

KEY STAGE 2: Session Three – Hydration and Exercise

Learning objectives:

- To discuss the relationship between sugary drinks, specifically sports and energy drinks and physical activity
- To familiarise pupils with sports and energy drinks and the sugar content they have
- To discuss the best drinks for hydration and recovery and how that impacts on education and sports performance

Resources:

- GULP 'Hydration and Exercise' PPT
- X30 GULP Quizzes
- Eggs in Pop experiment from Session One

PART ONE: POWERPOINT SESSION

Slide	Information
1	• Explain to the children that you will be talking about hydration and why it is important to drink water in terms of educational attainment and sporting performance
2	• Briefly recap last week's session – ask the children if anyone used their Sugar Detective skills at home
3-4	• Quick-fire question – explain to the children that Mountain Dew is one of the most sugariest drinks available, containing 17 sugar cubes (almost twice as much as a can of Coca-Cola)
5	• Ask the children if they play sport of an evening or at the weekend. • Ask the children what sorts of drinks they think help them to perform. Talk to the children about the importance of drinking water and how sweat releases heat from our bodies
6-8	• Quick-fire question • This is a trick question – both Lucozade Sport and Monster Energy contain a lot of sugar
9	• Tell the children that sport and energy drinks both contain lots of sugar and this is no different to the sugar found in Coca-Cola • Ask the children what effect too much sugar can have on our teeth
10	• Use the example of Premier League footballers to illustrate that even elite sports people can and do suffer from tooth decay through consuming sugary drinks on a regular basis – many have missed important matches because of this!
11-12	• Tell the children that sports and energy drink manufacturers want them to consume their products during exercise • Explain to the children that unless they're running a marathon (26 miles) scientists say we only need to drink water

13-15	• Ask the children if they have they tried sports drinks before • Ask them who has had one of these drinks before playing sports • Tell the children that the high levels of sugar in these drinks might make them feel energised for a short while but often your energy levels will dip afterwards – ask the children if they have ever experienced this dip • Summarise with the characteristics of sports drinks
16-17	• Ask the children if they have they tried energy drinks before • Ask the children what type of sports these energy drink manufacturers sponsor – how would you describe these sports and why are they appealing • Explain to the children energy drinks contain caffeine. Ask the children where do we usually find caffeine? How does too much caffeine affect us? It can make us hyper or irritable and is addictive. If your body gets used to caffeine you might develop headaches and become grouchy if you don't get it.
18-19	• Talk to the children about the types of sports and energy drink manufacturers sponsor and why – are there any other examples they can think of • Ask the children what drinks they would choose instead of sports and energy drinks during sport • Summarise with the characteristics of energy drinks
20-21	• Quick-fire question
22-24	• Tell the children that after exercise it is vital that we take in the right nutrients for growth and repair • Milk is one of the best post-exercise drinks as it contains protein, vitamins and minerals as well as hydrating us • Remind the children that milkshakes, such as Friji, can contain large amounts of sugar • Finish by explaining one 200ml glass of semi-skimmed milk contains as much calcium as 63 Brussel sprouts
25	• Summarise the session
26	• Hand out and then collect the GULP Quizzes – this should take approx. 10 minutes
27	• Get the Eggs in Pop experiment back out to show the class • Allow the children to compare the effects of each drink on the outer shell of the egg – ask the children if they can remember what this represents (tooth enamel)
28	• PART TWO: Physical Activity session – see overleaf or Physical activity booklet

PART TWO: PHYSICAL ACTIVITY SESSION

Activity 1: High-dration

Progression 1

- Ask the children to stand feet shoulder-width apart, arms by their sides and to try to jump as high as they can – they are not allowed to use their arms to jump
 - This represent how difficult sport and exercise can be if we are not hydrated

Progression 2

- Ask the children to repeat the jump, this time using their arms to drive themselves upwards
 - The increase in jump height represents improved performance when maintaining hydration

Discuss with the children which jump was easier, better, higher etc. and why.

Activity 2: Higher or Lower

Sugary drinks manufacturers use fancy names to make their products more attractive – such as “Tropical Twist”. But water is the best drink for hydration.

Progression 1

- Split children into groups and challenge them to shoot into a goal or hoop / throw bean bag at a target one at a time, but with a twist – before doing so they must be spun around three times
 - The activity is intended to imitate the effects of dehydration, which can affect your decision making, balance and coordination.

