• The Research studies discussed in this slide show come from Academia.

• Complaints from Academia suggest that the USG refuses to identify their CM research. They argue that everything should be out in the open.

  • The fact that the anti-polygraph sites take what the academics claim work in the way of CM and publicize it, is of no concern to Academia.

  • This is not a complaint against Academics. Their research is important and appreciated.

  • However, we in the USG have a very different mission – protecting National Security
The Polygraph and Lie Detection (2003)

- Basic science and polygraph research give reason for concern that polygraph test accuracy may be degraded by CM, particularly when used by major security threats who have a strong incentive and sufficient resources to use them effectively. If these measures are effective, they could seriously undermine any value of polygraph security screening (Page 216)

- National Academy of Science 2003 report – study funded by DOE

- Based on existing CM research – provided the following comments:
  
  • All physiological indicators measured by the polygraph can be altered by conscious efforts through cognitive or physical means raising concern

  • Empirical research indicates CM may be learnable

  • Research does not clarify whether users of CM can be detected in contexts in which systematic efforts are made to detect or deter them.

  • Available evidence does not allow us to determine whether innocent examinees can increase chances of achieving non-deceptive outcomes by using CM
• Suggest future research on CM be conducted
• BELOW COVER THE 4TH BULLET

• Kircher, Raskin, Honts, & Horowitz, 1988, 1994;
  • Difference is the level of response not the quality of response.

• Anderson, Lindsay, & Bushman 1999
  • Correspondence between lab & field-based effect sizes of conceptually similar independent & dependent variables was considerable.
  • In brief, the psychological laboratory has generally produced truths, rather than trivialities’ (P.3).

• While the question generalizeability still requires attention, we support the notion that data derived from well-conducted laboratory studies provide useful information for the study of PDD in the real world
1. Highly motivated using physical or mental CM can beat examiners

2. Drugs not an effective CM if the drug influences entire neuro-physiological sys


4. Continuous mental dissociation will decrease CIT detection efficiency

5. Alcohol is not effective as a CM

6. Tongue bite & Toe press are effective CM; Mental CM (counting backwards by 7s) is an effective CM; Spontaneous CM are not effective; CM question on a test is not effective. Suggest that CM activity may be one reason for high rate of false-negative errors in some national security studies

7. Toe press & counting backwards by 7s effective CM for CIT

8. Spontaneous CM ineffective

9. Toe press & mental CM can generate high false negatives in CIT
**Honts, Hodes & Raskin 1985**

- **Experiment 1 – CQT format – 4 Groups**
  - 1 Group – Tongue Bite – No training
  - 1 Group – Toe Press – No training
  - 1 Group guilty + 1 Group innocent

- **Experiment 2 – CQT format – 3 Groups**
  - 1 Group – Tongue Bite & Toe Press – Trained
  - 1 Group – Guilty
  - 1 Group – Innocent

- **Experiment 1**
  - Allowed to read extensively on the CQT technique
  - 1st group – programmed guilty + tongue bite (pain CM) wherever they thought they should
  - 2nd group programmed guilty + toe press (muscle contraction CM) wherever they thought they should
  - A 3rd group programmed innocent
  - A 4th group programmed guilty – no CM
  - No significant effect for CM found

- **Experiment 2**
  - Allowed to read extensively on the CQT + trained where/when to perform CM
  - Same CM as above
  - 47% false negative outcomes – no false negatives in the control group
  - Concluded CM training in lab setting can defeat polygraph

- **Key Point:** CM training can identify patterns produced by these CM

All of the early pioneers in polygraph identified slow breathing (6 to 8 breaths a minute) as a “deceptive” examinee attempting to defeat the test.

One of the major problems in polygraph today is giving “breathing instructions” or stating, “I want you to breath normally”. These instructions often lead to controlled breathing.

The mental relaxation consisted of people going to their happy place. Relaxing on the beach, playing with their dog, etc.

Honts; Raskin; Kircher; Hodes 1988, *Effects of Spontaneous CM on the PDD*, Journal of Police Science and Administration
20 innocent – 100 guilty – 80 trained in CM

- Physical CM (Toe Press or Biting the tongue)
- Mental CM (Counting backwards by 7)
- CQT

Mental and Physical CM equally effective

- Both CMs defeated the CQT 50% of the time
- CM difficult to detect on instrument or visually

Strongest response usually seen in the CV channel

Two issues of importance here:

- The authors advised that both the physical and mental CM were difficult to detect either visually or via instrument recorded physiology.

