can beat the Americans and we know that. On top of that we do practise extremely hard because we know we're not as fast as the Americans but if we can increase the speed that we pass the baton then were ahead.

... On Competition

When you're preparing for your individual event you're pretty much in your own world, you may put on your headphones, walk around the track and see all your rivals, totally ignore them and walk around as if you're the most confident person in the world. You walk around with no fear, you fear nobody and you're totally 100% focused on what you have to do. Where as a relay runner, especially myself who is kind of the team captain, I pretty much keep an eye on everybody, if someone is not walking around confidently as they need to then I will go and say pick yourself up for this, you have to do this, it's knowing what words can inspire somebody to go out there and pull out a performance which they wouldn't necessarily deliver. Prime example, going out before the Olympic final, I pretty much sat there and said to everybody we're all in a situation now where we have all messed up individually and we have nothing to lose but just imagine what it would be like leaving the stadium being Olympic champions. If you don't think about it then you can't visualise it and you can't believe that it's possible. You just saw everyone's fate change, the reality is we had another opportunity to go out there and achieve something, and especially achieving something that nobody believed was possible.



“The 100m bronze in 2003, nobody thought I could achieve that but I did. I really believed it.”

... On Confidence

I knew, I knew (that we would win gold), but my make up is totally different to a lot of people so for me I knew, I knew, I believe that god loves a tryer, the games had been terrible from the training camp where I tore my hamstring so to be able to get the opportunity to compete in any of the events had been extremely rewarding for me and I just believe that there's a moment in time that if you stand up and be counted then anything is possible and we created a team spirit that I don't know if it will ever be created again but we were all on the same page because for once I got them believing that we could be Olympic champions, whether they believed that as an individual I don't know but as a team that we could go out there and be Olympic champions.

... On Sports Psychology

I think it can be taught but then the teacher has to be somebody like Linford Christie, I would like to believe in a way that the teacher would have to be somebody like me because I have done it, I have visualised it, believed it and I have delivered it, so for me to speak about it is easy. I have already believed that the impossible is achievable. It's backed up. I have won an Olympic silver where nobody thought it was possible so I know that there is a moment in time where if you stand up and have no fear anything is possible. The 100m bronze in 2003, nobody thought I could achieve that but I did. I really believed it. I have had moments in time that have shown me that if I believe it doesn't matter what anyone else believes because if I believe who's to say it can't happen. To a degree I am in control of my destiny and I know that if I give 110% then who knows what's possible. If I give 90% have I really got a chance in achieving?

What people seem to forget sometimes is that I have never ran under 10 seconds or 20 seconds but I'm the most successful behind Linford Christie in Britain.

When I stepped on that line in the final I had no fear. My record speaks for itself, I have no fear, because that's what I have trained for 6-9 months, that's what I have dreamt about for 6-9 months, when I step on that line how can I be scared? What's there to be scared of?

What I have tried to do is remember when I was a kid, when I was a kid I just went out there and ran and had no fears. When you get older you create your own fears. That's why Wayne Rooney is such a great player; he just goes out there and expresses himself just as he probably did when he was 13/14.

... On Observation and Analysis.

We look at parts where you can improve it, maybe that Jason Gardener has given me the baton early in the box, so that means it can be

extended so I will take my mark one more step out which means he will give it to me as I'm approaching top speed because basically that's where we become one of the best in the world, because we try to give the person the baton when their at top speed. It's harder to generate speed once you have the baton in your hand.

We are extremely fortunate in the respect that the coach that we have, Steve Perks, basically treated us like adults, human beings. One of the things we regularly do after training sessions or after a race we would get the video straight away and analyse it and work out where we went wrong and where we can improve and little things like that.

You can only control what you can control, if you watch another team it can give us a false reality of what's really going on. You can only control yourself; you can't control what they do. We can put them under pressure by making our changeovers seem quicker even though were not as fast, hence giving the baton earlier and quicker, it puts their change over under pressure even though they're probably still in the lead.

... On Tactics.

I'm probably the strongest leg runner, because I'm one of the few that run the 100/200metres, that's why I run the back leg as it's the longest and I can hold my top speed for longer which then means I can give Marlon Devonish a good acceleration, I wait until Marlon is pretty much at his optimum acceleration before I give it to him, but I will give it to him so quickly that if the Americans look over it will seem like we're level or ahead which creates the panic. Its not something you work on but I was racing Justin Gatlin on the back straight and Justin Gatlin had just ran 9.8sec so there is no way I should give my baton to my guy before Justin Gatlin.

