

# Supplementary written evidence submitted by Monster Energy Company (END0024)

## Introduction

Monster Energy Company (Monster) welcomes the opportunity to make a supplemental submission to the Science and Technology Committee's (Committee) inquiry into energy drinks, especially following the oral evidence session of 12 June 2018. Monster also wishes to express to the Committee its willingness to provide oral evidence. Monster believes such an evidence session would provide the Committee with a more complete and balanced exposure to the evidence surrounding the safety, use, and marketing of energy drinks.

After evaluating all of the other written submissions and oral evidence provided to the Committee thus far, Monster finds itself compelled to call the Committee's attention to the numerous inaccuracies and misconceptions in the record presently before the Committee. Simply put, several of the submissions before the Committee make hyperbolic, unsupported, and uninformed claims that do not reflect the significant body of data that already has been developed to address the very questions presented in the Terms of Reference regarding the safety and use of energy drinks. Unfortunately, several of these types of statements were repeated by witnesses during the oral evidence session on 12 June.

Monster notes that the only individuals with a scientific background who have been called to give oral evidence so far are those who are critical of energy drinks, depriving the Committee of the opportunity to hear opposing viewpoints from subject-matter experts. We believe that balance would be provided by scientists who have extensively evaluated and focused on the science and safety of energy drinks, such as Dr. Ashley Roberts, who also submitted written evidence to the Committee. Monster respectfully suggests that the Committee speak with Dr. Roberts, who is highly qualified and would be able to provide important expert oral evidence to the Committee, as he has almost a decade of directly relevant experience assessing and evaluating energy drinks and their ingredients, in addition to decades of other relevant experience.

Monster further notes that the Government recently announced Chapter Two of its childhood obesity strategy. These plans include a proposed ban on the sale of energy drinks to children. In its justification for progressing this policy, the Department of Health and Social Care cites figures on consumption, sugar, and caffeine content of energy drinks. The figures, as with certain statements by witnesses during the oral evidence session on 12 June, would appear to be, at best, a partial interpretation of the data that fails adequately to reflect the science or evidence that is widely available.

This supplemental submission rebuts, in the strongest possible terms, the unsupported assertions made in other written and oral submissions. The wealth of scientific and other evidence demonstrates that:

- Energy drinks are not widely consumed and do not contribute significant amounts of caffeine or sugar to the diets of children and adolescents;
- Energy drinks are safe and do not present effects that differ from other caffeinated products;
- There is no evidence of a causal link between energy drink consumption and risk-taking behaviors, poor health choices, or increase in QTc interval;

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- Energy drinks do not pose a unique risk for children and adolescents; and
- Monster does not market to children, through gaming or any other format, and adolescents are very familiar with coffee brand marketing.

As an initial matter, Monster wishes to make it clear for the record that certain of the British Soft Drinks Association (BSDA) representative's comments at the oral evidence session on 12 June 2018 do not reflect Monster's position, as those statements are not supported by science. Indeed, these statements contradict the BSDA's written submission.<sup>1</sup> In particular, Monster wishes to draw the Committee's attention to three points made by the BSDA representative with which Monster disagrees. First, Monster disagrees with the BSDA representative's statement that there are risks or potential safety risks to children and adolescents from consuming caffeine at levels typically found in mainstream energy drinks.<sup>2</sup> Second, Monster disagrees with the BSDA representative's suggestion that the European Food Safety Authority (EFSA) has stated that energy drinks are unsuitable for adolescents.<sup>3</sup> Third, Monster does not agree with the BSDA representative's support of a government-mandated ban on the sale of energy drinks to under 16s.<sup>4</sup>

To accept any of those things would be completely to disregard the wealth of reliable evidence accumulated over decades that establishes that energy drinks are safe and not consumed widely by children and adolescents.

### **I. Energy drinks are not widely consumed and do not contribute significant amounts of caffeine or sugar to the diets of children and adolescents**

1. Multiple submissions suggest that energy drink consumption is excessive among UK children and adolescents. This is not true. Numerous reliable studies confirm that energy drinks are not consumed widely by UK children and adolescents. A 2013 study commissioned by EFSA found that more than 30% of UK adolescents (ages 10 to < 18 years) do not consume energy drinks at all.<sup>5</sup> A 2014 survey of younger adolescents ages 11, 13, and 15 years old in England found that over half (53%) reported that they never consume energy drinks.<sup>6</sup> Further, the individuals who

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<sup>1</sup> When providing oral evidence to the Committee, the BSDA representative indicated that the BSDA represents the following manufacturers of energy drinks: Monster, Relentless, Red Bull, and Rockstar in the BSDA's capacity as the national trade association for producers of soft drinks. While Monster's UK distributor, Coca-Cola European Partners, is a member of the BSDA, Monster is not itself a member, and the BSDA representative's statements should not be attributed to Monster. See Transcript of the Science and Technology Committee Oral Evidence Session on Energy Drinks, HC 821, at Q103 (12 June 2018), available at <http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/science-and-technology-committee/energy-drinks/oral/85441.pdf> [hereinafter "Oral Evidence Transcript"].

<sup>2</sup> *Id.* at Q75 & Q76.

<sup>3</sup> *Id.* at Q75 & Q118.

<sup>4</sup> *Id.* at Q88.

<sup>5</sup> S. Zucconi et al., *Gathering Consumption Data on Specific Consumer Groups of Energy Drinks*, 10 EFSA J. 1, 91 (2013), available at <https://efsa.onlinelibrary.wiley.com/doi/abs/10.2903/sp.efsa.2013.EN-394>.

