



COUNTERMEASURES:

why does anyone use them?

- to mask or hide a reaction
 - used with a relevant question
- to create a false reaction
 - used with a non-relevant question



COUNTERMEASURES:

who uses them?

- truthful examinees – 42.7%
 - trying to “help” the results
- liars – 82.3%
 - trying to defeat the results

from a 1999 lab study of 192 subjects by Honts et al.



Kinds of countermeasures

BEHAVIORAL – Maschke

- Arrive early
- Dress well
- Be polite, friendly, confident

BEHAVIORAL – naïve examinee

- Arrive late
- Interrupt, dispute, & question frequently
- Move randomly & frequently during test



Kinds of countermeasures

IN THE EXAM – masking & active

■ Masking

- attempt suppress a genuine reaction
- used primarily on relevant questions
- mental, not physical

■ Active

- attempt to create an artificial reaction
- used primarily on comparison questions
- mostly physical but can also be mental



Countermeasure characteristics

■ **General State (GS)**

- impacts all questions equally
- can cause inconclusives
- examples: drugs, controlled breathing

■ **Specific Point (SP)**

- applied selectively during a chart
- can cause inaccurate results
- examples: muscle control, induced pain



Mind games

Are either *General State* or *Specific Point*

- the most common countermeasure
- mental distraction – SP
 - doing math
- relaxation – GS or SP
 - can be learned through bio-feedback
 - thinking pleasant or calming thoughts
- stimulation – SP
 - thinking of something exciting or upsetting



Muscle activity

Only Specific Point

- flexing arm or leg muscles
- curling toes inside shoes
- sphincter contraction



Induced pain

Only Specific Point

- biting tongue
- fingernails into palm
- pressing on hard object in shoe



Controlled respiration

Either General State or Specific Point

- continuous slow breathing – GS
- deep breaths – GS or SP
 - intermittent (usually a countermeasure)
 - sustained (used by truthful & liars equally)
- holding breath
- intermittent rapid, shallow breaths
- simulated “stair-step” or suppression



Drugs / alcohol

Only General State

- non-discriminatory
- can reduce general testability



RECOGNIZING COUNTERMEASURES

- what you CAN see
- what you can NOT see



What you CAN see

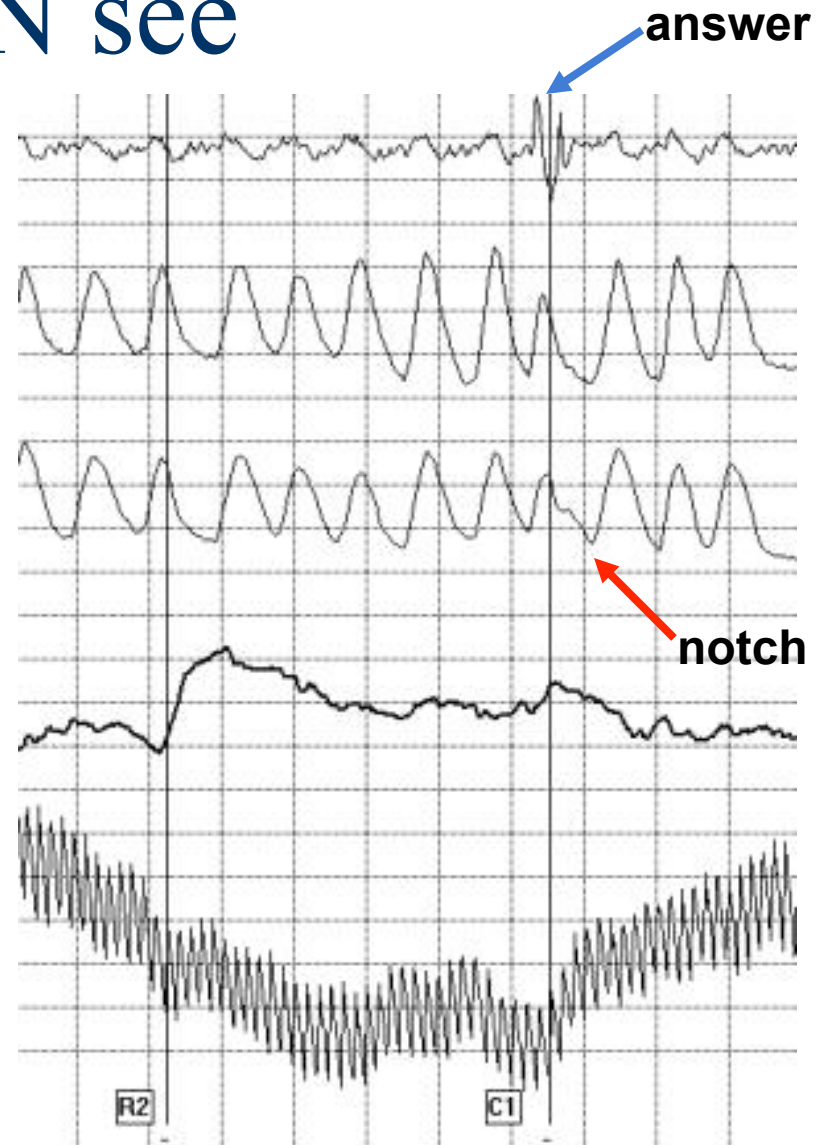
- respiration / cardio responses
 - too big
 - too consistent and uniform
 - distortion, even slight
 - delayed reactions

