MEDIA VIOLENCE AND CHILDREN
Institute of Medicine
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Three Primary Effects of TV Violence

- Aggression
- Desensitization
- Fear

Violent Media
What Do We Know About the Effects of Violence?

- There is a relationship, but it’s complicated – to be continued...

Diagram: Television Violence → Filter of Perception → Aggressive Behavior
Processing and Reactions to TV Violence

Observations of TV Violence

Encoding of Aggressive Scripts

Rehearsal of Scripts by Imitative Behavior and Fantasy

Increased Accessibility of Aggressive Scripts

Greater Interest in TV Violence

Frustration and Situational Readiness to Aggress

Decreased Popularity

Greater Identification with TV Characters

Lowered Academic Achievement

Aggressive Reactions to Interpersonal Conflict

Little known about how the brain processes violent imagery... Can we investigate experimentally?

- Observations of TV Violence
- Encoding of Aggressive Scripts
- Rehearsal of Scripts by Imitative Behavior and Fantasy
- Increased Accessibility of Aggressive Scripts
- Aggressive Reactions to Interpersonal Conflict
- Greater Interest in TV Violence
- Decreased Popularity TV Characters
- Greater Identification with TV Characters
- Lowered Academic Achievement
Brainmapping Study at the University of Texas

- Funded by the Mind Science Foundation
- Performed at the UT Health Science Center in San Antonio, Texas
  - Pilot fMRI study of 8 children ages 8 to 12
  - Compared activations of violent and non-violent TV
fMRI Data Acquisition Setup
Three Video Clips Tested

Subjects shown two 3-minute clips of three different types of video: Violent, Non-Violent, and Fixation.
How Do Children Interpret Violent Media?

- Particular areas of interest include:
  - **Amygdala**
    - Initiates Fight or Flight, Senses Danger
  - **Posterior Cingulate**
    - Associated with Trauma Memories
  - **Premotor Cortex**
    - Planning for Aggression
  - **Right Hemisphere**
    - Negative Emotions
Brainmapping Data – Aggregated Slices

- Mapping shows (Violent Activations – Non-violent Activations)
Summary of Brainmapping Data by Area

<table>
<thead>
<tr>
<th>Area</th>
<th>Normalized Volume Activated Pixels (cm³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limbic</td>
<td>Left Hemisphere</td>
</tr>
<tr>
<td>Temporal</td>
<td>Right Hemisphere</td>
</tr>
<tr>
<td>Frontal</td>
<td></td>
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<tr>
<td>Parietal</td>
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<tr>
<td>Occipital</td>
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</tbody>
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Normalized Volume Activated Pixels (cm³)
Other Brainmapping Studies

- Matthews and colleagues (Indiana Medical School)

- Grafman and colleagues (National Institutes of Health)
Brain Mapping, viewing violence involves the following:

- Prefrontal cortex is responsible for rational planning
- Violent images activate limbic system, starting with amygdala
- Images of violence are stored in posterior cingulate—similar to PTSD
- When confronted with threat, violence viewers respond with aggression
- Aggression guided by “scripts” stored in posterior cingulate


Hence, heavy violence viewers, and video gamers (e.g., Whitaker & Bushman, in press) are more skilled in shooting and are more likely to react to any provocation with “thoughtless violence” (Murray, 2013)

**RESEARCH TOPICS:**

- More focused research on the neurological activations while playing violent video games
- CDC Studies of Criteria for Enhanced Background Checks and Gun Registration
REFERENCES & RESOURCES


PRIORITIES FOR FURTHER RESEARCH

- More focused research on the neurological activations while playing violent video games;
- Updated research on social profiles of shooters—beyond the 2002 Secret Service report;
- CDC research on criteria for enhanced background checks.