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The effects of video games on children: what parents need to know

[Pediatrics for Parents](#) , [June, 2004](#) by [Douglas A. Gentile](#)

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The home video game industry is now over 30 years old. In that time, computer technology has improved at a geometric rate. A high speed elevator now has more computing power than the Apollo spacecraft that landed on the moon. The promise of computers and video games as teachers was clearly recognized in the 1980s when there was a nationwide push to get computers into the classrooms. In the years that have followed, researchers found that educational software and games can indeed have several very positive effects on children's academic skill. Over the same period, video games also moved into children's homes. (I define video games broadly here, as including arcade games, computer games, and home console games such as PlayStation.) Children began playing video games for increasing amounts of time, and the games themselves became more graphically violent over time. Parents, educators, physicians, and researchers began to question what the impact of these changes might be.

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Among elementary and middle-school populations, girls play for an average of about 5.5 hours/week and boys average 13 hours/week. Playing games is not limited to adolescent boys. Recently, the Wall Street Journal reported that several companies are now designing video game consoles for preschoolers. Preschoolers aged two to five play an average of 28 minutes/day. The amount of time spent playing video games is increasing, but not at the expense of television viewing which has remained stable at about 24 hours/week.

Similar to earlier studies about television, the data about children's video game habits are correlated with risk factors for health and with poorer academic performance. When video game play is analyzed for violent content, additional risk factors are observed for aggressive

behavior and desensitization to violence.

Video games are natural teachers. Children find them highly motivating: by virtue of their interactive nature. Children are actively engaged with them: they provide repeated practice: and they include rewards for skillful play. These facts make it likely that video games could have large effects, some of which are intended by game designers, and some of which may not be intended.

Video games have been shown to teach children healthy skills for the self-care of asthma and diabetes, and have been successful at imparting the attitudes, skills, and behaviors that they were designed to teach. In a study with college students, playing a golf video game improved students' actual control of force when putting, even though the video game gave no bodily feedback on actual putting movement or force. There have even been studies with adults showing that experience with video games is related to better surgical skills. Research also suggests that people can learn iconic, spatial, and visual attention skills from video games.

Given the fact that video games are able to have several positive effects, it should come as no surprise that they also can have negative effects. Research has documented negative effects of video games on children's physical health, including obesity, video-induced seizures, and postural, muscular and skeletal disorders, such as tendonitis, nerve compression, and carpal tunnel syndrome. However, these effects are not likely to occur for most children. The research to date suggests that parents should be most concerned about two things: the amount of time that children play, and the content of the games that they play.

Simply put, the amount of time spent playing video games has a negative correlation with academic performance. Playing violent games has a positive correlation with antisocial and aggressive behavior (most researchers define violence in games as when the player can intentionally harm other characters in the game). Content analyses show that a majority of games contain some violence. A majority of 4th to 8th grade children prefer violent games.

Looking across the dozens of studies that have now been conducted on violent video games, there appear to be five major effects. Playing violent games leads to increased physiological arousal, increased aggressive thoughts, increased aggressive feelings, increased aggressive behaviors, and decreased prosocial helping. These studies include experimental studies (where it can be shown that playing violent games actually causes increases in aggression), correlational studies (where long-term relations between game play and real-world aggression can be shown), and longitudinal studies (where changes in children's aggressive behaviors can be demonstrated). For example, in a study of over 400 3rd--5th graders, those students who played more violent video games early in the school year changed to become more physically aggressive later in the school year, even after statistically controlling for sex, race, total screen time, prior aggression, and other relevant variables. Apparently practice does make perfect.

The research also seems to show that parents have an important role to play. Children whose parents limited the amount of time they could play and also used the video game ratings to limit the content of the games have children who do better in school and also get into fewer fights. Regarding limiting the amount, the American Academy of Pediatrics recommends that children not spend more than one to two hours per day in front of all electronic screens, including TV, DVDs, videos, video games (handheld, console, or computer), and computers (for non-academic use). This means seven to fourteen hours per week total. The average

school-age child spends over 37 hours a week in front of a screen. We all like to think our children are above average, but on this dimension it's not a good thing. Regarding content, educational games are likely to have positive effects and violent games are likely to have negative effects. Almost all (98%) of pediatricians believe that violent media have a negative effect on children.

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