“You can only control what you can control, if you watch another team it can give us a false reality of what’s really going on.”



... On Training.

We try to meet three or four times before the actual championships, normally we try to sit down around winter periods, December/January and work out where we're going to try to race as a team and how many relay squad sessions we can put together where we all turn up. When you're all sitting round a table it's then not the case that someone feels the favourite, we try to keep everything out in the open, so that way nobody gets upset.

There is a squad of 8 and our team ethos is that every athlete can run every leg.

Basically I can run any leg and I pretty much have, back when Linford was there, I have ran first, third and last leg and one of my beliefs is that every athlete should do that because no athlete should go that's my leg, that's where I want to run because then you're not a team player are you?

Some one may get hurt but you always have back up if some one gets hurt, but it builds up team spirit because no one is guaranteed a spot anywhere.

... On Coaching.

Well I would like to believe I am already involved to a degree, one of the latest sprinters in the team, he pretty much trains with me and I advise him and help him out with sessions and stuff. I think its one of those things that I believe in passing on. Every athlete deserves an apprentice, if you can serve it under someone who has been there and done it then its easier then isn't it?



... On Experience and ‘Flow’.

When you're at a major championship I believe that's when you reach your subconscious, if you have trained 9 months for that championships you should have already made every mistake that you're going to make so give your body an opportunity to go out there and make it happen. So to be honest with you by the time you get to the championships if I am thinking anything I don't think I'm ready to run.

I use the analogy all the time that once you have past your driving test and you have been driving for a couple months, you don't get into the car and think right I have got to turn the engine on, indicate, put into gear, and break. Some of these are not instincts i.e., if a dog runs into the road then all of a sudden you will swerve, it's not a natural occurrence. I use it in the same way, at the end of the day once you learn to drive you don't think about driving so when you're someone like me you get who gets in a major championships then pretty much all you need to concentrate on is reacting once the gun goes.

To me, I know everybody doesn't think this way but the way I have always looked at it is that I have got 10 seconds, so if I think drive, drive, drive, relax, relax, relax etc then that's a lot of things to think in 10 seconds. I want to be focused in what I'm doing. Then again, the best footballers already know what they're going to do before the ball gets there.

I have been in that situation a thousand times before so what's there to think about? The starter is going to say on your marks, get to your blocks, get set and get in the get set position and the gun is going to go. I know a lot of sprinters don't think that way; you would be very very surprised. But I also know that a lot of the top sprinters think that way because that's how you create relaxation.

I am now finally understanding everything that I have ever done. I would say in regards to training I know that I don't have to kill myself, well hopefully in the twilight of my career I shouldn't pick up as many injuries because I realise that rest is as important as training.

TASK

Choose one of the topics that Darren discusses; explain how and why this has optimised his performance (500 words).

How to win an Olympic Gold Medal.

What is the difference between silver and gold? Between good and great? What factors must be in place for an athlete to achieve their ultimate dream? Balls Sports Magazine asked those who know! Winners in Athens 2004; Steve Williams, Olympic gold rower and Chris Hoy, Olympic gold cyclist reveal the answers.

CHRIS HOY

FITNESS

In your opinion which component of fitness is the most important for an Olympic 1Km Time Trial Cycling gold medallist?

There isn't one component of fitness that you could single out. To be a world class kilo rider you need a combination of explosive power, speed, lactic tolerance plus a high aerobic capacity. If you are weak in any of these areas the performance will suffer as a result.

PREPARATION

In the 2004 Olympic final the difference between gold and silver was just over one second, what makes the difference between silver and gold?

The difference was only 0.17 seconds. This small margin which separated the gold and silver comes down to the attention to detail and optimisation of every conceivable area which contributes towards

performance. If you go to the startline knowing that you have prepared as well as you possibly can, then it gives you confidence. I certainly wouldn't have wanted to cross the finish line in 2nd place and think that there was something I could have improved upon.

SPORTS PSYCHOLOGY

You must be mentally tough. Is this innate or in your experience has sports psychology had a benefit?

Both. You develop your own methods of dealing with whatever life and sport throws your way; this is often down to your character or personality. However, using certain psychological techniques it is possible to manipulate the way you react in certain situations so that you can get the best out of yourself. I have always been a very determined person and never struggled with motivation, but dealing with nerves and anxiety on race night was sometimes a problem, so I sought advice on how to deal with it. It certainly helped on the night of the Olympic final in Athens, I've never experienced a more stressful and nerve-wracking situation in my life and hopefully never will!

