

## Drug and alcohol prevention

# Caffeine and energy drinks

### Questions for schools

1. How do we know whether this is an issue among our pupils?
2. Is caffeine covered in drug education / PSHE?
3. Do we have any rules or guidance about pupils' use of energy drinks?
4. Who else might we want to talk to about this (for example parents or local retailers)?



# Caffeine and energy drinks

## Where is it found?

Caffeine naturally occurs in plants such as tea, coffee and cocoa and is also added to energy drinks, and some other substances such as painkillers. It can temporarily ward off drowsiness and restore alertness, and is so ubiquitous we rarely think of it as a drug.

## Amounts in common food and drinks

- Can of cola: 40mg
- Small (250ml) can of energy drink, or shot of energy drink: around 80mg
- Large (500ml) energy drink: around 160mg
- 50g bar of milk chocolate: up to 25mg
- 50g bar of plain chocolate: up to 50mg
- Mug of instant coffee: 100mg
- Mug of filter coffee: 140mg
- Mug of tea: 75mg

(depending on how they are made)

## How much is healthy?

In the UK, there are no clear recommendations for daily caffeine limits, either for children or adults, so we have to look elsewhere. In Canada, the guidelines are that children should have no more than 45mg in a day for 4-6 year olds, 62mg for 7-9 year olds and 85mg for 10-12 year olds.

Other experts have recommended similar limits of 2.5 mg/kg bodyweight for children and 100 mg/day for adolescents.

## Energy drinks

'Energy drinks' have high levels of caffeine and sugar, plus other ingredients for which various health claims are made. The EU requires drinks with more than 150mg of caffeine a litre to be labelled as having "high caffeine content" and the British Soft Drinks Association recommends labelling energy drinks as not suitable for children or pregnant women. However, these drinks are widely available and accessible to children and young people, and their marketing and branding is

often likely to appeal to younger age groups. Research suggest they are widely consumed.

## Children's use of energy drinks

Some of the most recent findings come from a European survey across 16 countries.<sup>6</sup> It was found that just under a quarter (24%) of children aged 6-10 surveyed in the UK had drunk energy drinks in the past year.

Across all countries surveyed, boys were more likely to have drunk them than girls. On average, these children drank about half a litre per week. A small proportion (16% of consumers or 3% of the all children surveyed) drank them three times a week or more.

Most children consuming energy drinks drank them at home (35%), during sport and physical exercise (27%) and at parties (26%). They mainly drank them for their taste (60%) and/or as a source of energy (31%). When asked whether they thought that drinking energy drinks was the same as drinking colas, just over half (55%) of consumers said that they were very different, 19% thought they were the same and 23% didn't know.

## Young people's use of energy drinks

Results were also analysed for young people aged 10-18: About 7 in 10 (69%) of UK teenagers drank an energy drink in the past year. UK energy drink consumers drank more each on average (3.1 litres a month) compared to teenagers in other countries (around 2 litres average). About 13% of all young people surveyed in the UK drank energy drinks 4-5 times a week or more. About 8% of young people said they drank around a litre or more in a single session (i.e. over a couple of hours).

Again, across all countries, more boys than girls drank energy drinks. The main reasons young people gave were taste (40%), the need for energy (21%) and the need to stay awake (17%).

# Impacts

## Sleep impacts

Childhood and adolescence is a period of rapid growth and continuing brain development, for which proper sleep is essential. Sleep disruption can also affect concentration and achievement in the classroom.<sup>1</sup> Both for children and young people, caffeine drunk has been found to be inversely related to amount of night time sleep.<sup>2,3</sup> Young people with a high caffeine intake were more likely to report feeling tired in the morning and having difficulty sleeping.

## Caffeine intoxication

Having too much caffeine can lead to symptoms may include anxiety, restlessness, excitement, stomach complaints or twitching muscles.<sup>4</sup> The quantity that would be needed to bring on these symptoms varies as people have different levels of sensitivity to caffeine (and can build up tolerance over a period). This means that one child may experience side effects much more readily than another, even if they have both received the same amount of caffeine. Very rarely, caffeine has been found to trigger dangerous heart arrhythmias in those with a pre-existing condition.

## Caffeine withdrawal

Caffeine withdrawal symptoms are relatively common in adults. About half of regular caffeine users get a headache if they abstain, and other symptoms can include fatigue, difficulty concentrating, irritability and anxiety.<sup>4</sup> Some adolescent heavy caffeine users have also been found to get these symptoms.<sup>3</sup>

## Caffeine dependence

Linked to withdrawal can be caffeine dependence. Signs of this might be: continuing with a high intake despite being aware that it is causing a problem; persistent desire or unsuccessful efforts to cut down use; withdrawal symptoms; a high tolerance which can result in using more to get the same effect.