<sup>6</sup> HBSC England National Report: Health Behaviour in School-Aged Children, at 36 (2014), available at

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consume energy drinks do not do so excessively. The 2013 EFSA study found that adolescents who are energy drink consumers in the UK drank an average of approximately 750 ml per week, or one-and-a-half 500-ml cans per week.<sup>7</sup> This would equate to the consumption of 240 mg of caffeine **per week** from energy drinks, for those adolescents who actually consume them, which is less caffeine than is in one medium-sized high street coffee chain coffee. Just 32.1 mg, or 16.9%, of their total average daily caffeine intake came from energy drinks.<sup>8</sup>

2. While comparisons between coffee and energy drinks may not initially seem relevant to the Committee in the context of a discussion of children and adolescents' caffeine consumption, reliable data show that children and adolescents **are** getting comparable levels of caffeine from coffee as they are from energy drinks. (See also paragraph 37, below.) Indeed, a study by EFSA found that UK adolescents (ages 10 to < 18 years) consume about the same amount of caffeine from coffee as from energy drinks.<sup>9</sup> This EFSA study also found that adolescents consume nearly *four times* as much caffeine from tea and *three times* as much caffeine from colas.
3. Several of the submissions perpetuate the misconception that energy drinks contribute significant amounts of caffeine and sugar to the diets of children and adolescents. Contrary to these misstatements, mainstream energy drinks are not high in caffeine or sugar when compared with other common beverages. Some submissions make misguided calls to single out energy drinks without cause, ignoring the scientific evidence.
4. For example, during the 12 June oral evidence session, Dr. Amelia Lake stated that a typical can of energy drink contains the caffeine of two cups of coffee.<sup>10</sup> Contrary to Dr. Lake's statement, a mainstream energy drink like a 500-ml can of Monster Energy contains only half the caffeine of a similar-size cup of high street coffee chain coffee.<sup>11</sup>
5. Dr. Lake also noted evidence of an energy drink with 240 mg of caffeine per can, which Dr. Lake estimated to contain the equivalent amount of caffeine as four cups of coffee, and Professor Russell Viner, President, Royal College of Paediatrics and Child Health, estimated to contain the equivalent amount of caffeine as four or five cups of coffee.<sup>12</sup> In reality, four cups of coffee similar in size to a typical 500-ml can of energy drink could contain approximately 1,120 to

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[https://www.basw.co.uk/system/files/resources/basw\\_62024-2\\_o.pdf](https://www.basw.co.uk/system/files/resources/basw_62024-2_o.pdf).

<sup>7</sup> S. Zucconi et al., *Gathering Consumption Data on Specific Consumer Groups of Energy Drinks*, 10 EFSA J. 1, 154 (2013), available at <https://efsa.onlinelibrary.wiley.com/doi/abs/10.2903/sp.efsa.2013.EN-394> (reporting that UK adolescent energy drink consumers drank an average of 3.1 liters of energy drinks per month, which equals approximately 750 ml per week).

<sup>8</sup> S. Zucconi et al., *Gathering Consumption Data on Specific Consumer Groups of Energy Drinks*, 10 EFSA J. 1, 113 (2013), available at <https://efsa.onlinelibrary.wiley.com/doi/abs/10.2903/sp.efsa.2013.EN-394>.

<sup>9</sup> See, e.g., EFSA, *Scientific Opinion on the Safety of Caffeine*, 13(5) EFSA J. 1,107 (2015), available at <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2015.4102> (referencing the survey NDNS-Rolling Programme Years 1-3).

<sup>10</sup> Oral Evidence Transcript, at Q20.

<sup>11</sup> A 500-ml can of Monster Energy contains up to 160 mg caffeine, which is roughly half the amount of caffeine—total quantity and concentration—as high street coffee chain coffees (a similarly sized Costa coffee has around 280 mg caffeine, while a Starbucks coffee has 320-330 mg).

<sup>12</sup> Oral Evidence Transcript, at Q35 & Q36.

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1,320 mg of caffeine.<sup>13</sup> The panelists' exaggerated estimates and assumptions of the caffeine content of energy drinks provided in oral evidence to the Committee demonstrate the panelists' lack of knowledge of the relevant products, as well as a predisposition to be prejudiced against energy drinks.

6. Dr. Lake and Prof. Viner's statements may stem from the fact that energy drinks already are more tightly regulated than coffee and other similar beverages on the market. EU regulations require that all energy drinks with more than 150 mg caffeine/L carry the warning "High caffeine content. Not recommended for children or pregnant or breast-feeding women." This is not required of tea and coffee, even though high street coffee chain coffees typically have roughly twice the amount of caffeine—total quantity and concentration—as mainstream energy drinks. Moreover, in connection with the passage of these EU regulations, neither the European Parliament, the Council of the European Union, nor industry determined that amounts of caffeine above 150 mg caffeine/L are unsafe. Attempting to link this labeling requirement with product safety is misguided. Instead, the aim of the regulation is simply to provide information to consumers about caffeine content.<sup>14</sup>
7. Regardless of the reason for her statement, Dr. Lake's portrayal of energy drinks is consistent with her disseminating other misinformation that demonstrates a lack of knowledge about these beverages. For instance, at the 12 June oral evidence session, Dr. Lake claimed that Red Bull is banned in Denmark, Norway, and Uruguay.<sup>15</sup> This is not true. We understand that Red Bull is in fact available for sale in all of those countries, without any age restriction.
8. Likewise, energy drinks are not particularly high in sugar. Mainstream energy drinks typically contain about 11 g sugar/100 ml, which is about the same amount of sugar as colas and juices. Moreover, there are a wide variety of low- and no-sugar energy drinks available in the UK. As of June 2018, more than 60% of Monster's energy drink varieties available in the UK are low- or no-sugar options. Monster Absolutely Zero has been approved to appear within the British Dietetic Association's "Eating Well, Living Well Program."
9. Thus, the submissions are not only alarmist, but also inaccurate. They do not reflect the significant body of data showing that energy drinks are not consumed widely by children and adolescents and do not contribute significant amounts of caffeine or sugar to their diets. Monster draws the Committee's attention to the following additional examples of the false information in these submissions, so that the Committee is provided with the full picture.
10. For instance, the Jamie Oliver Food Foundation submission incorrectly claims that "consumption of [energy] drinks by children has skyrocketed in recent years," based on the fact that "[s]ales of energy drinks rose by 185% between 2006 and 2015." First, this statistic says

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<sup>13</sup> See footnote 11, *supra*.