Is it important that the cyclists in a team sprint team 'gel' or is team

cohesion less important than outstanding individuals? You need to gel together to get the best out of each other. It is possible to do minimal training as a group and still perform well, but in an ideal world the trio would spend plenty of time preparing together.

SPORTS SCIENCE

Can you explain the impact Sports Science has had on British Cycling?

It has meant that all areas of performance have been stripped down and their components analysed in an objective way to see how they can be optimised. It reduces the guesswork and gives the riders' confidence knowing they are getting the best possible advice.

NATIONAL GOVERNING BODIES

British Cycling Director of Performance David Brailsford has been quoted as saying "I am ruthless. If we have an athlete on our programme who is going to finish eighth I'd prefer to give that money back and give it to someone who's going to finish on the podium in another sport. The low positions do not interest me. I am only interested in medals."

What is your view on this?

I agree completely. At the end of the day it's all about winning medals. And gold ones for that matter. Obviously it depends on the stage of the athlete's career; if you had a 19 year who placed 8th at the World Championships you wouldn't kick him off the team as the potential to improve would be there. On the other hand if you have a rider in their 30's who isn't showing any signs of ever winning at the highest level, then why waste the resources on him when it could be better used to develop potential elsewhere.

PHYSIOLOGY

What is the perfect physical build/somatotype for a 1Km Trail Trial Cyclist?

A 1km TT rider needs to be a sprint type athlete with a high percentage of fast twitch muscle fibres. The rider also needs to have a big 'engine' ie be able to sustain a very high power output just below maximum for extended sprints of around 1 min. The best kilo riders are typically around 5'10" to 6'3" and weigh 85-95kg. As the power mainly comes from the lower limbs, it tends to follow that they will have large legs and glutes plus a strong 'core' to stabilise the lateral movements.

SPORTING STRUCTURE

As an amateur sport how are cyclists funded to train and compete at the highest level?

This is no amateur/pro divide anymore, just 'elite'. The national lottery sports fund is the main way in which athletes are financially supported. If the athlete is successful they can also gain personal sponsorship.

SOCIAL INFLUENCES

Which other people have had a significant impact on your success and how?

My family have been a huge factor in my cycling career; just having the support all along the way has been invaluable.

“At the end of the day it's all about winning medals. And gold ones for that matter.”





STEVE WILLIAMS

FITNESS

In your opinion which component of fitness is the most important for an Olympic rowing gold medallist?

Rowing is a power endurance sport. The Olympic rowing final is about six minutes long so it's neither a sprint nor a marathon. Therefore a rower's physiology has to be balanced between explosive power and a large aerobic capacity for good endurance. As there is a trade-off between power and endurance the balance is critical – too much power compromises endurance and vice versa.

PREPARATION

In the 2004 Olympic final the difference between gold and silver was 8 inches, what makes the difference between silver and gold?

Our preparation covered hundreds of different facets of our performance from things that would make a big difference right down to the things that just might make us go 1/10th of a second faster. I couldn't put my finger on what made the difference and yet if one of those things was missing then we wouldn't have won. Generally speaking then I'd say winning requires relentless attention to detail.

SPORTS PSYCHOLOGY

You and your team must be mentally tough. Is this innate or in your experience has sports psychology had a benefit?

I think individuals are either naturally competitive or not; either like to push themselves or don't. From that starting point though sports psychology is one of the tools that can be used to make the most of those natural instincts. Whether it's in racing, training or away-from-training, being in control of your mind is a crucial part of preparing for competition.

Is it important that a coxless four team 'gel' or is team cohesion less important than four outstanding individuals?

Teamwork is the key component of rowing. Individuals not only have to row to the best of their ability but also row in a way that complements the other three in the boat and allows them to row to the best of their ability as well. To get the boat going as fast as possible the team has to row in complete harmony and synchronisation with each other. It is not uncommon to see a crew of outstanding individual athletes loose to 'lesser' individuals who row better as a team.

SPORTS SCIENCE

Can you explain the impact Jurgen Grobler has had on British Rowing?

Jurgen has developed the use of science in training methods. The training programme is clearly targeted towards different levels of intensity and is more endurance and volume rather than intensity based.

He has created a structured squad system. A squad of athletes train together centrally every day under Jurgen's supervision. This is important to measure athletes' performances and create a competitive culture within the team.

He has developed a support system from high performance experts including medical, science, psychology, nutrition etc.

PHYSIOLOGY

What is the perfect physical build/somatotype for a coxless four rower?

