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## Front-of-Package Labeling: Helpful or Harmful?

With this nation's overweight and obesity rates hovering at 30-35%, considerable strides have been made to inform consumers of the nutritional value of the foods they eat. The Food and Drug Administration (FDA) oversees food labeling for packaged foods, and requires that, among other things, the ingredients and nutritional facts are listed.

In the past few years, parents may have also noticed front-of-package (FOP) nutrition labels that purportedly help them make quicker decisions about whether or not a packaged food is good for them or their children.

Cereals commonly sport an identifiable (and green) "Smart Choices," "Nuval" or "Nutritional Highlights" box that lists nutritional attributes. But, there has been a backlash to this sort of at-a-glance advertising, and the FDA is taking notice.

Many consumers, including parents, have complained that the array of FOP nutritional labeling systems is confusing; there is no one, accepted standard so it's hard to know what information to look for product to product. More importantly, consumers are finding that foods that are labeled as good for you are, when its ingredients are read closely, actually bad for you, or at least not as healthful as the FOP label would lead you to believe.

Whereas the Nutrition Facts box on the side or back of packaged foods lists the actual serving size, calories per serving, carbohydrates, fats, sodium, cholesterol, protein and vitamin content and is a trusted source of information, the FOP labels often include only the most healthy content and may be misleading. Similarly, some FOP claims are vague, with words like "healthy," "good for you" or "a better choice" that don't actually tell the consumer the nutritional content.

The FDA has found that many consumers like the idea of FOP labeling because it saves time so they don't have to pour through the Nutrition Facts, but they don't fully trust it and think the claims may be overrated. The FDA is in the process of developing a standardized, science-based FOP labeling system that consumers would adopt and trust. In the meantime, the FDA suggests that consumers continue to read Nutrition Facts labels and specifically look at the % Daily Value content to compare various products.

<http://www.fda.gov/Food/LabelingNutrition/LabelClaims/ucm187320.htm>

# Violent Video Games and Other Media Violence (Part I)

By Craig A. Anderson PhD

(This article appears in two parts. This issue contains Part I and the March/April issue will contain Part II.)

For my 2003 article on *The Influence of Media Violence on Youth*, a group of media scholars and I, selected by the National Institute of Mental Health, reviewed 50 years of research on media violence and aggression.

## Early Research

Most of the early research focused on two questions:

- 1) Is there a significant association between exposure to media violence and aggressive behavior?, and
- 2) Is this association causal? (That is, can we say that violent television, video games, and other media are directly causing aggressive behavior in our kids?)

The results, overall, have been fairly consistent across types of studies (experimental, cross-sectional, and longitudinal) and across visual media type (television, films, video games). There is a significant relation between exposure to media violence and aggressive behavior.

Exposing children and adolescents (or "youth") to violent visual media increases the likelihood that they will engage in physical aggression against another person. By "physical aggression" we mean behavior that is intended to harm another person physically, such as hitting with a fist or some object.

A single, brief exposure to violent media can increase aggression in the immediate situation. Repeated exposure leads to general increases in aggressiveness over

time. This relation between media violence and aggressive behavior is causal.

Early aggression researchers were interested in discovering how youth learn to be aggressive. Once they discovered observational learning takes place not only when youth see how people behave in the real world but also when they see characters in films and on television, many began to focus on exactly how watching such violent stories increases later aggression. In other words, more recent research really focused on the underlying psychological mechanisms.

## Current Research

In the last 10 years there has been a huge increase in research on violent video games. Based on five decades of research on television and film violence and one decade of research on video games, we now have a pretty clear picture of how exposure to media violence can increase aggression in both the immediate situation as well as in long-term contexts.