<sup>14</sup> See Regulation (EU) No 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers, amending Regulations (EC) No 1924/2006 and (EC) No 1925/2006 of the European Parliament and of the Council, and repealing Commission Directive 87/250/EEC, Council Directive 90/496/EEC, Commission Directive 1999/10/EC, Directive 2000/13/EC of the European Parliament and of the Council, Commission Directives 2002/67/EC and 2008/5/EC and Commission Regulation (EC) No 608/2004 (<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1516702865950&uri=CELEX:02011R1169-20140219>).

<sup>15</sup> Oral Evidence Transcript, at Q33.

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nothing about energy drink consumption by UK children and adolescents. Second, the use of this statistic is misleading because energy drinks are still a very small portion of the soft drink market. Despite the market growth, energy drinks constituted just 5% of the sales of soft drinks by volume in 2015.<sup>16</sup> To put this in context, fruit juice constituted 7% of soft drink sales by volume in 2015. Yet Oliver is not calling for age restrictions on the sales of fruit juices, which can contain more sugar than mainstream energy drinks.<sup>17</sup>

11. The Jamie Oliver Food Foundation submission likewise misleadingly suggests there are high rates of energy drink consumption among Scottish students, claiming: “A study commissioned by the Scottish government found that 41% of 13- to 15-year-olds buy a sugary drink including fizzy drinks and energy drinks.”<sup>18</sup> In fact, the study found that more than three times as many students ages 13-15 years old drank regular soft drinks as drank energy drinks (34.4% of students surveyed reported consuming regular soft drinks, whereas only 11.2% of the students surveyed reported consuming energy drinks).<sup>19</sup> Such partial citing of statistics is misleading and unscientific.
12. Similarly, Annabel Gipp stated at the oral evidence session that EFSA “found that nearly a quarter of young people consuming energy drinks would consume three or more cans in a single session.”<sup>20</sup> This is false. A 2013 EFSA-commissioned study found that just 8% of adolescents (ages 10 to < 18 years) consumed at least 1.065 L of energy drink per “single session,” which EFSA defined as “a period of time of a couple of hours.”<sup>21</sup>
13. Finally, the Fuse submission notes the following finding from Visram (2017), a study involving 37 students ages 10-11 and 13-14 years: “Discussions with research participants suggest that energy drink use by school-age children [in the UK] is widespread.” This qualitative study of a very small sample size is unreliable due to a number of serious methodological flaws including the following. First, the study sample is not representative, as all four schools that took part in the study “were situated in areas characterised by relatively high levels of socio-economic deprivation.”<sup>22</sup> Indeed, Visram acknowledges that the study “provide[s] insights from

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<sup>16</sup> BSDA Annual Report 2016, available at [http://www.britishsoftdrinks.com/write/MediaUploads/Publications/BSDA\\_Annual\\_report\\_2016.pdf](http://www.britishsoftdrinks.com/write/MediaUploads/Publications/BSDA_Annual_report_2016.pdf). BSDA defined “soft drinks” as carbonated drinks, still and juice drinks, dilutables, fruit juices, bottled waters, and sports and energy drinks.

<sup>17</sup> Monster Energy (Green) contains 11 g sugar/100 ml, which is less sugar than grape juice (16.5 g/100 ml). See Welch’s 100% Purple Grape Juice, <http://www.welchsjuce.co.uk/products/view/purple-grape-juice>.

<sup>18</sup> Oliver’s submission provides the following citation: <https://www.herts.ac.uk/research/informing-public-policy/food-and-public-health/food-for-young-and-old/four-in-ten-young-teenagers-buy-sugar-filled-drinks-during-school>.

<sup>19</sup> Laura Kate Hamilton et al., *Patterns of Sugar-Sweetened Beverage Consumption Amongst Young People Aged 13-15 Years During the School Day in Scotland*, 116 APPETITE 196, 199 (2017), available at <https://reader.elsevier.com/reader/sd/ACEE7812092130AD65F54E212B33258B6924E3AoD934C478EB1F966Ao898AECCF7903D5C97836E70F859DBA22BAB3043>.

<sup>20</sup> Oral Evidence Transcript, at Q22.

<sup>21</sup> S. Zucconi et al., *Gathering Consumption Data on Specific Consumer Groups of Energy Drinks*, 10 EFSA J. 1, 2 n.6, 32 n.22, 95 (2013), available at <https://efsa.onlinelibrary.wiley.com/doi/abs/10.2903/sp.efsa.2013.EN-394>.

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participants at a particular time and place,” but “does not tell us about patterns of ED [energy drink] consumption amongst C&YP [children and young people] more widely.”<sup>23</sup> Second, the methodology—using focus groups and asking students to describe energy drink use among their classmates rather than their own use—introduces bias. Visram acknowledges this serious flaw in the study design.<sup>24</sup>

### II. Energy drinks are safe and do not present effects that differ from other caffeinated products

14. When presenting oral evidence to the Committee, Professor Russell Viner stated that he “do[es] not have evidence that [caffeine] has produced major harms [for children and young people], apart from on sleep.”<sup>25</sup> The panelists also recognized that the evidence does not establish that caffeine or energy drinks cause mental health issues, anxiety, or behavioral issues.<sup>26</sup>
15. Perhaps given this lack of evidence, multiple submissions misconstrue and overstate the significance of minor physiological effects of caffeine such as headaches, dizziness, and feeling jittery. As any reliable scientific source reports, these minor physiological effects are characteristic effects of caffeine consumption from any source, and are not unique to energy drinks. They do not provide a reason to single out energy drinks for regulation.
16. For instance, the Jamie Oliver Food Foundation submission alleges that “[t]he most frequently indicated symptoms cited in calls to the USA’s National Poison Data System in 2010-11 related to energy drink exposure cases include vomiting, nausea, feeling jittery or on edge, trouble sleeping, palpitations, dizziness, fainting, abdominal pain and headache.” These mild effects are characteristic effects of caffeine consumption from any source.<sup>27</sup> They are not unique to energy drinks.
17. The effects of caffeine are the same irrespective of the temperature, rate of consumption, or carbonation. Regardless of whether caffeine is added to a product (such as in energy drinks and colas) or naturally occurring (such as in tea, coffee, or chocolate), and whether it is consumed hot or cold, rapidly or slowly, or from a carbonated or non-carbonated beverage, there is no

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<sup>22</sup> Shelina Visram et al., *Children and Young People’s Perceptions of Energy Drinks: A Qualitative Study*, PLOS ONE, at 3 (2017), available at <http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0188668&type=printable>.