Because of the specific characteristics of training and racing there is no one perfect somatotype for a rower. Instead rowers will have physical characteristics from each of the Mesomorph, Ectomorph and Endomorph.

A rowing race is six minutes long and is 90% aerobic and 10% anaerobic. The demands of a high aerobic thresh-hold mean training is endurance based which itself is dependent on fat reserves as fuel.

Rowing is all about the mechanics of levers being used to propel the boat through the water. Therefore it is an advantage for rowers to have long arms and legs.

“All rowers at the top of the sport will have one or more individuals to thank for the significant role they have had in identifying, developing and supporting them on their pathway to success.”

Task

Using the headings in the article (and any others you feel are appropriate) research a sports performer of your choice and conclude the factors that have helped them reach the top of their sport. What are the similarities and differences between them, Chris Hoy and Steve Williams?

SPORTING STRUCTURE

What impact has the University sporting structure/rowing club system had on the success of you and Britain's other elite rowers?

British senior team athletes train together centrally as a squad but universities and clubs have a key role in recruiting and developing for the sport. In addition National Lottery funding has recently be used to set up Talent I.D. and 'Start' development programmes which are run by the national federation.

As an amateur sport how are rowers funded to train and compete at the highest level?

British rowing is funded by the National Lottery. This covers money for coaches, trips to train and race, equipment and support from science, medical and management. But most importantly National Lottery funding includes subsistence grants for rowers which enable them to train full-time without the pressure of having to work to make ends meet. We train three times a day, seven days a week and we are out of the country for 100 days of the year for training and racing; all this would not be possible without Lottery funded athlete grants. In addition to Lottery Funding the more successful crews are increasingly attracting commercial sponsorship.

SOCIAL INFLUENCES

Which other people have had a significant impact on your success and how?

All rowers at the top of the sport will have one or more individuals to thank for the significant role they have had in identifying, developing and supporting them on their pathway to success whether they are family, friends, teachers or coaches.

Successful athletes depend on a solid support structure; friends and family who encourage you in tough times and provide balance in your life away from rowing. The best ones are also understanding of the fact that rowing has to come before them a lot of the time.



UP AND COMING

Katy Livingston is Balls Sports Magazine’s tip for the top in London 2012, find out why.

Editors Tip;
See how many of Katy's answers relate to the content of the specification that you are studying; use them as examples in your homework or revision notes.

IMAGES ARE KINDLY PROVIDED BY THE PROFESSIONAL SPORTS GROUP

Training for a multi-event sport such as Modern Pentathlon must be very complex. Can you describe a typical week’s training?

As Modern Pentathlon consists of 5 separate disciplines, our daily training regime is tough. We regularly train for 4 or 5 of the different sports each day. Our competition season runs from Feb to September, so sessions become more technical and specific during these months. Throughout the Winter months we build up our endurance and attend fencing related training camps abroad. One of my favourite training camps is a fortnight altitude training in Font Romeu where we do cross-country skiing which builds up a good base level of fitness for the following year.

An Example Day

0830	Get up
0845	Breakfast
0930 - 1020	Shooting practice
1030 – 1200	Swimming session
1230	Lunch
1330 – 1430	Riding Lesson / Gym
1600 – 1700	Running session
1730 – 1800	Fencing lesson
1830 – 2000	Fencing freeplay session
2030	Home and Dinner

Which components of fitness and psychological attributes are vital for a successful modern pentathlon performer?

Apart from the obvious need to have a good balance between aerobic conditioning and anaerobic strength in order to compete across the spectrum of events, it is also necessary to have good core stability.



The majority of my gym based work is focused on core stability, which enables me to build a strong physical foundation and also helps me maintain posture and form when tired. Without it my muscles wouldn't work as efficiently.
Psychologically, the hardest factor in modern pentathlon is the need to be calm and calculated at some moments, such as the shooting and horse riding, and determined and aggressive at other times, such as the fencing and when preparing for the swim and run. The ability to go from one state to another and still remain in control is a major attribute for a modern pentathlete.

At an early age you participated in a lot of sports. How did you become involved in Modern Pentathlon? Were you 'spotted' or did you decide it was a sport that best matched your talents?

I started competing in Biathlons (running and swimming) at the age of 12 because they were organised by my swimming club. Having been successful in Biathlons, I took up pistol shooting in order to compete in Triathlons. Then at the age of 14, my dad encouraged me to learn fencing and agreed that if I enjoyed it he would fund horse riding lessons in order for me to compete in the full Modern Pentathlon event (swimming, running, shooting, fencing & riding). Due to my success in the Tetrathlon event, I was spotted by the British Women's coach who encouraged me to train full time under his coaching which I have been doing for the past four years.