Immediately after consuming some media violence, there is an increase in aggressive behavior tendencies because of several factors:

- 1) Aggressive thoughts increase, which in turn increase the likelihood that a mild or ambiguous provocation will be interpreted in a hostile fashion
- 2) Aggressive (or hostile) emotion increases
- 3) General arousal (e.g., heart rate) increases, which tends to increase the dominant behavioral tendency
- 4) Youth learn new forms of aggressive behaviors by observing them, and will reenact them almost immediately afterwards

if the situational context is sufficiently similar.

## How Media Violence Increases Aggression

Repeated consumption of media violence over time increases aggression across a range of situations and across time because of several related factors. First, it creates more positive attitudes, beliefs, and expectations regarding aggressive solutions to interpersonal problems. In other words, youth come to believe that aggression is normal, appropriate, and likely to succeed.

It also leads to the development of aggressive scripts, which are basically ways of thinking about how the social world works. Heavy media violence consumers tend to view the world in a more hostile fashion. Additionally, it decreases the cognitive accessibility of nonviolent ways to handle conflict. That is, it becomes harder to even think about nonviolent solutions.

Media violence also produces an emotional desensitization to aggression and violence. Normally, people have a pretty negative emotional reaction to conflict, aggression, and violence, and this can be seen in their physiological reactions to observation of violence (real or fictional, as in entertainment media). For example, viewing physical violence normally leads to increases in heart rate and blood pressure, as well as to certain brain wave patterns. Such normal negative emotional reactions tend to inhibit aggressive behavior, and can inspire helping behavior. Repeated consumption of media violence reduces these normal negative emotional reactions.

Finally, repetition increases learning of any type of skill or way of thinking, to the point where that skill or way of thinking becomes fairly automatic. Repetition effects include learning how to aggress.

### **Effect of Violence in Passive Versus Active Media**

Most of the research has focused on TV/film violence (so-called "passive" media), mainly because it has been around so much longer than video games. However, the existing research literature on violent video games has yielded the same general types of effects as the TV and cinema research.

At a theoretical level, there are reasons to believe that violent video games may have a larger harmful effect than violent TV and film effects. This is a very difficult research question, and there currently is no definite answer. But, recent studies that directly compare passive screen media to video games tend to find bigger effects of violent video games.

### **Violent Video Games and School Shootings**

Mainstream media violence researchers do not believe that an otherwise normal, well-adjusted child who plays violent video games is going to become a school shooter. The best way to think about this issue is the risk factor approach. There are three important points to keep in mind.

First, there are many causal risk factors involved in the development of a person who frequently behaves in an aggressive or violent manner. There are biological factors, family factors, neighborhood factors, and so on. Media violence is only one of the top dozen or so risk factors.

Second, extreme aggression, such as aggravated assault and

homicide, typically occurs only when there are a number of risk factors present. In other words, none of the causal risk factors are "necessary and sufficient" causes of extreme aggression. Of course, cigarette smoking is not a necessary and sufficient cause of lung cancer, even though it is a major cause of it. People with only one risk factor seldom (I'm tempted to say "never") commit murder.

Third, consumption of media violence is the most common of all of the major risk factors for aggression in most modern societies. It also is the least expensive and easiest risk factor for parents to change.

Playing a lot of violent games is unlikely to turn a normal youth with zero, one or even two other risk factors into a killer. But regardless of how many other risk factors are present in a youth's life, playing a lot of violent games is likely to increase the frequency and the seriousness of his or her physical aggression, both in the short term and over time as the youth grows up.

### **Risk Groups for Aggression**

There is some research that suggests that individuals who are already fairly aggressive may be more affected by consumption of violent video games, but it is not yet conclusive. Similarly, video game effects occasionally appear to be larger for males than females, but such findings are rare. Most studies find that males and females are equally affected, and that high and low aggressive individuals are equally affected.

One additional point is worth remembering: Scientists have not been able to find any group of people who consistently appear immune to the negative effects of television, film, or video game violence.