and...

What you CAN see

- “double-answer” notch in respiration (caused by distraction of trying to create sphincter contraction)

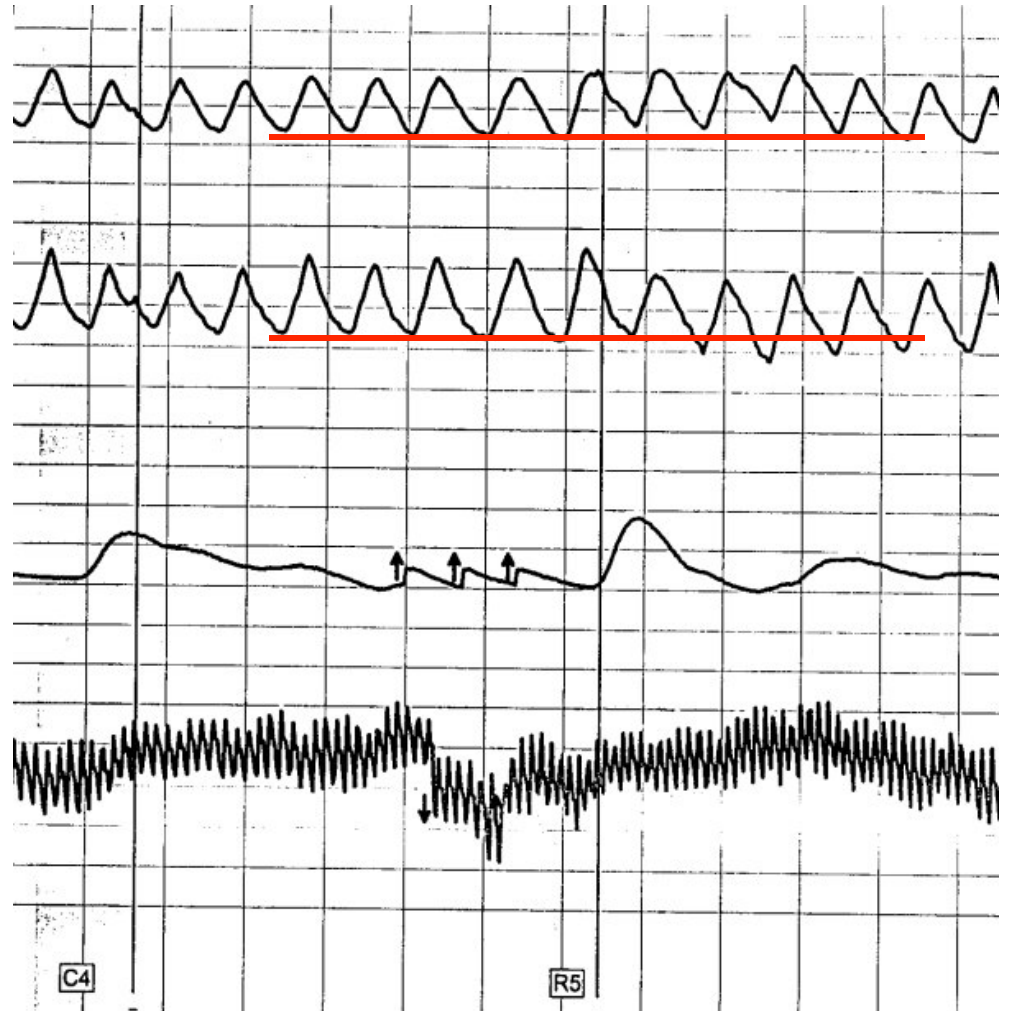
and...



What you CAN see

- upper & lower pneumo baseline going in opposite directions – indicates contraction of lower visceral muscles, including sphincter

and...



