Food choice and overconsumption: The effect of a premium sports celebrity endorser

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**Abstract**

Objectives: To determine if exposure to celebrity endorsement in television food advertising and a non-food context would affect *ad libitum* intake of the endorsed product and a perceived alternative brand.

Study Design: 181 UK children aged eight to eleven years viewed one of four commercials/television clips embedded within a cartoon; 1) a commercial for Walker’s potato chips featuring a longstanding celebrity endorser, 2) a savoury food commercial, 3) television footage of the same endorser in his well-known role as a TV presenter, or 4) a non-food commercial. Children’s *ad libitum* intake of potato chips labelled ‘Walker’s’ and ‘Supermarket brand’ was measured using ANOVA.

Results: Children who viewed the endorsed commercial or the television footage of the endorser outside of a food context consumed significantly more of the Walker’s potato chips than children in other groups. These children did not reduce their intake of the ‘non-branded’ product to compensate; therefore the endorser effect contributed to overconsumption.

Conclusions: The influence of a celebrity endorser over food intake in children extends to beyond their role in the specific endorsed food commercials, prompting increased consumption of the endorsed brand even when the endorser has been viewed in a non-food context. The ubiquitous nature of celebrity media presence may reinforce unhealthy eating practices in children although research with other endorsers is needed.

**Introduction**

Advertising exerts a powerful influence over the foods children select for purchase and consumption.(1-6) This is problematic, as the majority of foods advertised are unhealthy items which do not meet nutritional guidelines due to high fat, sugar or salt content.(7,8) Life-long food preferences are formed during childhood, determining the content and quality of the future diet, and so the effects of advertising can impact upon a child’s future weight status and health.(9)

Celebrities or "hero figures" show greater influence than other adult models in inducing children to try foods.(10) Because of this, celebrity endorsers (“a famous person who uses public recognition to recommend or co-present with a product in an ad” (11)) are a frequently used marketing strategy(12,13) and often appear in television commercials promoting foods high in fat, sugar and salt.(14,15) There is evidence from qualitative research to suggest that the association of certain foods with sports celebrities in particular may influence children to believe that high-energy products are healthy and augment sports performance.(16)

The UK TV advertising regulations state that “Celebrities popular with children...may not be used in high fat, sugar and/or salt (HFSS) product advertisements targeted directly at pre-school or primary school children” (p50)(17). However, former England international soccer player Gary Lineker (now principally a TV sports presenter) has been endorsing the promotional campaign for Walker’s Crisps (potato chips) since 1995.

Although several authors have explored effective celebrity endorser characteristics with experimental methods,(18-20) no previous studies have examined the specific effects of celebrity endorsement on food choice and intake. Therefore, the primary aim of the present study was to test whether celebrity endorsement in television food advertising and exposure to the celebrity endorser in a different, non-food context would affect *ad libitum* intake of the endorsed product and a perceived alternative brand of the same food item. Specifically, it was hypothesised that exposure to the celebrity endorser in either context would increase levels of consumption of the endorsed brand of potato chips relative to the non-endorsed brand.

**Methods**

Ethical approval for this study was provided by the University of Liverpool, School of Psychology Ethics Committee in 2005, and updated and renewed in 2008. Informed consent was obtained from parents and children prior to participation.

181 participants aged 8-11 years (mean 10.0 ± SD 0.9y) from 8 primary schools in North West England were recruited to this study (Table 1). This was an opportunity sample; however the age range is consistent with previous studies that have demonstrated effects of television food advertising on children’s food intake.(4) Children with a food allergy of any kind (as indicated by parents) were excluded from participating.

This study was a mixed design. All participants viewed one of four 45-second commercials or television clips embedded within the same 20-minute cartoon (The Simpsons); 1) a branded potato chip commercial (Walker’s potato chips) endorsed by the sports star mentioned in the introduction, 2) a general savoury food commercial (for a branded salted peanut product, ‘Nobby’s Nuts’), 3) television footage of the same endorsement figure outside of a food context (presenting a soccer highlights programme called Match of the Day, no branding for the food product was seen in this condition) or 4) a control, non-food commercial (toy promotion). Participants’ intake of two differently labelled bowls of potato chips was measured (as detailed below).

On test days, children were shown a DVD in small groups (5-10 children). Immediately following viewing, all children were presented with two bowls of potato chips. Each bowl contained 100g of Walker’s Ready Salted potato chips, but one bowl was labelled ‘Walker’s’ and the other bowl was falsely labelled ‘Supermarket brand’ (text only, no logos were used). Children were also verbally informed of the purported difference between the items (“as you can see from the labels, one bowl contains a supermarket brand of ready salted potato chips and the other contains Walker’s Ready Salted Potato Chips”). Children were then instructed that they could eat as much or as little as they wished, and that more of each food was available should they want more. Intake of each item (in grams) were the dependent variables, and these were determined by weighing foods on a balance (Sartorius Model BP8100, Sartorius Ltd., Epsom, UK; 0·1g accuracy) before and after the opportunity for consumption. At the end of the session, participants’ height was measured to the nearest 0·1cm using a stadiometer (SECA Leicester Portable Height Measure) and weight using recently calibrated weighing scales (SECA 770) to the nearest 0·1kg. BMI was then calculated as weight (kg)/height (m2). Using internationally recognised criteria for children, as recommended by the International Obesity Task Force,28 overweight and obesity were defined based on age- and gender-specific BMI cut-off points equivalent to adult BMIs of 25 kg/m2 and 30 kg/m2 respectively.