## **Realistic Versus Fantasy Violence**

One of the great myths surrounding media violence is this notion that if the individual can distinguish between media violence and reality, then it can't have an adverse effect on that individual. Of course, the conclusion does not logically follow from the premise. And in fact, most of the studies that have demonstrated a causal link between exposure to media violence and subsequent aggressive behavior have been done with individuals who were fully aware that the observed media violence was not reality. For instance, many studies have used young adult participants who knew that the TV show, the movie clip, or the video game to which they were exposed was not "real." These studies still yielded the typical media violence effect on subsequent aggressive behavior.

### **Contradictory Studies**

In any field of science, some studies will produce effects that differ from what most studies of that type find. If this weren't true, then one would need to perform only one study on a particular issue and we would have the "true" answer. Unfortunately, science is not that simple.

Why have different researchers found different results? Well, part of the problem is that many studies have used a sample size that is much too small to produce consistent results. But even with a larger sample sizes, we still would not get the exact same results in every study. Chance plays some role in the outcome of any experiment. So even if all the conditions of the test are exactly the same, the results will differ to some extent. Test conditions are complex. Each study differs somewhat from every other study, usually in several ways.

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Given that scientific studies of the same question will yield somewhat different results, purely on the basis of chance, how should we go about summarizing the results of a set of studies? One way is to look at the average outcome across studies. This is essentially what a meta-analysis does. And when one does a comprehensive meta-analysis on the video game violence research literature, the clear conclusion is that the results are quite consistent. On average, there is a clear effect: exposure to violent video games increases subsequent aggression. This has been found for each of the three major research designs (experimental, cross-sectional, and longitudinal), for youth and for young adults, and for youth in North America, Japan and Western Europe. Similar meta-analyses of the television and film violence research literatures

produce the same, generally consistent effects.

In addition to the small sample size and chance factors, a third factor is that some of the few contradictory studies can be explained as being the result of poor methods. For example, one frequently cited study that failed to find a video game effect did not actually measure aggressive behavior; instead, it measured arguments with a friend or spouse. That same study also failed to show that participants in the "high video game violence" condition actually played more violent games than participants in the "low video game violence" condition.

When you separate studies into those that were well conducted versus those that had major flaws, you find that the well-conducted studies found bigger average effects of violent video games on aggres-

sion than did the poorly conducted studies. Some well-conducted, and some poorly conducted, studies suffer from a too-small sample size. But the main point is that even well-conducted studies with appropriate sample sizes will not yield identical results. For this reason, any general statements about a research domain must focus on the pooled results, not on individual studies.

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## In the Literature

### Lead Leads to Kidney Damage

**The Question:** Do lead levels below the currently accepted safe levels cause kidney damage in adolescents?

**The Study:** A review of the kidney function of 769 healthy individuals 12-20 years old who had had lead levels determined when they were children.

**The Results:** All the childhood lead levels were below the currently accepted safe level of 10 micrograms per deciliter. The higher the child's lead level, the greater the chance the child as an adolescent had below-normal kidney function. None of the adolescents had enough kidney impairment to affect their health.

**Comment:** Lead, no matter what the level, can cause health problems. Lead paint, glazed pottery, some folk remedies, and soil and drinking water in some areas with older housing are the most common sources of lead contamination.

**Read More:** *Archives of Internal Medicine, 01/10*

### Drinking and the Adolescent Brain

**The Question:** What effect does drinking have on adolescents' brains?

**The Study:** A prospective study that enrolled 76 children, ages 12-14, whose brains were later examined to assess effect of alcohol on their neuropsychological functioning. Three years after

the study began, 25 children had become "heavy" drinkers, 11 had become "moderate" drinkers and 40 had not become drinkers at all and were the "control" group against which the drinkers' brains were measured.

**The Results:** The researchers found that the brains of the adolescents who drank either moderately or heavily showed damaged nerve tissue (white matter), which can affect attention span in boys and visual comprehension in girls.

**Comment:** Children's brains are still developing and are highly sensitive to drugs and alcohol.

**Read More:** *Psychology of Addictive Behaviors, 12/09*