Progression 2

- No spinning this time. Challenge the children to repeat the task, changing the distance / size of the target to increase difficulty if necessary
 - The task should be much easier second-time around and represents improved performance when hydrated
 - Increasing the difficulty will also demonstrate what they can achieve if they try

**Note: as children will be spinning around, make sure that each group has enough space to complete the task without bumping into one another.*

End of session

- Cool down with some simple stretches
- Ask pupils to turn to the person next to them and come up with three things they’ve learnt in this session. Share some of the ideas.

FURTHER INFORMATION

Hydration

- Children aged 4-8 should aim to have 1600ml and children aged 9-13 should have between 1900 – 2100ml of water a day. However, there is so much variation in our shapes and sizes and the types of activity that we do making it difficult to suggest a 'one size fits all' amount – therefore drinking in response to thirst is the best way to maintain hydration
- Whilst drinking water is the most obvious form of hydration we also consume water through the moisture content of foods so we may not necessarily have to drink eight glasses of water to obtain the hydration we need

Reference intake (RI) for water per day (ml)

	Children	
	Male	Female
6 – 12 months	800	1000
13 – 24 months	1100	1200
2 – 3 years	1300	
4- 8 years	1600	
9 – 13 years	2100	1900
14+ years	2500	2000

Sports drinks

- Sports drinks are a relatively recent phenomenon, yet anatomically modern humans have been running around for some 200,000 years. So why do we need them?
- Sports drinks are a particular type of soft drink that are usually rich in carbohydrates (in the form of sugar), minerals, electrolytes and flavourings and are purported to optimise hydration before, during and / or after physical activity and improve athletic performance
- Electrolytes, such as sodium and potassium, help our muscle to contract by aiding nerve function. We lose electrolytes in sweat (hence the salty taste) but the average person will not lose enough to cause fatigue
- They are not to be confused with energy drinks such as Red Bull and Monster, which contain high concentrations of caffeine designed to increase alertness and fend off drowsiness
- Sports drinks manufacturers are keen to emphasise that their products provide hydration before, during and after physical activity – and may even be better than water – but the evidence is tenuous
- Much of the research into energy drinks is conducted on athletes or well-trained individuals with similar physiological measures. This means that whatever the outcome, the research can only be applied to individuals matching the profile of the participants in the study and can't be generalised to a largely sedentary population or children
- Experts have concluded that for the general public, water and a balanced diet is all that is required to facilitate regular exercise.

Energy drinks

- Children and young people in the UK are the biggest consumers of energy drinks across the U.K.
- 24% of UK children consume energy drinks citing taste (60%) and energy (31%) as the main reasons for consumption.

- Research shows these drinks are readily and cheaply available, with some costing as little as 30p.
- More boys drink energy drinks than girls with consumption in both increasing with age.
- Consumption occurred at home (35%), during physical exercise (27%) and at parties (26%) most frequently
- 55% of children understood that energy drinks and other SSBs such as Coca-Cola and lemonade are very different products; 19% thought they were the same thing; and 23% didn't know.
- Energy drinks contain a range of other ingredients which may include taurine, artificial sweeteners, vitamins and a variety of herbal ingredients which add to the marketability of the product
- There are currently no recommendations for caffeine consumption levels for children or adolescents and a lack of data to derive a safe level of caffeine intake
- Habitual caffeine use can lead to tolerance, diminishing its effects often to the extent that consumer experience disrupted sleep patterns and daytime sleepiness – both of which can affect educational attainment
- Knowingly or not, the marketing strategies of energy drinks companies mimic the campaigns of big tobacco, combining celebrity and an addictive substance (caffeine) to target children and adolescents – establishing brand loyalty in early life
- Many supermarkets currently enforce a voluntary ban on the sale of energy drinks to under 16 year olds, however proposals to enforce a mandatory ban to under 18 year olds is also being considered by the Government.

References

Public Health England (2015). Sugar Reduction: The Evidence for Action.
 Scientific Advisory Committee on Nutrition. (2015) Carbohydrates and health. London: Crown Copyright.
 National Diet and Nutrition Survey (2014). Results from Yrs 1 to 4 (combined) of rolling programme for 2008 & 2009, 2011 & 2012. Public Health England.
 National Child Measurement Programme (2018) <https://fingertips.phe.org.uk/profile/national-child-measurement-programme>
 Consultation to end the sale of energy drinks to children (2018) <http://www.foodactive.org.uk/5-things-to-know-about-why-we-need-a-ban-on-energy-drinks-to-children/>
 Food Active website: <http://www.foodactive.org.uk>
 GULP website: <http://www.giveuplovingpop.org>
 NHS choices: <http://www.nhs.uk/Livewell/Goodfood/Pages/sugars.aspx>