London 2012 must be a great incentive for you. What are your aims and goals for 2012 and the years leading up to it?

Competing and winning a medal in London 2012 Olympic Games is my ultimate goal. Modern Pentathlon is a sport in which experience is crucial to success, so over the next six years I aim to build up as much experience as possible through competing in World and European Championships, hopefully picking up some medals along the way.

What effects do you think London 2012 will have on your sport in the years before and after the games?

Our sport has a experienced a huge amount of success is recent years, especially in the women's team. Since the inclusion of the women's event at the Sydney 2000 Olympic Games, where British women picked up Gold and Bronze, Britain has produced a world champion, two European champions, three world cup winners, a junior world champion and countless team and relay medals, not to mention a bronze medal at the Athens 2004 Olympic Games! Unfortunately in a country dominated by rugby, football, and cricket this success has gone largely unnoticed by the media and general public. Similar success in athletics or swimming would have led to house hold names for our Pentathlon medal winners. In the run up to London 2012, however, this should change as the British public will begin to take notice of so called "minority sports" and will hopefully throw their support behind Team GB. After the Games the potential impact will depend largely on what results we are able to achieve, it will be hard for a British Olympic Champion at London 2012 to fade in to the background!

Revision games

Test your students' ability to understand concepts and to learn key words and definitions. Here we have used 'Training' as the theme but any definitions from your specification can be used. Try the three games outlined below and let us know of any others you use; info@balls-sportsmagazine.co.uk (Subject: Revision Games).

Did you do examination PE at your school?

Studying PE as a GCSE was not available at my school, however I did go on to study it at A-Level, in which I gained a grade A.

How do you currently fund your training and participation at such a high level?

Five very different sports means lots of different kit, and lots of training time, so funding is essential if I am to train to my potential. I am funded by the UK Sport World Class Olympic Podium Programme. This programme currently supports 11 UK Pentathletes in their training and competition programmes with the aim to win medals in significant international competitions now and within the next 4 years. Support is provided through a performance programme with the governing body and an athlete personal award. UK Sport also works closely with partner organisations to ensure that athletes benefit from the best possible coaching and sports science & medicine support.

Which is your best sporting memory from a previous Olympic Games?

My favourite sporting memory from an Olympic Games is a recent one. Watching Kelly Holmes cross the line to win her second Gold medal in Athens 2004 was not only exciting but very inspirational. I will never forget the look of amazement on her face as she realised the enormity of what she had achieved.

Apart from yourself who is your tip for Olympic Gold in London 2012?

I think Becky Lynne looks a very exciting prospect for a Gold medal in the 800m event in 2012. This year she has started to show what talent she has, and I think the experience over the next six years will only make her stronger.



Game One.

In Pairs, Student A has the cards and has to describe the word so that Student B can guess it. They are competing against the other pairs in the group to see who can complete the set first.

Rules;

- Student B only gets one guess per card, if they pass or get it wrong Student A puts the card to the back of the pack and reads the next card.
- No miming, No hand gestures, No "sounds like", No using words on the card.

Game Two.

Stick the cards randomly on the white board. Students are put into teams and like 'Family Fortunes' one member of each team comes out and stand with their back to the board.

The teacher or another student describes one of the words and when the definition has finished the students have to turn around and grab the correct answer. You may let other members of the class call out the answer after 3 secs. The winning team is the team with the most cards.

Game Three.

A game for 2 teams. Team A and Team B both have a set of cards that they will eventually give to the other team. Before they do they can write 3 words on each card that the other team will not be allowed to use when describing the word to their team.

For example on the Multi-Stage Fitness Test card they might add; Maximal, VO2 Max and 20 metres.

The teams then have to describe the words to their own team without using the extra words.

Turn the page for the cards.

WISE WORDS



STRENGTH



ENDURANCE



BALANCE



SPEED



INTENSITY



DURATION



REPITITIONS



AEROBIC FITNESS



AGILITY



CO-ORDINATION



REACTION TIME



FLEXIBILITY



**ANAEROBIC
FITNESS**



WEIGHT TRAINING



CIRCUIT TRAINING



INTERVAL TRAINING



POWER



BODY COMPOSITION



SPECIFICITY



PROGRESSION



**FARTLEK
TRAINING**



**CONTINUOUS
TRAINING**



**ALTITUDE
TRAINING**



**MULTI-STAGE
FITNESS TEST**



OVERLOAD



REVERSABILITY



TYPE



FREQUENCY



VERTICAL JUMP



**ILLINOIS AGILITY
TEST**



**SIT AND REACH
TEST**



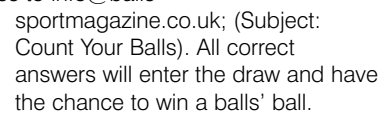
**COOPER
12 MIN RUN**

GUESS WHO.