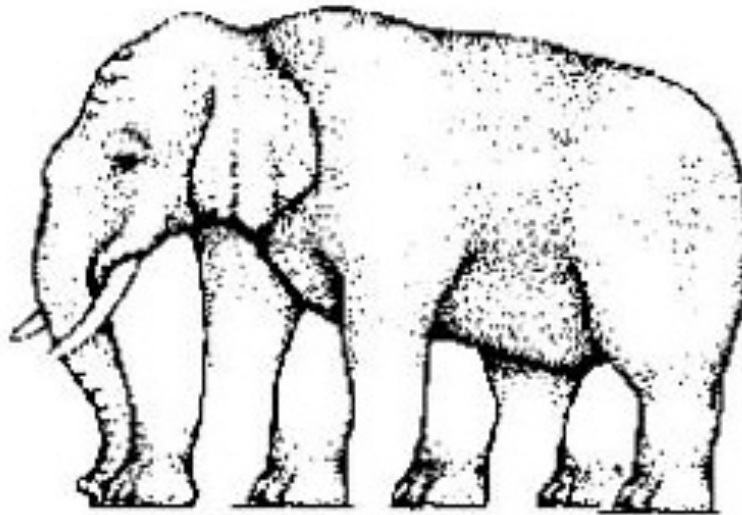


...you can see

General behavior

- failure to follow instructions
- delayed answers (usually a consequence of distracting focus on another countermeasure)
- intent focus
- frequent movements
- wrong answers
- difficulty staying awake

... things are not always as they appear



How many legs?



What you can NOT see

(except possibly indirectly)

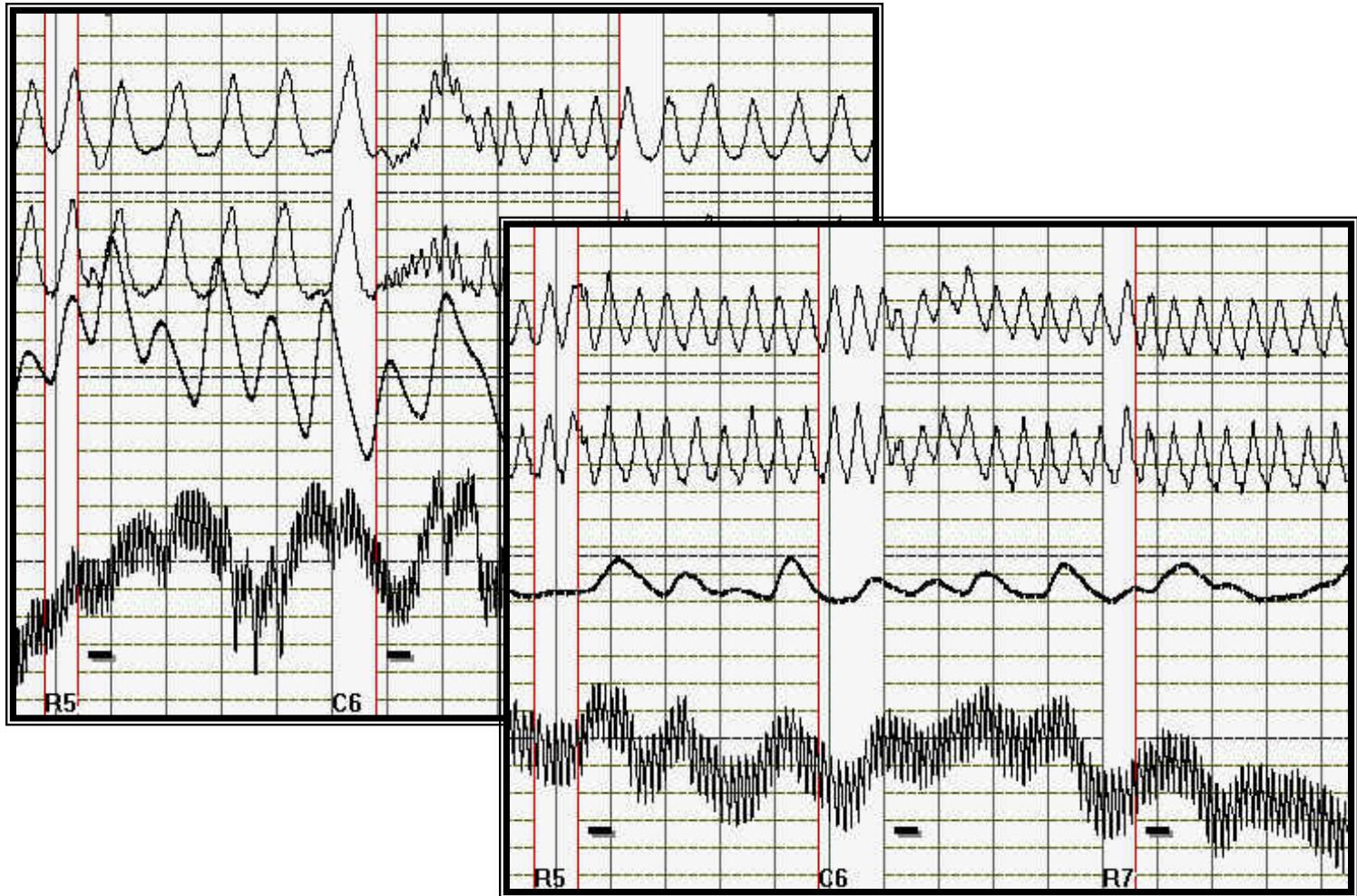
- sphincter control
- tongue biting
- toe curls
- prior drug use