- 2nd – the strongest responses usually seen in the CV channel

So, what’s are the two important issues?

- Issue 1 – This project was 17 years ago – we know that both mental and physical CM create patterns of physiological behavior that can be identified

- Issue 2 – The authors pointed out that the strongest response often revealed itself in the CV channel. Consider as to whether the responses were too strong and whether a pattern developed at every comparison question

What does the interesting tidbit mean?

Physical CM appear to cause the RLL to enhance (larger). Knowing this may help to correctly identify guilty participants.

UNCLASSIFIED – For this class this means that when we see patterns developing at IRQ or CQ and these patterns are in the PN channels – consider the line length.

We looked at a previous study suggesting both mental and physical CM created enhanced CV channel recordings. (Now we also have enhanced PN channel recordings)


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CM Research
What is effective

- Honts, Raskin, & Kircher, 1994
  - Suggested Tongue bite effective CM
  - Suggested Toe press effective CM
  - Suggested mental CM (counting backwards by 7s) effective CM

- Not surprising that all anti-polygraph sites suggest using these CM
  - Do above CM leave a pattern?

• All of the listed CM leave an identifiable pattern that can be observed

• Those patterns are currently classified until we feel secure that highly motivated people cannot eliminate the patterns while performing CM

• Are some examiners getting beat? If so, why?

  • Some examiners have a truth bias – and have convinced themselves that the people they are testing are not spies.

  • Some examiners are afraid to be confrontational or do not know how to approach examinees who are performing CM.

  • Some examiners are arrogant and think they are smarter than those who conduct research into these behaviors.

  • Some examiners are just plain lazy and want to push NSR calls.
1. Spontaneous CM did not change results of test for those programmed innocent
   a) 77% of guilty used CM
   b) 30% of innocent used CM
   c) Altered breathing; mental dissociation; tongue bite; pressure to foot
   d) This study used R/I format
2. Spontaneous CM did cause a significant number of innocent to show deception
   a) 47.7% of innocent used CM
      i. 24 altered breathing
      ii. 49 mental dissociation
      iii. 10 physical (biting tongue, flexing muscles)
   b) 55.4% of guilty used CM
      i. 37 altered breathing
      ii. 97 mental dissociation
      iii. 10 physical (biting tongue, flexing muscles)
3. 2001 – not very good at identifying CM
   a) 141 CM attempts
   b) 44 caught by examiners
   c) Suggested examiners do a poor job detecting CM
4. 2002 – Honts & Amato
   a) Proportion of examinees who attempt CM could be substantial
   b) Innocent examinees who read LBLD & performed CM often appeared deceptive
Otter-Henderson, Honts, & Amato 2002

- 53.8% (43 of 80) guilty performed spontaneous CM
- 30.0% (12 of 40) innocent performed spontaneous CM
- Altered breathing, mental CM, biting tongue
- Results: Spontaneous CM by deceptive participants does not affect polygraph outcomes
Those that are trained in CM still successful at producing a false-negative result consistent with Honts & Amato, 2002.
Both guilty and innocent perform CM

- Probably more innocent attempting CM
- One study reveals innocent performing CM may appear guilty

Tongue bite, toe presses and mental arithmetic are the CM of choice

Multiple CM used by examinees

- Both guilty and innocent perform CM
  
  - In most research projects (not dealing with CM) the use of spontaneous CM can be as high as 40%
  - Internet most likely exacerbated this problem
  - Only one study suggests that innocent examinees performing CM will appear guilty (This study all innocent & guilty allowed to read TLBTLD)

- Most of the research has narrowed down tongue bite, toe presses, and mental arithmetic as CM that will result in a false negative

- Antipolygraph.org (Maschke’s) site pushes these CM plus mirroring the DoDPI TDA breathing criteria.

- Multiple CM used by examinees
  
  - Spontaneous CM usually more than one type
  - Even in research where asked to do one type often attempt more than one

- Suggests if you catch/tell to stop CM they often go to another CM