GUESS

Simple rules; the bigger the head gear, the bigger the points.

How many photos of balls appear in the issue (not including the one here or any that appear in the adverts)? Email us your answer and postal address to info@balls-



Congratulations to last issue's winners; Rebecca Low, Zoë Card, Shane Evans and Miss Michelle Bacon.



5 POINTER

10 POINTER



15 POINTS



20 PC



AND THE 'BET YOU
DON'T GET IT' 50
POINTER

How well did you do? Find the answers on the page opposite.

Enter our amateur photo competition
and have your photo published.

Balls Sports Magazine invites you to enter a photo under the title 'SPORT'.

Your image can be anything that you believe captures the wonderful emotions, passion and excitement sport offers.

The winning entries will then have their photo published in our next edition and feature in our examination revision calendar.

11 Runners-Up will receive a Balls' Ball.

1st Prize is a limited edition signed framed print by 'Jackson' worth over £100 as shown above. (www.jackson-art.co.uk)



Prediction game...

Well not surprisingly Balls Sports Magazine have taken an early lead with Male Students bottom of the table. How well will you do this issue against your class mates? Think you know your sport? Lets see how you get on!

Current Table.

1.	Balls Sports Magazine	16
2=	Female Students	11
2=	Sports Stars	11
2=	Teachers	11
5	Male Students	1

Below are another 6 sporting predictions required for the next couple of months, don't let your teachers beat you!

The Line Up.

Sports Star: He may be celebrating here but will UK Street Luge Champion Len Stokers be after these prediactions!

Teacher: Will experience tell? Mr David Leggett PE teacher at St Bedes in Hailsham, East Sussex has the task of representing the teachers.

Male Student: The boys in the AS group at Forest School, Wokingham are hoping to get the boys out of the relegation zone.

Female Student: Can Ellen McIlvor of The Abbey School, Reading keep the girls challenging for the title?

Balls Sports Magazine: Expect us to remain at the top!



Event	Rules	Sports Stars	Teachers	Male Students	Female Students	Balls	YOUR PREDICTION	CORRECT RESULT	POINTS
AUSTRALIAN TENNIS OPEN WINNER FEMALE:	5 POINTS IF CORRECT 1 POINT IF RUNNER UP	JUSTINE HENIN-HARDENNE	MARIA SHARAPOVA	AMELIE MAURESMO	AMELIE MAURESMO	JUSTINE HENIN-HARDENNE			
WHICH TEAM WILL BE BOTTOM OF THE PREMIERSHIP AT THE END OF FEB?	5 POINTS IF CORRECT 2 POINTS IF SECOND TO BOTTOM, 1 POINT IF THIRD FROM BOTTOM,	CHARLTON ATHLETIC	WATFORD	SHEFF UTD	SHEFF UTD	WATFORD			
HOW MANY POINTS WILL SCOTLAND GET AGAINST ENGLAND IN THEIR SIX NATIONS RUGBY UNION GAME?	10 POINTS IF CORRECT 5 POINTS IF 5 OR LESS AWAY, 1 POINT IF 10 OR LESS AWAY.	12	15	14	15	20			
WHICH TEAM WILL BE LEADING THE BRITISH BASKETBALL LEAGUE AT THE	5 POINTS IF CORRECT 2 FOR SECOND 1 FOR THIRD	LONDON UNITED	SHEFFIELD SHARKS	WORTHING THUNDER	BIRMINGHAM BULLETS	GUILDFORD HEAT			
WHICH TWO TEAMS WILL MAKE THE CARLING CUP FINAL?	5 POINTS FOR EACH CORRECT TEAM.	LIVERPOOL CHELSEA	LIVERPOOL SPURS	LIVERPOOL SPURS	ARSENAL CHELSEA	CHELSEA SPURS			
WHERE WILL ANDY MURRAY BE RANKED IN THE ATP TENNIS RANKINGS AT THE END OF FEB	10 POINTS IF CORRECT 5 POINTS IF 3 OR LESS AWAY, 1 POINT IF 5 OR LESS AWAY	2	17	18	12	18			
TOTAL POINTS	MAX: 27								

Not happy with your group's performance well come and have a go yourself! Email us at info@balls-sportsmagazine.co.uk (Subject: Predication Game).