<sup>23</sup> Shelina Visram et al., *Children and Young People’s Perceptions of Energy Drinks: A Qualitative Study*, PLOS ONE, at 14 (2017), available at <http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0188668&type=printable>.

<sup>24</sup> Shelina Visram et al., *Children and Young People’s Perceptions of Energy Drinks: A Qualitative Study*, PLOS ONE, at 4 & 14 (2017), available at <http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0188668&type=printable>.

<sup>25</sup> Oral Evidence Transcript, at Q12.

<sup>26</sup> See *id.* (“We do not have strong evidence of causal links between the overall increase in caffeine intake and the youth mental health epidemic that we are seeing . . .”); *id.* at Q15 (“It is very hard to create that causal link [with regard to energy drinks causing anxiety]”); *id.* at Q24 (“In a sense, we cannot say that energy drinks cause bad behaviour . . .”).

<sup>27</sup> See, e.g., P. Nawrot et al., *Effects of Caffeine on Human Health*, 20 FOOD ADDIT. CONTAM. 1, 2-3 (2003), available at <https://www.tandfonline.com/doi/abs/10.1080/0265203021000007840>.



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chemical difference, and studies (including a 2016 study) have shown that the effects of caffeine are the same.<sup>28</sup> For instance, in a 2016 study, White et al. administered different dosage forms of 160 mg of caffeine to 24 study participants. The study participants were studied on five occasions, receiving one of the following five dosage forms on each study day: (1) hot coffee consumed over 20 minutes; (2) cold coffee consumed over 2 minutes; (3) cold coffee consumed over 20 minutes; (4) sugar-free energy drink consumed over 2 minutes; and (5) sugar-free energy drink consumed over 20 minutes.<sup>29</sup> The researchers measured the participants' plasma caffeine concentrations and caffeine pharmacokinetic parameters, and found that caffeine absorption and exposure from coffee and energy drink is similar irrespective of beverage temperature or rate of consumption. Thus, the researchers concluded that "these findings run contrary to the belief/concern that 'rapid' consumption of energy drinks might provide inordinately rapid and/or high concentrations of caffeine relative to more slowly consumed hot beverages such as coffee."<sup>30</sup>

18. Annabel Gipp alleged that energy drinks are consumed more rapidly than coffee.<sup>31</sup> If such an allegation is based on an assumed difference in temperature between an energy drink and a coffee, then Ms. Gipp is disregarding numerous cold coffee products on the market, such as iced coffees available in high street coffee chains<sup>32</sup> and retailers,<sup>33</sup> as well as "cold brew" coffees made at home.<sup>34</sup> Contrary to Ms. Gipp's assumption, survey evidence also demonstrates that consumers do not necessarily drink energy drinks faster than comparably sized hot brewed coffee. Overall, 18-34 year old respondents to a survey reported drinking coffee somewhat faster than energy drinks, though the difference was not statistically significant. However, female respondents drank coffee significantly faster than energy drinks.
19. The evidence also disproves the allegation that caffeine in energy drinks is different from caffeine in coffee and tea, an assertion that a number of panelists made at the 12 June oral evidence session.<sup>35</sup> Further, scientific evidence shows that consumers typically self-regulate their caffeine intake—be it from energy drinks, coffee, soda, or other sources—and stop consuming caffeine before or at the onset of any unpleasant, mild effects.<sup>36</sup>

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<sup>28</sup> J.R. White et al., *Pharmacokinetic analysis and comparison of caffeine administered rapidly or slowly in coffee chilled or hot versus chilled energy drink in healthy young adults*, 54 *Clin. Toxicol.* 308, 312 (2016), available at <https://www.tandfonline.com/doi/full/10.3109/15563650.2016.1146740>.

<sup>29</sup> J.R. White et al., *Pharmacokinetic analysis and comparison of caffeine administered rapidly or slowly in coffee chilled or hot versus chilled energy drink in healthy young adults*, 54 *Clin. Toxicol.* 308, 309 (2016), available at <https://www.tandfonline.com/doi/full/10.3109/15563650.2016.1146740>.

<sup>30</sup> J.R. White et al., *Pharmacokinetic analysis and comparison of caffeine administered rapidly or slowly in coffee chilled or hot versus chilled energy drink in healthy young adults*, 54 *Clin. Toxicol.* 308, 311 (2016), available at <https://www.tandfonline.com/doi/full/10.3109/15563650.2016.1146740>.

<sup>31</sup> Oral Evidence Transcript, at Q41.

<sup>32</sup> Costa Coffee, <https://www.costacoffee.ae/costa-coffee/ice-cold-costa/> (accessed 24 June 2018).

<sup>33</sup> Waitrose Starbucks Doubleshot Espresso, <https://www.waitrose.com/ecom/products/starbucks-doubleshot-esspresso/819391-438216-438217> (accessed 24 June 2018).

<sup>34</sup> See, e.g., How to Make Cold Brew Coffee, <https://www.jamieoliver.com/news-and-features/features/how-to-make-cold-brew-coffee/> (accessed 24 June 2018).

<sup>35</sup> See, e.g. Oral Evidence Transcript, at Q19 & Q41.