Respiration *red flags*

- suppressions with rapid breathing (panting)
- suppressions / apnea at the top of the tracing rather than the bottom
- delayed onset of response
- frequent distortions & baseline loss
- responses too perfect & consistent
- divergent baselines (e.g., upper going up while lower goes down)
- deep breaths following answer

Respiration *red flag* samples





Cardio *red flags*

- any distortion, even slight
- delayed onset of response
- frequent distortions
- responses too perfect & consistent
- responses on comparison question(s) consistently huge relative to others
- suspicious **patterns**

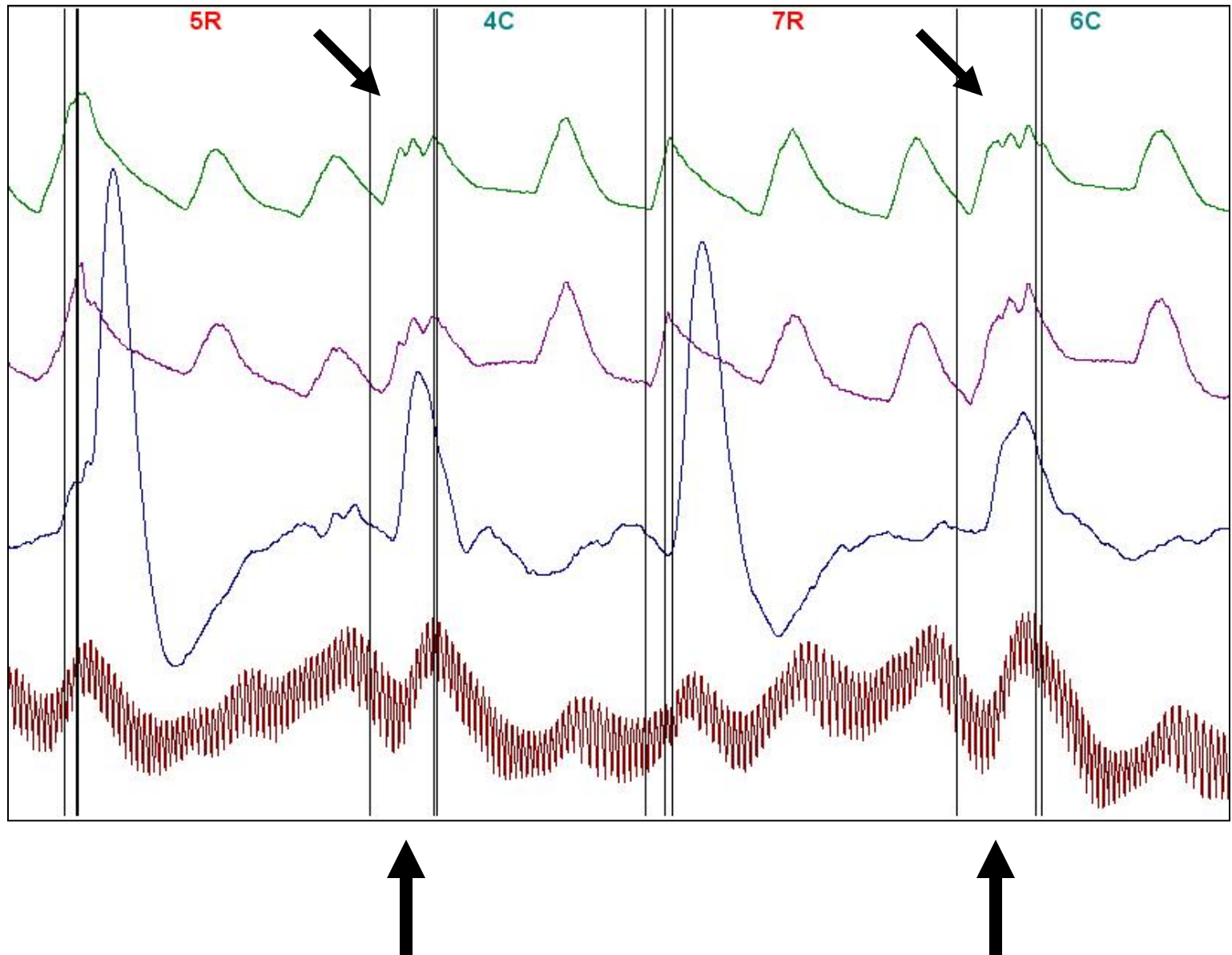


Combined Respiration / Cardio *red flags*

Sphincter control produces what is believed to be a signature pattern: apparent “double-answer” distortion in respiration coupled with rapid rise in cardio

Here's an example...

Anal sphincter control...

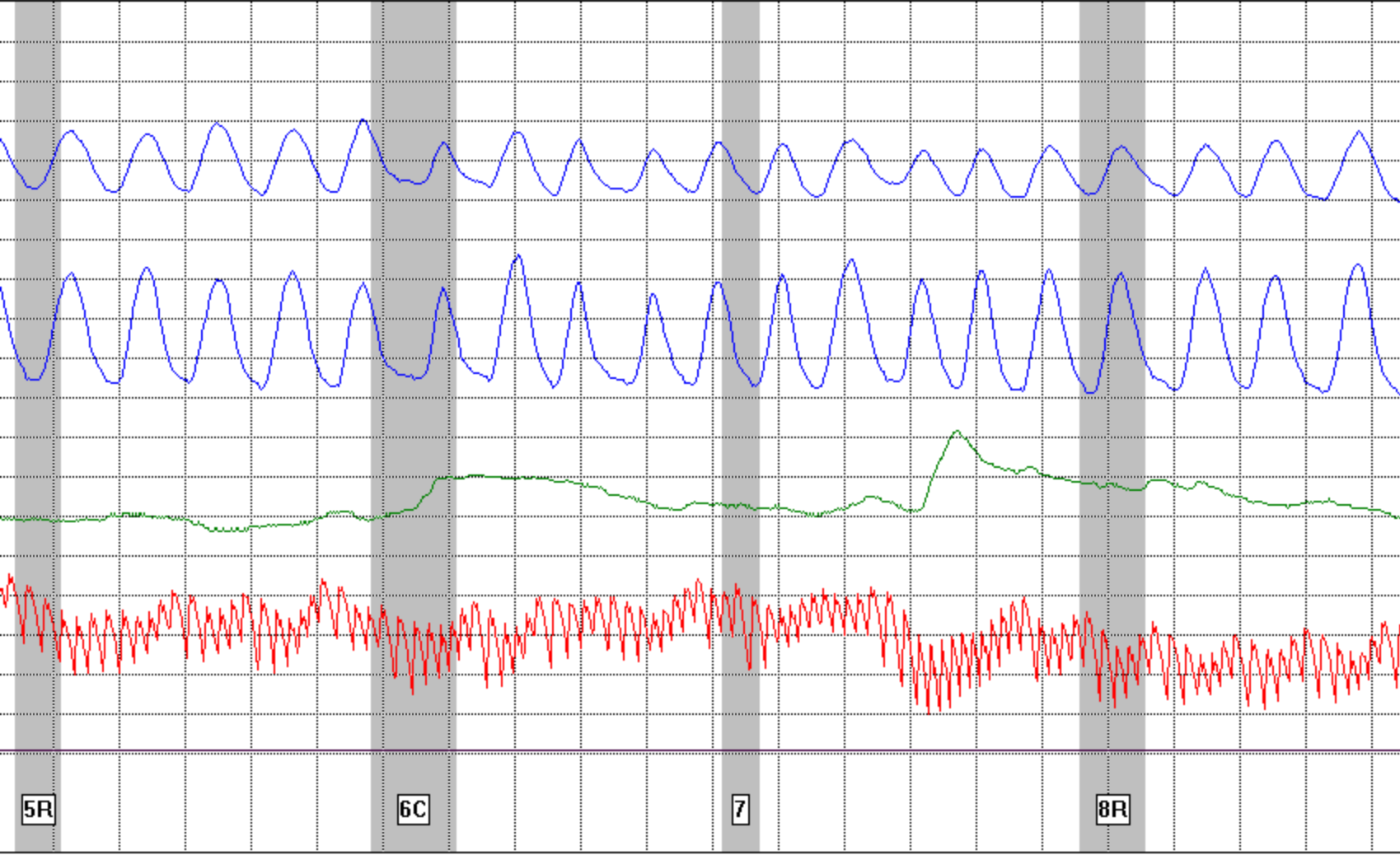




Activity monitor...