Guess Who Answers:
Martin Johnson (5 Points), Zara Phillips (10 Points), Jensen Button (15 Points), Freddie Flintoff (20 Points) and 'the bet you didn't get it' Henrik Lundqvist (50 Points).



Top 5 Controversial Olympic Moments

Deputy Head teacher Paul Marshallsay remembers the Olympic scandals of the past and gives his top 5.

The Olympic Games is supposed to be a showpiece for sport, free from political interference and scandal. Over the years this has proved to be far from the truth as controversy has followed closely on the heels of the Olympic ideals. Here we go with our top 5 controversial moments of the modern Olympiad, we're sure you'll have your own ideas, let the debate begin!

Number 5: The Winter Judging Scandal (Salt Lake City 2002)

This one may not be quite as famous as some of the others, but it certainly is controversial.

The Winter Olympics always have a lot of sports that involve judging, something that was bound to make our top 5! In Salt Lake City the pairs figure skating was going along on its elegant way and everyone agreed that Canadian duo Jamie Salé and David Pelletier had performed better than anyone else. Everyone, that is, apart from the judges!

The marks came out and the gold medals were awarded to Elena Berezhnaya and Anton Sikharulidze of Russia. What followed was a catalogue of appeals and complaints followed by one of the judges admitting that she'd been 'leant on' to award marks to the Russians.

It all ended with both sets of pairs with gold medals and a lot of red faces from the officials.

Question: Should sports that are judged be allowed in the Olympic Games? What other examples of bribery exist in Olympic history?

Number 4: The Cold War Boycotts (Moscow 1980 and Los Angeles 1984)

At the height of the Cold War in 1979 the Soviet Union (a large number of occupied countries around and including modern day Russia) invaded Afghanistan. In protest the USA decided, along with several other high profile countries, to boycott the Moscow Games of 1980.

Four years later the Olympics were set to be in Los Angeles on the Western coast of the United States. You've guessed what happened, the Soviet Union and many of their supporters boycotted them back!

This bit of tit for tat Cold War, cold shoulder action goes in at number 4.

Task: Find out if there have been any other boycotts during the Olympics.

Number 3: Terrorist Attack (Munich 1972)

The most tragic event ever to hit the Olympic Games occurred at Munich in 1972. The peace and preparation associated with the Olympic village was shattered as Palestinian gunmen broke into the Israeli area and killed two athletes. They kidnapped nine more and barricaded themselves into a building.

Angry at the occupation of their country the terrorists refused to move. Armed German police stormed the building and a gun battle ensued. All nine Israeli's were murdered as well as five of the Palestinian's and one policeman.

The events were tragic but the real controversy occurred during and afterwards as the authorities decided that they would carry on with the Games. Questions were asked from many quarters as to whether this was the right course of action.

Question: Were the authorities right to carry on with the Games after the deaths? What decision would you have made?

Number 2: Black Power Salute (Mexico City 1968)

The Olympics has often been a platform for racial tension as was proven at Mexico City in 1968. All seemed well as Tommie Smith and John Carlos of the USA mounted the rostrum to receive their medals in the 200m.

As their national anthem was struck up they thrust their fists into the air in a 'Black Power' salute. The gesture was a protest about the denial of human rights for black people in their country; it was designed to be seen on an international stage for maximum impact.

The two athletes were immediately sent home and never competed for their country again. But despite this they are now seen as heroes by many around the world and take a deserved number 2!

Question: Was the Olympics the correct stage to put across their political protest? Would you use the Olympic stage to highlight something you believed in?

Number 1: The Sprinting Cheat (Seoul 1988)

Millions of viewers around the world held their breath as famous sprinters lined up for the final of the 100m in Seoul 1988.

The favourite was Carl Lewis, set to take more than one gold medal back to the USA that year. Next to him the squat, muscular figure of Canadian Ben Johnson paced up and down like a caged lion. Further along a young Linford Christie strutted around, hoping to bring home a medal for Great Britain. The starter brought them to their marks and they settled, poised for the race.

The gun sounded and Johnson leapt from his blocks with unbelievable power, flying ahead of the other athletes and building an immediate lead. He stretched away, leaving Lewis and Christie to see only his back as he sprinted to a new World Record and into the history books.

