The Easter bunny and the chocolate conspiracy

Nathan J Grills

From public health pariah to pin-up bunny?

Chocolate manufacturers around the world know that the Easter bunny (EB) is highly effective at enticing us to eat chocolate. Up to 28% of one manufacturer's yearly chocolate sales occur in the lead up to Easter.[1] Another company produces about 500 million of one particular Easter egg variety — the United Kingdom's most sold Easter confectionery.[2] The EB has been popularised and exploited by chocolate manufacturers and other companies selling this energy-dense, nutrient-poor (EDNP) food. Since when did bunnies lay eggs made of chocolate? Is this a conspiracy to sell lucrative chocolate eggs?

I have argued that Santa Claus is a public health pariah who advertises unhealthy products to children and normalises obesity,[3] but what about the EB — is this bunny an innocent fairytale character[4] or another unhealthy childhood role model?

1 Would you trust this bunny?

Eggs, rabbits, Easter and chocolate

For millennia, eggs were gifts to celebrate the coming of spring, while rabbits and hares represented fertility and new life after winter.[5] With the commercialisation of Easter in the 20th century, chocolate Easter eggs grew in popularity and, through some excellent marketing, chocolate manufacturers bred a chocolate-egg-bearing rabbit. Then, in a move that would have made Willy Wonka proud, they made Easter bunnies of chocolate (Box 1) and sold both the bunny and the eggs![5]

EDNP foods, obesity and chronic disease

Although the EB's delivery practices may provide a better role model than Santa's, with its vigorous round-the-world hopping sustained only by carrots, the EB may have a more direct impact on obesity by promoting and distributing EDNP food. Excess chocolate has been linked to dental caries and obesity, and obesity has been linked to a significantly higher risk of type 2 diabetes,[6,7] hypertension,[8] gall bladder disease,[9] liver disease,[10] and heart disease and stroke,[11] and to a small increased risk of cancer (breast, colorectal and endometrial cancers).[12,13]

Chocoholics and EDNP food companies quote studies showing that cocoa polyphenols protect against cardiovascular disease (CVD).[14] However, such studies do not adequately account for confounders, such as comorbidities, or the effect on those with existing CVD who are advised to avoid EDNP food. Also ignored is the fact that most Easter eggs have only a small proportion of cocoa solids and high levels of hydrogenated vegetable oil (*trans* fats). The negative health effects of chocolate are minimal when it is consumed sensibly, but at Easter this seems to be rare.[1,2]

Marketing, exploitation, children and advertising

In the same way that Santa was a feature of Coca-Cola advertising,[15] the EB's role is to sell chocolate eggs to children. This is not the first time that iconic childhood figures have been used successfully to market products to children and create associations between a product and happy times.[16,17] Fictional characters such as Ronald McDonald have become more familiar to children in the United States than the American President or the Pope.[17]

International reviews have found that heavy marketing of EDNP food, high in salt, sugar and fat, is likely to have deleterious effects on children's diet.[18] According to the World Health Organization, such advertising contributes to children being overweight and obese and is an important area for preventive action.[19] Given that the EB's marketing may influence hundreds of millions of children, chocolate intake only needs to increase in one in 10 000 children to have a deleterious effect on the health of millions of children.

In Australia, the National Preventative Health Taskforce recommends phasing out "premium offers, toys, competitions and the use of promotional characters, including celebrities and cartoon characters, used to market EDNP food and beverages to children".[13] Similar regulation is occurring in the UK, the US, Canada, Norway and Sweden.[20-22] In Sweden and Norway and the Canadian province of Quebec, there are extensive legislative prohibitions on advertising to children. These

commercial advertising laws might mean the end of the EB in advertising; after all, wherever the EB hops, it is advertising to children. As a "promotional character", will the EB be phased out in Australia?

Adults, childhood memories and learned behaviour

Some ground-breaking research has shown that belief in the EB decreases with age,[4] but the public health implications do not — much of the chocolate consumed at Easter is in fact consumed by adults.[23] Having been conditioned as children to associate the EB and chocolate with happy memories of Easter, adults (over)consume chocolate at Easter as they relive these happy feelings and memories. Conceivably, the positive psychological effects of low doses of Easter chocolate consumption might outweigh the negative ill health effects, but at higher doses of sugar and fat, the marginal benefit decreases and is eventually negated. The EB promotes high-dose chocolate overindulgence by children at Easter, a habit which then becomes normalised behaviour for many adults.