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20. A robust body of scientific evidence likewise contradicts yet another of Dr. Lake's statements at the 12 June oral evidence session, namely her allegation that there is insufficient data on the safety of other energy drink ingredients.<sup>37</sup> EFSA has repeatedly confirmed the safety of other energy drink ingredients, namely taurine (a typical energy drink ingredient also found in other foods including infant formula, milk, eggs, chicken) and D-glucurono- $\gamma$ -lactone, including in 2009 and 2015. In 2009, EFSA found no basis to suspect that the key ingredients in energy drinks interact negatively with each other or enhance the effects of caffeine.<sup>38</sup> EFSA concluded that the exposure to these ingredients at the levels presently used in mainstream energy drinks is not a safety concern, and that additive interactions between taurine and caffeine on diuretic effects are unlikely.<sup>39</sup> EFSA reconfirmed these findings in 2015, noting that it is unlikely that taurine and D-glucurono- $\gamma$ -lactone interact adversely with, or enhance the effects of, caffeine with respect to its effects on the cardiovascular system, the central nervous system, or hydration status in the body.<sup>40</sup> In addition, as noted in the written submission of Dr. Ashley Roberts, Dr. Roberts has consulted with energy drink companies concerning energy drink safety, and has not only researched the individual ingredients of energy drinks, but also whether there are any potential adverse effects from the combination of their ingredients. Thus, Dr. Lake's statements reveal that she may neither be aware of EFSA's analyses and conclusions concerning energy drink ingredients nor the extensive work and analyses that companies like Monster cause to be performed by scientific experts in connection with bringing energy drinks to market.
21. The Fuse, NASUWT, and Jamie Oliver Food Foundation submissions allege that energy drink consumption is associated with negative behavioral effects such as anxiety, hyperactivity, stress, and inattention. Again, these are merely allegations of association, not causation. Under detailed questioning from the Committee at the 12 June oral evidence session, the panelists accepted the lack of evidence on causation.<sup>41</sup> Even to the extent that such behavioral effects may be caused by caffeine, the effects of caffeine are generally self-limiting and not unique to energy drinks.
22. Specifically, caffeine is a stimulant that increases activity and alertness, regardless of its source.<sup>42</sup> In 2015, EFSA concluded that the level of 3 mg/kg bw per day for adults and for children and

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<sup>36</sup> GB Kaplan et al., *Dose-Dependent Pharmacokinetics and Psychomotor Effects of Caffeine in Humans*, 37 J CLIN PHARMACOL. 693 (1997); P. Nawrot et al., *Effects of Caffeine on Human Health*, 20 FOOD ADDIT. CONTAM. 1, 7 (2003); cf. D. Mitchell et al., *Beverage Caffeine Intakes in the U.S.*, 63 FOOD & CHEM. TOXICOLOGY 136, 141 (2014) (the lack of increase in overall caffeine consumption since the introduction of energy drinks into the market "may suggest that consumers have awareness of their total caffeine intake and substitute caffeinated beverage choices vs. consuming additional caffeinated beverages").

<sup>37</sup> Oral Evidence Transcript, at Q57.

<sup>38</sup> See EFSA, *The Use Of Taurine And D-Glucurono- $\gamma$ -lactone As Constituents Of The So-Called "Energy" Drinks*, 935 EFSA J. 1, 23 (2009), <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2009.935>.

<sup>39</sup> See EFSA, *The Use Of Taurine And D-Glucurono- $\gamma$ -lactone As Constituents Of The So-Called "Energy" Drinks*, 935 EFSA J. 1, 23 (2009), <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2009.935>.

<sup>40</sup> EFSA, *Scientific Opinion on the Safety of Caffeine*, 13(5) EFSA J. 1, 3, 16-18 (2015), available at <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2015.4102>.

<sup>41</sup> See, e.g., Oral Evidence Transcript, at Q2-Q7.

<sup>42</sup> See, e.g., P. Nawrot et al., *Effects of Caffeine on Human Health*, 20 FOOD ADDIT. CONTAM. 1, 2-3 (2003), available at <https://www.tandfonline.com/doi/abs/10.1080/0265203021000007840>.



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adolescents does not have any negative effect on anxiety or other transient behavioral effects.<sup>43</sup> At high levels, caffeine from any source may cause transient behavioral changes, such as arousal, irritability, nervousness, or anxiety.<sup>44</sup> But the data show that children and adolescents are not consuming high levels of caffeine from energy drinks (see summary of consumption data in paragraphs 1-2).

### **III. There is no evidence of a causal link between energy drink consumption and risk-taking behaviors, poor health choices, or increase in QTc interval**

23. Many of the submissions ignore the basic scientific concept that correlation does not equal causation. Indeed, some of the alleged associations with energy drinks—such as higher spending of money—are so tenuous that they demonstrate the authors’ lack of credibility. Moreover, almost all panelists at the 12 June oral evidence session acknowledged that they cannot establish a causal link between the consumption of energy drinks and the alleged behavioral and other health effects.<sup>45</sup>
24. For example, the submissions from Fuse, NASUWT, and the Royal College of Paediatrics and Child Health allege that energy drinks are associated with risk-taking behavior or poor health choices such as alcohol consumption, drug use, poor diet, smoking, unsafe sex, and violence. The source most cited for the alleged association of alcohol use and energy drinks is a 2016 “rapid review” of the literature by Visram et al. (2016).<sup>46</sup> This review, however, associates energy drinks with a large number of behaviors, without any evidence of causation. The review authors—who include Dr. Lake—acknowledge that none of the studies reviewed was able to determine causality for the risk-taking behavior.<sup>47</sup> Dr. Lake failed to make this clear to the Committee during the 12 June oral evidence session.
25. The other study cited as evidence of negative behavioral effects of energy drinks in several submissions, including from Fuse and the Jamie Oliver Food Foundation, is Hammond (2018).<sup>48</sup> Even among studies of mere correlations, this survey of people in Canada suffers from critical flaws. The authors even acknowledge the major limitation that it grouped energy drinks with other products that are specifically excluded in Canada from the category of energy drinks, namely, concentrated “energy shots” and alcoholic beverages that contain caffeine.
26. The written submissions from Fuse, the British Dietetic Association, and the Royal College of Paediatrics and Child Health all allege that mixing energy drinks with alcohol leads to negative health effects. As alcohol is unlawful for consumption by children and adolescents, efforts

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<sup>43</sup> See EFSA, *Scientific Opinion on the Safety of Caffeine*, 13(5) EFSA J. 1, 70-71, 75-76 (2015), available at <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2015.4102>.