The following charts are from 2001-2 research at Michigan State University. The examinee was trained to use **mental** countermeasures (reverse counting). Three charts are shown first **without** and then **with** an activity monitor that consisted of a seat cushion, and foot and arm cushions.

PH 302 - Exam 1 - Chart 1 (MGQT)



Date/Time
4/22/20
12:22 PM
05:42

CP mmH
X: 60
XX: 60
GSC Ohm

Avg: 499
Min: 400
Max: 581

View Size
Normal

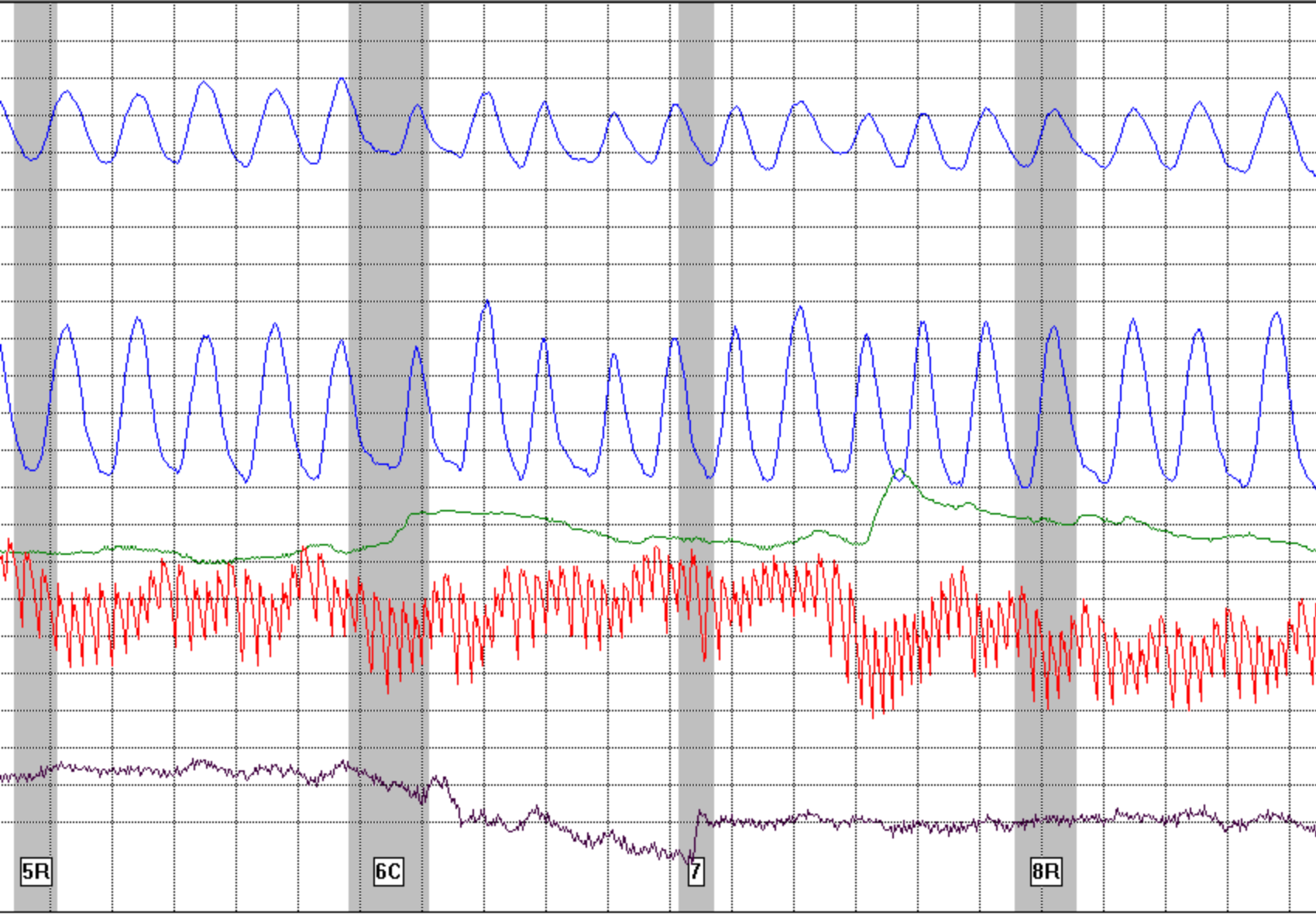
Gain Value
ID Start E

P2 5.0
P1 5.0
GS 2.5
CA 3.0
AU 6.0

P2 4.0
P1 3.5
GS 2.5
CA 2.2
AU 0.0

Question Selected.