***Statistical Analysis***

Preliminary examination of the intake data showed a slightly positive skew. Outliers (± SD 1·98) causing type 1 errors were removed and a square root transformation was performed. Initial ANCOVA models included age, weight status and BMI, but as all were shown to have had no independent or interactive effect these variables were removed from further analyses. Analysis of Variance (ANOVA) was used with relevant post-hoc t-tests. All comparisons were two-tailed and significance was taken at *P*<0·05, with Bonferroni adjustments for multiple comparisons. Analyses were completed using SPSS v19·0 for Windows (IBM, Chicago, IL 60606, USA). Results are reported as mean ± SD.

**Results**

Figure 1 displays the mean intake (g) of both the endorsed brand of potato chips (Walker’s) and the non-endorsed brand of chips (labelled ‘Supermarket brand’) for the four independent groups. Although analyses have been conducted based on gram intake, as both foods offered were actually the same item, changes in gram intake are also indicative of changes in caloric intake.

A significant main effect of potato chip type (endorsed brand or non-endorsed brand; F1,177=67·561, *P*<0·001) and a significant interaction between potato chip type and condition (experimental exposure to one of three commercials or television footage of the celebrity endorser in a non-food context) on intake were found (F3,177=4·509, *P=*0·004).

With regard to the main effect of potato chip type, overall children consumed more of the endorsed than the non-endorsed brand (95% CI: 10·800-17·055; *t*180=8·450; *P<*0·001). This pattern was found for condition 1 (branded and endorsed potato chip commercial; 95% CI: 13.238-28.037; t50=5.602; *P*<0.001), condition 2 (other snack food commercial; 95% CI: 6.461-15.905; t40=4.787; *P*<0.001), condition 3 (television footage of the endorser in a non-food context; 95% CI: 11.367-24.313; t49=5.538; *P*<0.001) but not for condition 4 (non-food commercial; 95% CI: 0-6.689; t38=1.669; *P*=0.103).

With regard to the interaction between potato chip type and condition, children in condition 1 and those in condition 3 did not differ in their intake of the endorsed brand of potato chips (95% CI: 1·231-4·088; *t*99=0·493; *P=*0·623). However, children in condition 1 did consume significantly more of the endorsed brand of potato chips than the children in condition 2 (95% CI: 3·789-18·352; *t*90=2·998; *P=*0·004) or condition 4 (95% CI: 8·550-22·673; *t*84=4·521; *P<*0·001). Similarly, children in condition 3 also consumed significantly more of the endorsed brand of potato chips than the children in condition 2 (95% CI: 2·618-17·062; *t*88=2·327; *P=*0·021) or condition 4 (95% CI: 7·381-21·381; *t*86=3·673; *P<*0·001). The intake of the endorsed brand of potato chips did not differ between the children in conditions 2 and 4 (95% CI: -1·486-10·568; *t*78=1·044; *P=*0·300).

There were no significant differences in intake of the non-endorsed brand of potato chips between experimental conditions. Children in condition 1 did not consume a significantly different amount of the non-endorsed potato chips than those in condition 2 (95% CI: -2·561-5·794; *t*90=0·428; *P=*0·670), condition 3 (95% CI: 1·231-4·087; *t*99=0·722; *P=*0·472) or condition 4 (95% CI: -6·935-2·930; *t*88=0·816; *P=*0·417). Participants in condition 3 did not have a significantly different intake of the non-endorsed brand of potato chips compared to the children in conditions 2 (95% CI: -1·016-7·382; *t89*=1·157; *P=*0·250) or 4 (95% CI: -5·399-4·528; *t*87=0·147; *P=*0·883). The intake of the non-endorsed brand of potato chips was also similar between the groups in conditions 2 and 4 (95% CI: -8·522-1·284; *t*78=1·236; *P=*0·220).

**Discussion**

This study demonstrated the effects of exposure to celebrity endorsement in television food advertising on *ad libitum* intake of the endorsed product and a perceived alternative brand of the same food item. These data show that experimental exposure to a celebrity-endorsed commercial significantly increased children’s caloric intake of the endorsed brand of potato chips compared to those children who had viewed commercials for an alternative snack food or for a non-food item.