<sup>44</sup> See EFSA, *Scientific Opinion on the Safety of Caffeine*, 13(5) EFSA J. 1, 14 (2015), available at <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2015.4102>.

<sup>45</sup> See, e.g., Oral Evidence Transcript, at Q2-Q7, Q12, Q15, Q24.

<sup>46</sup> S. Visram, M. Cheetham, D.M. Riby, S.J. Crossley, and A.A. Lake, *Consumption of energy drinks by children and young people: a rapid review examining evidence of physical effects and consumer attitudes*, 6 BMJ OPEN 1 (2016), available at <http://bmjopen.bmj.com/content/6/10/e010380>.

<sup>47</sup> *Id.* at 20.

<sup>48</sup> D. Hammond et al, *Adverse effects of caffeinated energy drinks among youth and young adults in Canada: a Web-based survey*, 6 CMAJ OPEN E19 (2018) available at <http://cmajopen.ca/content/6/1/E19.full>.

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would be better directed toward eliminating under-age consumption of alcohol rather than restricting energy drinks or any other non-alcoholic beverage that may or may not be mixed with alcohol. Indeed, during the 12 June oral evidence session, Annabel Gipp suggested that as some energy drinks are mixed with alcohol before consumption, and we do not allow adolescents under 18 to drink alcohol, we should consider banning energy drinks for under 18s to curb adolescent alcohol consumption.<sup>49</sup> By that logic, all other beverages that could be mixed with alcohol, e.g., cola, juice, etc., should also be subject to an age restriction.

27. Even putting this to one side, the preponderance of evidence reveals that combining energy drinks with alcohol does not lead to negative health effects or reduce or alter the perception of alcohol-induced intoxication. For example, in 2003, the European Commission Scientific Committee on Food (SCF) (EFSA's predecessor) concluded that "there is no confirmation of any causal relationship between the reported effects [of the co-consumption of alcohol and/or drugs] and the consumption of 'energy' drinks."<sup>50</sup> In 2013, after a two-year scientific review of the literature, the UK Committee on Toxicity (COT) noted that firm conclusions cannot be drawn from case reports and "conclude[d] that the current balance of evidence does not support a harmful toxicological or behavioral interaction between caffeine and alcohol."<sup>51</sup> In 2015, EFSA concluded for adults: "Alcohol consumption at doses up to about 0.65 g/kg bw, leading to a BAC of about 0.08 %, would not affect the safety of single doses of caffeine up to 200 mg from any dietary source, including 'energy drinks.'"<sup>52</sup>
28. Finally, the British Dietetic Association submission alleges the following: "Whilst caffeine has been found to have no ill effects on cardiac output, one study from the American Heart Association found that consumption of energy drinks showed a significant prolongation of the QTc interval in adults. This elongation of the QTc interval can be a sign of increased risk for fatal arrhythmias, and for individuals who may have underlying cardiac problems this may be dangerous." First, the American Heart Association did not conduct this study. Rather, the study was merely published in the Journal of the American Heart Association. Moreover, there is no scientific evidence to support this assertion at the levels present in mainstream energy drinks.
29. In fact, a peer-reviewed, randomized, double blind, clinical study found that the consumption of 473 ml or 710 ml of Monster Energy had no negative effect on blood pressure, heart rate, or cardiac QTc interval.<sup>53</sup> In this 2016 study by Brothers et al., the researchers measured the heart rate, blood pressure, and cardiac QTc interval of 15 study participants, on four days, both prior to and after consuming the following beverages: (1) 473 ml Monster Energy (160 mg caffeine);

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<sup>49</sup> Oral Evidence Transcript, at Q34.

<sup>50</sup> European Commission Scientific Committee on Food, *Opinion of the Scientific Committee on Food on Additional Information on "Energy" Drinks*, at 9 (Mar. 5, 2003), available at [https://ec.europa.eu/food/sites/food/files/safety/docs/sci-com\\_scf\\_out169\\_en.pdf](https://ec.europa.eu/food/sites/food/files/safety/docs/sci-com_scf_out169_en.pdf).

<sup>51</sup> United Kingdom Committee on Toxicity, *COT Statement on the Interaction of Caffeine and Alcohol and Their Combined Effects on Health and Behaviour: Lay Summary* (Dec. 2012), available at <http://cot.food.gov.uk/sites/default/files/cot/cotlaystatementcaffalco201204.pdf>.

<sup>52</sup> EFSA, *Scientific Opinion on the Safety of Caffeine*, 13(5) EFSA J. 1, 3 (2015), available at <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2015.4102>.

<sup>53</sup> R. Matthew Brothers et al., *Heart Rate, Blood Pressure and Repolarization Effects of an Energy Drink as Compared to Coffee*, CLIN. PHYSIOL. FUNCT. IMAGING 1-7 (2016), available at <https://onlinelibrary.wiley.com/doi/abs/10.1111/cpf.12357>.