- 1
- 2
- 3R
- 4
- 5R
- 6C
- 7
- 8R
- 10C
- 13



Date/Time
4/22/20
12:22 PM
05:42
CP mmH
X: 60
XX: 60
GSC Ohm
Avg: 499
Min: 400
Max: 581
View Size
Normal
Gain Value
ID Start E

P2 5.0

P1 5.0

GS 2.5

CA 3.0

AU 6.0

5R

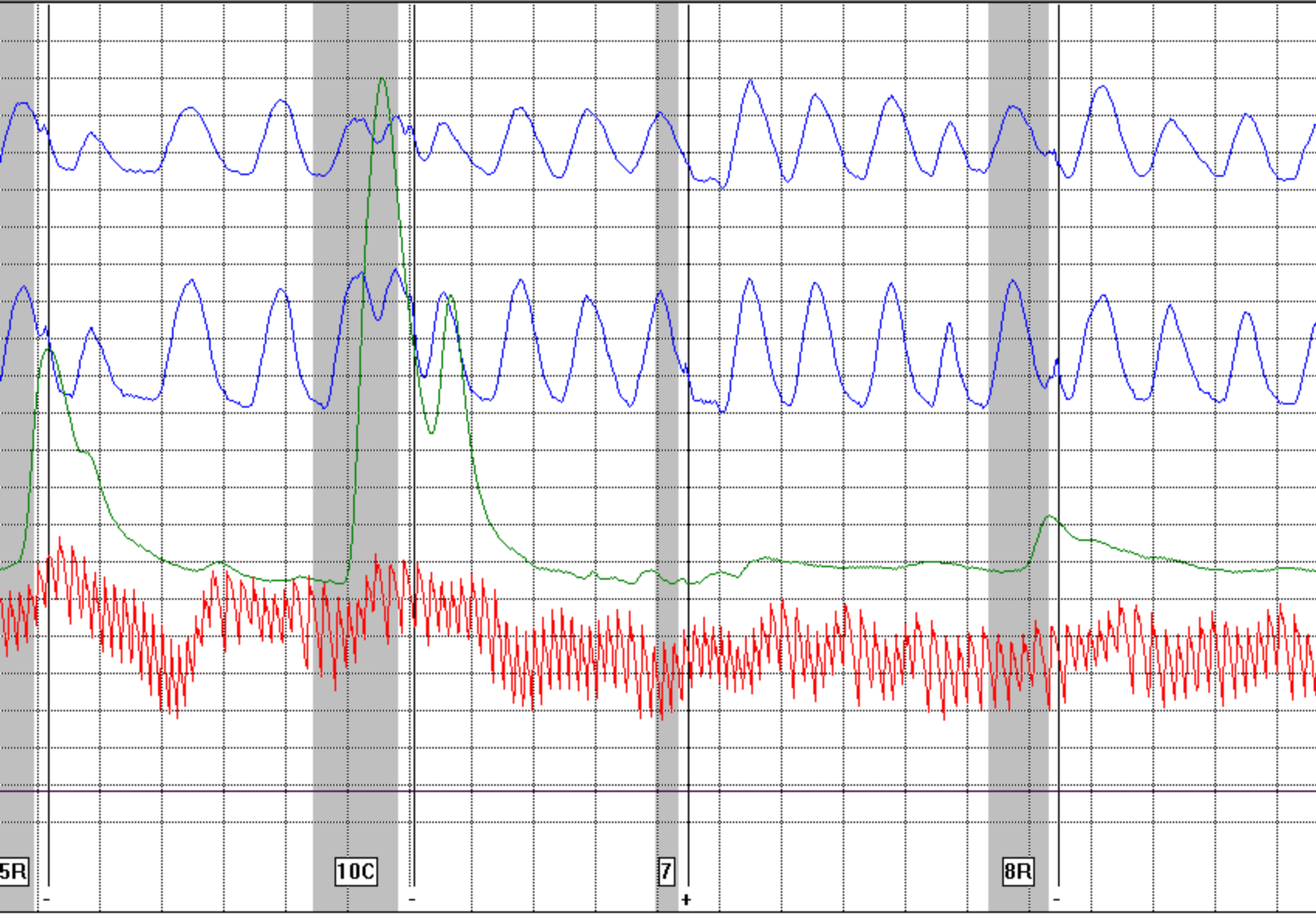
6C

7

8R

Question Selected.