His fame would not be secured for ever by this great race, but by the events that happened less than 48 hours later. It soon became apparent that his body was pumped full of steroids, the performance enhancing drug that explained his amazing physique.

Johnson was stripped of his medal and World Record. The most famous drugs scandal of the twentieth century deserves to be in at number one!

Task: Find out about at least one other athlete who has been caught using performance enhancing substances at the Summer or Winter Olympics. What performing enhancing drugs did they take? What effects would this have had on their body?

Agree or disagree with Paul? Email us your thoughts (info@balls-sportsmagazine.co.uk Subject: Letters).

LEARN FROM THE LEGENDS

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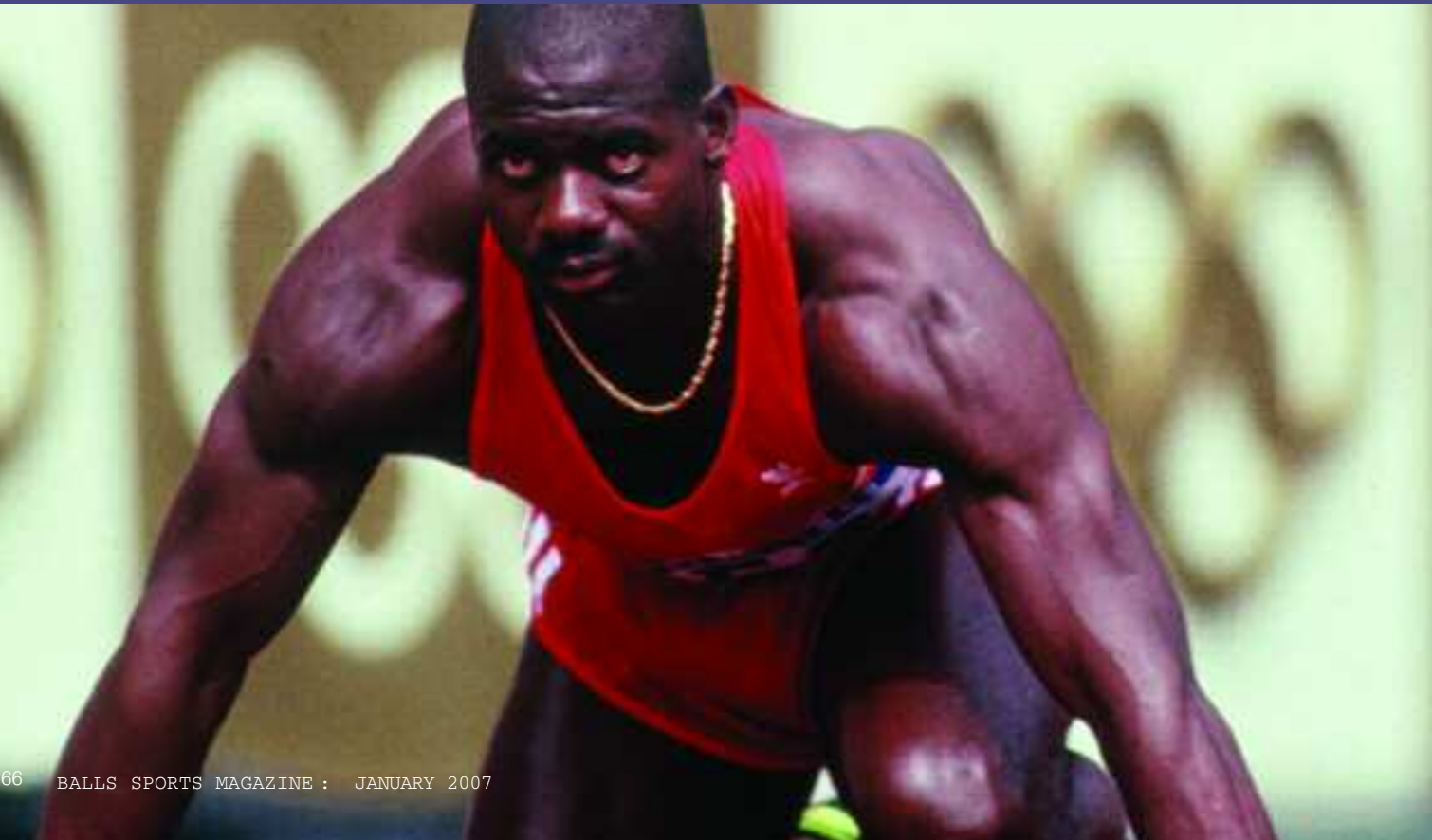
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