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(2) 710 ml Monster Energy (240 mg caffeine); (3) one packet of Keurig K-Cup Starbucks coffee (160 mg caffeine); and (4) 250 ml water. The participants' "QTc interval, heart rate and systolic blood pressure were unchanged in any condition," which the researchers explained "suggest[s] that acute consumption of these commonly consumed beverages has no negative effect on cardiac QTc interval."<sup>54</sup>

### IV. Energy drinks do not pose a unique risk for children and adolescents

30. EFSA and other scientific bodies have repeatedly evaluated the safety of energy drinks, including the potential physical and mental health effects on children and adolescents, and have repeatedly concluded that the products are safe. These global health authorities have recognized that children and adolescents are not at a unique risk from caffeine consumption.<sup>55</sup> Despite this robust body of evidence of safety, some submissions misconstrue EFSA's findings and unjustly single out energy drinks for an age restriction. These submissions fundamentally misunderstand EFSA's conclusions.
31. For example, the Jamie Oliver Food Foundation says: "A single can of popular brands [of energy drink] on the market can contain around 160 mg of caffeine, while the European Food Safety Authority recommends an intake of no more than 105 mg caffeine per day for an average 11-year-old." Oliver's argument appears to be based on EFSA's conclusion that its single-dose of no concern for adults (3 mg/kg of body weight) also may apply to children and adolescents. His statement shows he does not understand EFSA's conclusions.
32. First, EFSA did not set this single-dose of no concern level as an upper limit on safe consumption, and it has not said that amounts exceeding this level are unsafe. Rather, EFSA expressly recognized that this is a "rather conservative" figure.<sup>56</sup> EFSA has never concluded that energy drinks are unsuitable for adolescents.
33. Second, if Oliver's argument were applied equally to other caffeinated beverages, it would mean calling for measures to prevent adults from consuming a cup of Costa or Starbucks coffee. EFSA concluded that single doses of caffeine up to 200 mg do not give rise to safety concerns in healthy adults.<sup>57</sup> An adult who consumes a medium Costa coffee (which has around 280 mg in a ~400 ml cup) would exceed this amount after drinking that one cup.<sup>58</sup> The same is true for a medium or "grande" (~473 ml) Starbucks brewed coffee, which has about 320-330 mg caffeine.<sup>59</sup>

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<sup>54</sup> R. Matthew Brothers et al., *Heart Rate, Blood Pressure and Repolarization Effects of an Energy Drink as Compared to Coffee*, CLIN. PHYSIOL. FUNCT. IMAGING 1, (2016), available at <https://onlinelibrary.wiley.com/doi/abs/10.1111/cpf.12357>.

<sup>55</sup> See EFSA, *Scientific Opinion on the Safety of Caffeine*, 13(5) EFSA J. 1, 5, 46-47, 70-71 (2015), available at <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2015.4102>; U.S. FDA 21 C.F.R. 340.50.

<sup>56</sup> See EFSA, *Scientific Opinion on the Safety of Caffeine*, 13(5) EFSA J. 1, 70-71 (2015), available at <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2015.4102>.

<sup>57</sup> See EFSA, *Scientific Opinion on the Safety of Caffeine*, 13(5) EFSA J. 1, 68 (2015), available at <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2015.4102>.

<sup>58</sup> Caffeine Informer, Costa Coffee, <https://www.caffeineinformer.com/caffeine-content/costa-coffee> (last visited Apr. 5, 2018).

<sup>59</sup> Caffeine Informer, Starbucks Coffee, <https://www.caffeineinformer.com/caffeine-content/starbucks-grande-coffee> (last visited Apr. 5, 2018). As Caffeine Informer notes, caffeine values in coffee can vary

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But this does not mean that a medium Costa or Starbucks coffee is unsafe. Indeed, many people drink this amount of coffee or more on a daily basis. Likewise, EFSA's single-dose of no concern for children and adolescents does not mean that an energy drink with 160 mg of caffeine is unsafe. In sum, this analogy shows that the Jamie Oliver Foundation submission misconstrues the meaning of EFSA's single-dose of no concern. This clearly demonstrates that it is irrational to single out energy drinks.

34. The NASUWT submission similarly relies on faulty logic to support its claim that there is a "strong case for the Government seeking to introduce a ban on the sale of [energy] drinks to all children." Indeed, NASUWT's reasoning shows it is unfairly targeting energy drinks. NASUWT says "children can reach the Canadian recommended caffeine limits by consuming chocolate, coca cola and hot chocolate, without consuming energy drinks at all." If this is the case, then why is NASUWT not calling for restrictions on those caffeinated foods and beverages?
35. Other beverages that contribute to the caffeine intake of UK adolescents but ignored by NASUWT are tea and coffee. UK adolescents get nearly four times as much caffeine from tea as from energy drinks, and about the same amount of caffeine from coffee as from energy drinks.<sup>60</sup> Additionally, contrary to the allegations by panelists at the 12 June oral evidence session,<sup>61</sup> there is no evidence that adolescents consume energy drinks more rapidly than coffee or tea. (See paragraph 18, above.) Even if they did, this would not provide a reason to single out energy drinks for regulation. Specifically, regardless of whether caffeine is added to a product or naturally occurring, and whether it is consumed hot or cold, rapidly or slowly, or from a carbonated or non-carbonated beverage, there is no chemical difference, and studies have shown the effects are the same.<sup>62</sup> Finally, NASUWT fails to acknowledge that Canada has not imposed age restrictions on the sale of energy drinks. Canada's approach is consistent with those of other countries with high regulatory benchmarks such as the United States, Australia, and New Zealand, which have not imposed age restrictions on the sale of energy drinks.

### **V. Monster does not market to children, through gaming or any other format, and evidence demonstrates that adolescents are very familiar with coffee brand marketing**

36. At the 12 June oral evidence session, Professor Russell Viner falsely stated that coffee is not promoted to children but energy drinks are.<sup>63</sup> This is wrong. First, Monster does not market to children. Monster considers the primary target demographic of its consumers to be adults 18-to-34 years old and its secondary target demographic to be adults 35-to-44 years old (primarily males). Marketing to a younger demographic would undermine the brand image and personality that Monster has spent billions of dollars to create and develop over the past 16

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enormously, and Starbucks lists different caffeine amounts in different countries.

