Marketing Unhealthy Food and Beverages to Children and Youth:
The case for extending protection to adolescents

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Each year in North America the food industry spends billions of dollars marketing their products to consumers. The food industry states that food marketing is an opportunity for companies to inform consumers of the merits of their products and the mature consumer is then able to make an informed choice. Neoclassical economic theory assumes that choices are made by people who have rational preferences between outcomes and that individuals maximize utility by acting independently on the basis of full and relevant information.

Advocates for unrestricted marketing defend even the marketing of unhealthy products based on the premise that individuals who choose to consume unhealthy products possess adult reasoning skills and are fully aware of the risks and benefits of their choices and the state should not interfere. Marketing however involves much more than the provision of information, it usually entails linking the purchase of a product with desirable social outcomes and resisting this appeal can be problematic, especially for adolescents.

Although the modern study of behavioral psychology indicates that adults often demonstrate poor reasoning when making choices, they are generally considered competent to make rational decisions. In Canada, complete legal rights are granted to those over the age of 19 years.

Canadian law has recognized that children are not capable of adult levels of reasoning and has upheld the Quebec ban on all commercial marketing to children under the age of 13 years. It is intuitively obvious that preschoolers, who often believe in Santa Claus, the tooth fairy and the Easter Bunny, are particularly naive and therefore vulnerable and in need of protection. There is evidence that children under the age of 5 usually cannot distinguish TV programs from advertising.

By the age of 12 years most children understand the selling aims of advertising and many can express skepticism about marketing. Some view this as evidence that by the age of 13 years most youth are sufficiently mature to critically evaluate and resist advertising. However observations of youth behavior combined with advances in neuroscience has made this assumption less tenable.

It is now clear that the teenage brain is very much “under construction” and often displays unique developmental vulnerabilities that warrant protection. These advances raise the question: At what stage of neurodevelopment are most children and youth able to make sound decisions and to critically evaluate marketing?

**The Teenage Brain**

The brain is the organ of thought and the prefrontal cortex (PFC) is the area of the brain thought to be most involved in exerting executive control. The PFC is involved in attention regulation, inhibition of impulses and anticipation of the consequences of actions. The PFC develops slowly and is not fully formed until the mid to late twenties. In general, a twenty year old has greater reasoning capacity than a 13 year old year old in that the older brain is less impulsive and more resistant to peer influence and emotional impulses. The orderly progression of reasoning capacity that accompanies PFC maturation seems to be disrupted by puberty.

Most scholars agree that adolescence begins with the visible onset of puberty. On average, North American girls begin puberty by 10 years of age and the average onset for boys is 12 years. Over
95% of teenage girls complete puberty by age 16 years and a similar percentage of boys complete puberty by age 18 years. Adolescence has been recognized as a distinct phase of human development for thousands of years. It is heralded by the appearance of secondary sexual characteristics and these outward changes are the result of a surge in sex hormones such as testosterone, estradiol and DHEA. These hormones also exert profound effects on the human brain. Adolescence is a period of dynamic brain development which has been preserved across mammalian species and likely has evolutionary benefits in that the behavior of adolescents prompts them to “approach, explore and take risks.” There is strong evidence that indeed, adolescence is a period of increased risk. Rates of depression increase 400% from childhood to adolescence and morbidity and mortality from preventable causes such as motor vehicle accidents, suicide and homicide increase 300%. Adolescents possess unique attributes which predispose them to underestimate risks, discount adult direction in favor of peers and render them susceptible to disproportionate emotional influence in decision making as compared to adults. Many of these developmental vulnerabilities appear in puberty and this phenomenon is observed in nearly all social mammals. These behavioral observations coincide with structural brain changes that accompany adolescence. Neuroscience has made it clear that many of the behaviors which typify the teenage years are “hard wired” and not due to insufficient experience or information. The end of adolescence is more subjective and in modern societies generally ranges between the age of 18 and 21 years. However it has been noted that even by this age most young adults “have not attained many of the traditional markers of adult status (e.g. financial independence, completion of formal education, stable romantic relationships, full-time employment and parenthood). The late establishment of adult status is consistent with what we now know to be the slow maturation of brain structure and function.