Studies have identified this in some teenagers using caffeine heavily.<sup>3</sup>

## Caffeine and sugar

Both colas and energy drinks contain significant quantities of sugar. On average, soft and fizzy drinks provide 16% of their sugar intake for children aged 4–10, and 29% for 11–18 year olds:<sup>5</sup> another reason why these are not a healthy option for children and young people.

## Energy drinks and sport

Of UK teenagers who drank energy drinks, two-thirds (65%) said they used them during sport, a higher proportion than in any other country. Across all countries surveyed, this was more common among 10–14 year old consumers than 15–18 year olds. Young people may either use high-caffeine drinks during sport deliberately to improve performance or because they don't differentiate between these and 'sports drinks' like Lucozade. A report from the American Academy of Pediatrics stated clearly that 'energy drinks' should not be used by young people during sport, and that unless during 'prolonged, vigorous sports participation or other intense physical activity', water was a more healthy option than sports drinks.<sup>7</sup>

## Caffeine and alcohol

A third of UK young people (aged 10–18) who drank energy drinks said they had mixed them with alcohol, implying a much higher proportion among older teenagers.

This is concerning, as combining energy drinks and alcohol has been found to lead to getting more drunk and being more likely to engage in risky behaviour. Caffeine makes people feel more alert and less drunk, despite the fact that it doesn't actually improve their reaction times or coordination. This means people are less likely to stop drinking, they are more active and they are more likely to take risks because they feel less drunk.<sup>8</sup>

## Schools tackling caffeine use

### The Abbey School, Kent

Students in the School Council presented a case to the Head teacher for banning energy drinks within the school. They were concerned that behaviour and learning were being affected by students' drinking energy drinks. Young people were able to buy these cans for as little as 25/30p a can or 99p for 1 litre, so were regularly buying them before school and a minority were drinking up to 8 cans a day. The 'adult' branding of the cans also made them more popular. Some girls were drinking energy drinks and skipping meals to diet.

A ban was implemented in the school, with media distributed to staff, students and parents explaining the reasons. An external speaker (from KCA) also conducted assemblies with every year group. A six lesson programme of study was created for Years 7, 8 and 9 and approved by the School Council. The campaign was extended by the School Council delivering sessions on energy drinks to primary school pupils in Year 5 and Year 6, a presentation to the local youth forum and doing an interview for local radio.

Six months after starting the campaign, students feel there is less "hyper" and "aggressive" behaviour. Analysis is currently being done to assess whether behaviour and attendance has improved.

The next steps are expected to be an approach to local newsagents and supermarkets to ensure that they do not sell to students in uniform, and engaging with parents through newsletters.

### Nottingham DrugAware schools

As part of the DrugAware programme, adopted by over half the schools in Nottingham, a survey ("D-Vibe") is used to increase schools' understanding of their pupils' behaviour, knowledge, skills and attitudes towards drugs. One of the substances included in the survey is caffeine (for example in cola, energy drinks or coffee). Overall 48% of 8 to 11 year olds said they had used it, 11% daily. A number of schools who identified particularly high frequency of caffeine use went on to include lessons on this in the curriculum.

One primary school, in which a quarter of Years 4 to 6 said they used caffeine daily, based a pupil campaign around this information. As well as lessons on caffeine, pupils held an assembly to educate their parents on the effects, suitability and 'healthiness' of caffeinated drinks for children. The follow-up survey identified an immediate reduction in the use of caffeine by pupils, and teachers felt behaviour had improved.

### References

1. TIMSS 2011 International Results in Mathematics
2. Warzack et al. (2011) Caffeine consumption in young children J.Pediatr. 158, 508-509
3. Temple (2009) Caffeine Use in Children: What we know, what we have left to learn, and why we should worry. Neurosci Biobehav Rev. 33(6): 793-806.
4. [www.caffeinedependence.org](http://www.caffeinedependence.org)
5. NHS Choices website <http://bit.ly/OECIqg>
6. Nomisma-Areté Consortium (2013) Gathering consumption data on specific consumer groups of energy drinks. EFSA
7. American Academy of Pediatrics (2011) Sports drinks and energy drinks for children and adolescents: are they appropriate?
8. CCSA (2012) Caffeinated Alcoholic Beverages in Canada

**About ADEPIS** The Alcohol and Drug Education and Prevention Information Service is run by Mentor, the drug and alcohol protection charity, in conjunction with DrugScope and Adfam and is funded by the Department for Education. More resources for addressing caffeine use and other issues are available from <http://mentor-adepis.org>