<sup>60</sup> See, e.g., EFSA, Scientific Opinion on the Safety of Caffeine, 13(5) EFSA J. 1,107 (2015), available at <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2015.4102> (referencing the survey NDNS Rolling Programme Years 1-3).

<sup>61</sup> See, e.g. Oral Evidence Transcript, at Q19 & Q41.

<sup>62</sup> J.R. White et al., *Pharmacokinetic analysis and comparison of caffeine administered rapidly or slowly in coffee chilled or hot versus chilled energy drink in healthy young adults*, 54 Clin. Toxicol. 308, 312 (2016), available at <https://www.tandfonline.com/doi/full/10.3109/15563650.2016.1146740>.

<sup>63</sup> Oral Evidence Transcript, at Q41.

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years. Accordingly, Monster directs its advertising and promotional activities, including Monster's sponsorship and promotion of competitive gaming, towards older consumers. Monster sponsors and promotes an extensive range of activities, one of which is competitive gaming (i.e., "eSports"), consistent with its targeted consumer demographics. However, its total spend in this regard is less than 2% of its overall marketing and promotional costs. Although it may not be generally well known, competitive-gaming viewers are primarily adults. Indeed, statistical data show that 86% of UK eSports viewers are 21 years old or older.<sup>64</sup> Further, to the extent that children are playing and have access to games which are designed for those over age 18, gaming regulations, rather than energy drink regulations, are the appropriate regulatory measure to ensure that children access age-appropriate games only.

37. Second, adolescents are indeed attracted to coffee brand marketing, and it is naïve to suggest that adolescents do not consume coffee. Coffee brands such as Starbucks have a high awareness and appeal to teens. In the U.S., for example, a 2018 survey showed that Starbucks was the top-branded restaurant among U.S. teens from average-income households.<sup>65</sup> Monster believes that coffee chain coffees are clearly consumed by adolescents. To the extent the Committee—despite the evidence—simply cannot envision an adolescent consuming traditional coffee beverages, Monster notes that myriad, non-traditional coffee beverages, such as flavored and cold brew coffees, are available for adolescents to purchase and consume. The fact that these types of Starbucks coffees, such as ones that combine vanilla bean syrup and cold brew coffee, have been featured in Teen Vogue magazine suggest that such coffee products are particularly attractive to adolescents.<sup>66</sup> These coffees are available in the UK.<sup>67</sup> The high awareness and appeal could be attributed to the prevalence of coffee chains on the high street, often near schools, and the presence of coffee shops within schools. There is also evidence that school websites promote coffee to their pupils.<sup>68</sup>
38. Finally, there is significant voluntary action by the energy drink industry to avoid marketing energy drinks to children, and the evidence shows that energy drinks are not consumed excessively by children or adolescents.
39. While there is no issue in need of government regulation, an unwarranted government-imposed age restriction on the sale of energy drinks could actually increase energy drink consumption. Indeed, Dr. Lake acknowledged at the 12 June oral evidence session that a mandatory age restriction could encourage energy drink consumption by making energy drinks more attractive to children.<sup>69</sup>

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<sup>64</sup> Newzoo, The UK Esports Audience 2016 (Aug. 2, 2016), <https://newzoo.com/insights/infographics/uk-esports-audience-2016/>.

<sup>65</sup> Piper Jaffray 35th Semi-Annual Taking Stock With Teens Survey, Spring 2018, [http://www.piperjaffray.com/private/pdf/2018\\_Spring\\_TSWT\\_Spring\\_Infographic\\_LARGE.pdf](http://www.piperjaffray.com/private/pdf/2018_Spring_TSWT_Spring_Infographic_LARGE.pdf).

<sup>66</sup> Teen Vogue, *Starbucks' New Nitro Coffee Flavors Will Awaken Your Soul*, 7 July 2018, <https://www.teenvogue.com/story/starbucks-nitro-coffee> (accessed 22 June 2018).

<sup>67</sup> Starbucks, *Starbucks Debuts Nitro Cold Brew in the UK*, <https://news.starbucks.com/news/starbucks-debuts-nitro-cold-brew-in-the-uk> (accessed 22 June 2018).

<sup>68</sup> See, e.g. Highams Park School, Lavazza Coffee, <http://www.highamsparkschool.co.uk/index.php/parents/healthy-eating/lavazza-coffee>; Xaverian College, Relax and Unwind, [http://www.xaverian.ac.uk/college-life/relax\\_and-unwind/](http://www.xaverian.ac.uk/college-life/relax_and-unwind/).

<sup>69</sup> Oral Evidence Transcript, at Q31.



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**VI. There are no scientific grounds for a can-size restriction**

40. To the extent that the Energy Drinks Europe submission suggests that a can-size restriction would be an appropriate government regulation, this is not supported by the scientific evidence. A limit on container size is not supported by the evidence on safety. Nor is it supported by caffeine or energy drink consumption data, which consistently show that adolescents do not consume excessive amounts of caffeine or sugar from energy drinks regardless of can size. Moreover, a can-size restriction is arbitrary, as can size does not reflect the concentration of any ingredient in the product, and a larger can could have the same or less caffeine (or sugar) than a smaller can of energy drink. Finally, the research has not demonstrated that container-size limits ultimately will reduce consumption. In fact, there is scientific evidence that government-mandated container-size restrictions may have the unintended consequence of increasing consumption of certain foods and beverages.<sup>70</sup>

**Conclusion**

Monster hopes the foregoing clarifications are useful to the Committee, and believes that a complete and balanced view of the full body of evidence demonstrates that there is no scientific basis to single out energy drinks for additional regulation.

As stated earlier in this paper, Monster would welcome the opportunity to provide oral evidence to the Committee.

*June 2018*

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<sup>70</sup> Eleni Mantzari et al., *Perceived Impact of Smaller Compared with Larger-Sized Bottles of Sugar-Sweetened Beverages on Consumption: A Qualitative Analysis*, 120 APPETITE 171, 177 (2018), available at <https://www.sciencedirect.com/science/article/pii/S0195666317301332?via%3Dihub>.