**The effects of sex hormones on the brain**

The teenage years are notable for hormonally mediated changes in both the function and structure of the brain. One area that undergoes significant change is the ventral striatum, responsible for strong reward seeking tendencies as well as the preference for immediate gratification seen in adolescence. This predisposition is even greater than that found in younger children. The relatively rapid growth in the size and influence of the reward centers of the teen brain is thought to create a mismatch with their prefrontal control centers which are still developing. This imbalance may lead to a lack of control over impulses. It is therefore not surprising that teens are major targets for the marketing of high fat, salt and sugar foods, which promise instant gratification upon consumption.

Adolescence is also marked by a unique susceptibility to peer influence. This is likely linked to hormonal mediated structural changes in the social brain network including the temporal lobes. Teens demonstrate a shift in social affiliation from parents to peers. The need to be accepted by peers and to avoid social rejection is a strong driver of adolescent behavior and self-image is
strongly affected by peer evaluations. In addition teens value other teen’s opinions more than the opinions of adults. Savvy marketers recognize the power of peer influence on teens and craft their advertising accordingly.

The teenage brain is notable for the strong effects emotion has on decision making. During adolescence the amygdala, which is involved in emotional processing, enlarges and its connections with the cortex of the brain become denser. These anatomic changes correlate with a heightened sensitivity to emotions when making decisions. This heightened sensitivity appears to diminish by adulthood. The influence of emotional arousal on the teenage brain is recognized by marketers and products are frequently portrayed in positively emotive scenarios.

**Increased autonomy with adolescence**

The teenage years are also characterized by the acquisition of discretionary income as many teens have part time employment. These working teens are now free to purchase unhealthy food and beverages without parental oversight. In addition, teens are spending an increasing amount of time online and a significant portion of internet use is done without supervision. Online marketing for food and beverages are often cloaked as games and viral videos, increasing their persuasive powers.

**Canadian law acknowledges the immature cognitive development of teens**

The unique vulnerability of the adolescent brain has long been recognized by Canadian society and is reflected in our laws:

- Unsupervised driving is prohibited until 16-17 years
- The age of sexual consent is recognized as 16-18 years
- Voting privileges are granted at age 18 years
- Alcohol consumption is not permitted until age 18–19 years
- It is illegal to purchase tobacco before 18–19 years

**Protection from the marketing of unhealthy products must extend beyond 12 years of age**

Our understanding of human neurocognitive development has improved since 1978 when Quebec banned all commercial marketing to children under the age of 13 years. At that time many felt that adolescents were well equipped to resist the forces of marketing and had an adult capacity to make sound judgements. However we now know that the adolescent brain has unique structural and functional susceptibilities.

Youth have a tendency to seek immediate gratification, to take excessive risks and to be inordinately influenced by peer pressure. In addition, youth decision making is particularly affected by emotions. These mental characteristics appear with the onset of puberty and seem to peak between the ages of 13 to 16 years. Teens cannot simply be told to reason better. Society needs to protect teens until their judgement improves with neuro-maturation.
With puberty and the accompanying hormonal changes there are significant structural changes in areas such as the prefrontal cortex, the ventral striatum, amygdala and hippocampus and these changes coincide with significant changes in brain function\textsuperscript{43}. In many ways these changes temporarily reverse the age related, orderly progression of reasoning ability and judgement which accompanies the maturation of the PFC\textsuperscript{44}. The human brain does not acquire adult-like decision making capacity until the mid to late 20s.

The Ottawa Principles recommend that protection from food marketing be extended to all children and youth under the age of 17 years. While this age cut off does not extend protection until all teens complete puberty, it does provide important protection to the majority of teens while they are in their most vulnerable stage of neurocognitive development. This cut off is consistent with generally held societal expectations of the cognitive skills of teens and with evidence based policy.

\textit{They [Young People] have exalted notions, because they have not been humbled by life or learned its necessary limitations; moreover, their hopeful disposition makes them think themselves equal to great things -- and that means having exalted notions. They would always rather do noble deeds than useful ones: Their lives are regulated more by moral feeling than by reasoning -- all their mistakes are in the direction of doing things excessively and vehemently. They overdo everything -- they love too much, hate too much, and the same with everything else.} (Aristotle on the teenage years)
2 https://www.cato.org/research/nanny-state
4 Kahneman D. Thinking Fast and Thinking Slow. Doubleday Canada. 2011
5 Irwin Toy v Quebec, [1986] 2 SCR 927 at 976
6 Food Marketing to Children and Youth: threat or opportunity? Institute of Medicine. 2006. P 5
8 Folta et al. Children watch food advertisements on TV. Preventative Medicine, 2008. 46(2). 177-8.
9 Ibid, p 218.
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