However, importantly, this study also showed that viewing the celebrity endorser in a different, non-food context (presenting a soccer highlights television programme) also significantly increased intake of the endorsed brand of potato chips relative to exposure to a different snack food or non-food commercial. Although previous studies have linked celebrity endorsers with children’s beliefs about food,(16)  this study quantifies, for the first time, the powerful influence that celebrity endorsement has over children’s brand preferences and actual consumption. Children did not consume significantly more of the branded than the non-branded product in the control, non-food commercial condition. This suggests that there wasn’t a pre-existing bias to the Walker’s brand. However, children did consume more of the branded than the non-branded product in the other three conditions, showing that exposure to a commercial - even for a different product - significantly enhanced intake of a branded food relative to an unbranded equivalent. This is consistent with previous studies using this paradigm as it shows the beyond-brand effect of TV food advertising on food consumption, i.e. that food commercials do not just affect intake of the specific food being promoted.(4-6)

This celebrity endorser influence extends to beyond their involvement in commercials and does not affect intake of non-endorsed brands of the same item, therefore this speaks to the strength of the association that children develop between celebrity and branded product. This reinforces the American Academy of Pediatrics’ assertion that children are particularly susceptible to marketing techniques such as celebrity endorsement.(21) As children did not reduce their intake of the non-endorsed brand to compensate for their increased consumption of the endorsed brand, the celebrity endorser effect could contribute to overconsumption.

No previous research has shown the intake effects of celebrity endorsement, but concerns over the role of promotional characters in children’s food choice and intake decisions have led to changes in the regulation of such marketing strategies in television food advertising. Whilst the use of celebrities popular with children to advertise HFSS products directly to pre-school or primary school children is no longer permitted in the UK, this specificity of wording still allows the use of celebrities of general appeal to advertise HFSS products to a general audience. The celebrity endorser investigated in the current study, Gary Lineker, could be considered to be of general appeal to UK viewers of all ages, with adults more likely to consider his fame and influence as stemming from his role as a soccer player for the English national team between 1984 and 1992, and younger people being more familiar with his longstanding media career, which includes a role voicing a popular cartoon character on a dedicated children’s channel. It could also be argued that the content of the series of commercials in which he appears are of particular appeal to younger viewers, as the endorser always plays a comical role as an arch-villain which plays humorously on the endorser’s reputation as a ‘nice guy’.

Furthermore, with regard to the specific appeal of this campaign to children, the temporary renaming of both salt and vinegar and smoky bacon flavours of this brand of potato chips to ‘Salt and Lineker’ and ‘Smoky Beckham’ to reinforce celebrity endorsements of this brand (by Gary Lineker and David Beckham) appeared to be a strategy targeted at younger consumers. Therefore, it is a concern that the current regulations do not affect Gary Lineker’s celebrity endorsement of potato chips, and so his influence over children’s brand choice and food intake is allowed to continue despite statutory legislation designed to reduce “opportunities to persuade children to demand and consume HFSS products”.(22) This has implications for the policy debate in the UK and also for other countries where the specifics of potential legislation are yet to be identified.

These data also raise concerns over children’s exposure to celebrity endorsers in contexts other than the specific brand of food commercials they endorse. Celebrities are chosen to endorse products based on many characteristics, including their visibility to consumers through their public lives outside of the commercials.(23) Therefore it would be expected that celebrity endorsers of food products would frequently appear in broadcast and non-broadcast media by virtue of their area of renown. If each exposure to the celebrity endorser acts as a cue for consumption of the endorsed HFSS food, as demonstrated by the data presented here, this means that the more prominent the celebrity, the more detrimental the effects on children’s diets.

This study has some limitations that should be acknowledged. The prior food preferences, eating styles and socio-economic status of the children were not measured. These factors may have had an influence on the results. It would also have been informative to have measured children’s eating patterns; i.e. whether they ate from a particular bowl first before sampling the other. In addition, there was no attempt to determine if children were aware of the endorser – brand association after testing. Also, children’s ratings of taste were not assessed so it is not clear whether or not children realised that both products were actually the same food.

This study explored the impact of one very well-known and respected UK celebrity endorser on food intake in UK children. This work should be replicated with other celebrities and other populations to determine the robustness and generalizability of these effects. In addition, future research should focus on the potentially confusing and damaging effects that sports celebrity endorsement could have on the understanding of healthy eating messages by young consumers. This concern also applies to the wider context of HFSS food and sport brand associations. It is commonplace for brands that are principally known for the HFSS products in their range to sponsor major sporting events and teams, such as the official sponsorship of the England soccer team by not only Walker’s, but also Mars and Coca-Cola. Their branding activity, including advertising boards around playing fields and logos on stars’ training wear, is prominent and visible to viewers of the sport and may unfairly influence children’s ability to discriminate between healthy and unhealthy food choices. Research should also aim to quantify the effect of sports celebrity endorsement of HFSS foods on the perceived healthiness of such foods (e.g. potato chips), exploring previous qualitative findings suggesting that such endorsement leads children to believe that high-energy products are healthy and may boost sports performance.(16)

Based on the results of this study, regulation of food advertising on television should take into account the influence on children’s brand choices and food consumption of celebrity endorsers with a general population appeal, not just those with a particular appeal to young people. Consideration should also be given to the visibility of that celebrity in other contexts (e.g. other media roles or exposure as a result of their prominence in their area of renown) as these data show that their influence over food intake extends to beyond their role in the specific endorsed food commercials.

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Figure Legend

Figure 1

Mean (±SEM, indicated by the error bars) intake of potato chips (g).

a *P*<.001, indicates a significantly greater consumption of the endorsed brand of potato chips compared to the other food and non-food commercial conditions.