Easter egg hunts, violence, injury and choking

At Easter, egg hunts are common, as children search for eggs hidden by the EB. Conceivably, these might encourage healthy physical activity: children can run very fast when chocolate Easter eggs are awaiting discovery. Simple modelling, however, debunks this theory (Box 2). Assuming the average child finds, and then consumes, fourteen 10 g eggs and one 125 g egg (5819.9 kJ), a basic energy expenditure formula suggests that a 338-minute (5.6-hour) Easter egg hunt is required to burn off the kilojoules gained from the eggs consumed.[25]

Not only do Easter egg hunts promote an unhealthy energy balance, they may also contribute to the burden of injury in children (with injury being the most significant cause of mortality in 1–18-year-olds).[26] Given that sharing chocolate eggs is not instinctive for young children, Easter egg hunts have the potential to cause emotional distress and interpersonal violence. We have probably all witnessed, or been involved in, a fight over the EB's treats. Furthermore, the stimulant effect of the caffeine and theobromine compounds in chocolate may accentuate this risk.

Admittedly, children taking part in Easter egg hunts do not normally sustain serious injury, but, as eminent epidemiologist Geoffrey Rose detailed in his seminal work *The strategy of preventive medicine*, when a rare risk is widespread, the impact can be large.[27]

2 Easter egg hunts — hunting time needed to burn off chocolate eggs consumed

No. of 10 g Easter eggs	Chocolate (g)	Energy (kJ) consumed	Running time required (min)
5	50	1098.3	63
10*	100	2196.6	127
15	150	3294.9	190
20	200	4393.2	255
25	250	5491.5	318
30	300	6589.8	381

* The average Australian consumes 10 Easter eggs.[24] ◆

3 A perfect choking hazard

For example, suppose that the Easter egg hunt injury rate is one in 10 000 participating children (ie, a very low risk); if, on Easter Sunday in the US, 30 million children participate in hunts, then more than 3000 children would be injured!

Another danger is choking. One could scarcely design a more perfect choking hazard: small, colourful, foil-wrapped chocolates marketed specifically to our most vulnerable consumers (Box 3). Given the EB's potential to promote this kind of injurious behaviour, I consulted surveillance sources for injuries related to "Easter bunny" or "Easter eggs". The codes in the Victorian Emergency Minimum Dataset related to choking are: "Foreign object obstructing airway" (W44) and "Inhalation and ingestion of food causing obstruction of respiratory tract" (W79),[28] but there is no category permitting analysis of choking related to Easter eggs. Perhaps W79 should be further differentiated into "Inhalation and ingestion of Easter egg causing obstruction of respiratory tract".

Easter, chocolate and international public health

The EB, like Santa, has an international profile as an export item to the developing world. The potential for the EB to be misused may be even greater in countries where advertising is less regulated. For example, Easter is celebrated in countries such as India, where Good Friday and Easter Monday are national holidays.[29] Just as Coca-Cola and Santa have colonised the developing world, the EB is sure to follow.

How can we make the EB the pin-up bunny of public health?

Although bordering on the ridiculous, my article highlights the fact that, due to its popular acclaim, the EB, like Santa, can be used to promote unhealthy behaviour. Giant multinational food and beverage companies realised long ago that celebrities, like the EB, sell commodities, including unhealthy ones, and children are a particular target. We could change this by:

Minimising the harmful effects

- Educating parents to protect their children from the deleterious effects of belief in the EB. Ferreting out the EB is not the "nanny state" imposing health behaviour on our community; it is protecting children from "nanny parents" imposing an unhealthy EB

belief on their children.[4] Children are generally very happy with themselves for having worked out that their parents are deluded in this belief. They always knew Easter was all about chocolate and not the EB anyway.

- Instituting better surveillance so we can measure the EB's impact on public health (eg, include "EB-related deaths" in the WHO's standardised documentation).[30]
- Restraining EDNP companies from employing the EB as their chief marketing consultant to sell unhealthy food to children, perhaps through employment conditions such as a levy on the EB's advertising activities (consistent with the recently recommended levy on advertising of EDNP food and alcohol[31]).

Changing the EB's image

- Given the EB's potential for good, it could become a public health pin-up bunny, supporting campaigns that encourage children to eat the recommended daily five servings of vegetables and two servings of fruit. Chocolate egg hunts could become brussels sprout hunts! After all, the EB itself would advocate for this change, given that bunnies do not digest chocolate particularly well.

Competing interests

None identified.

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