1 2 3R 4 5R 6C 7 8R 10C 13



Date/Time
4/22/2010
12:36 PM
05:25

CP mmH
X: 65
XX: 67
GSC Ohm

Avg: 398
Min: 351
Max: 444

View Size
Normal

Gain Value
ID Start

P2 4.5

P1 3.5

GS 2.0

CA 2.0

AU 0.0

5R

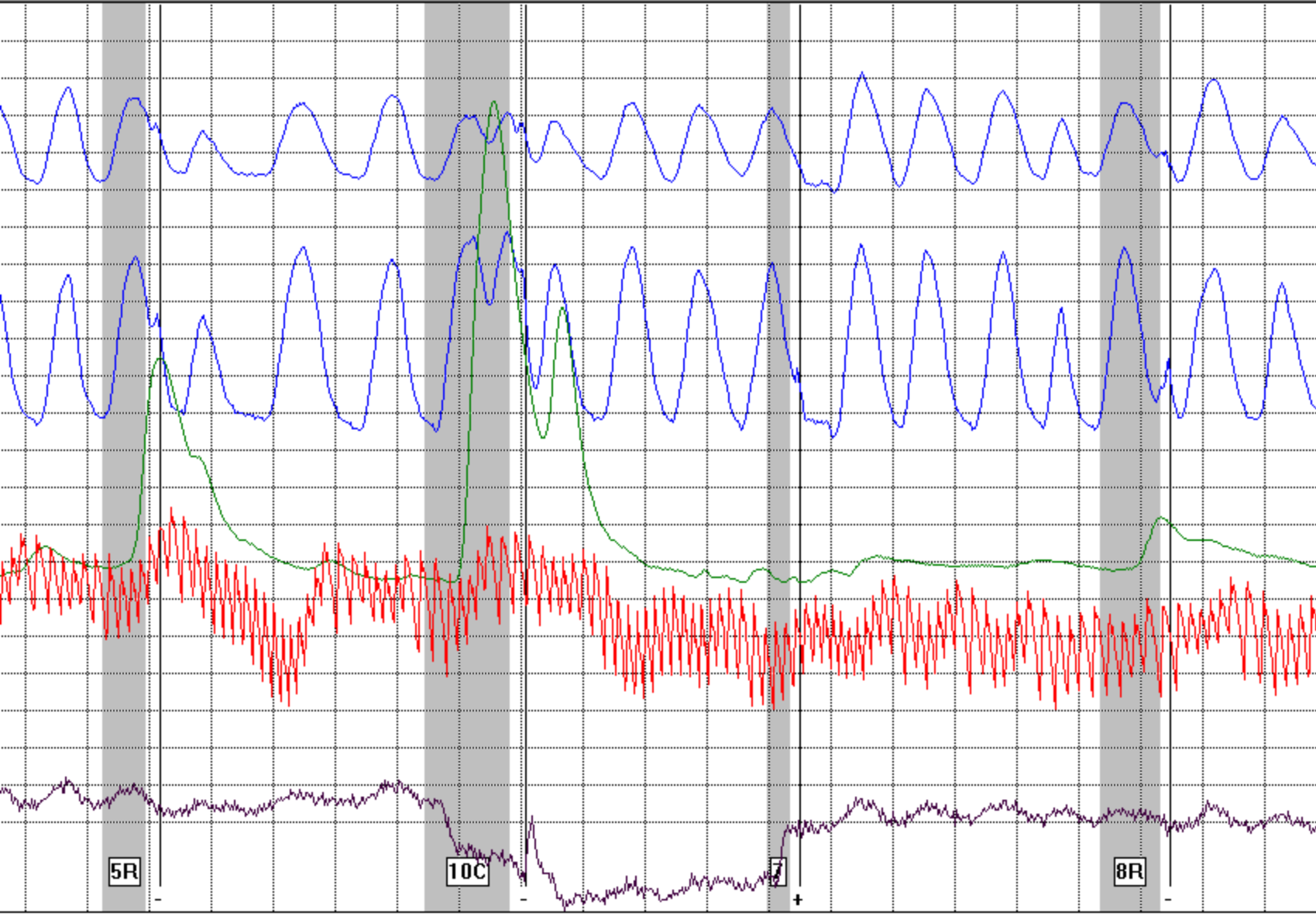
10C

7

8R

Question Selected.

1 2 3R 4 5R 10C 7 8R 6C 13



Date/Time
4/22/20
12:36 PM
05:25

CP mmH
X: 65
XX: 67
GSC Ohm

Avg: 398
Min: 351
Max: 444

View Size
Normal

Gain Value
ID Start

P2 5.0

P1 5.0

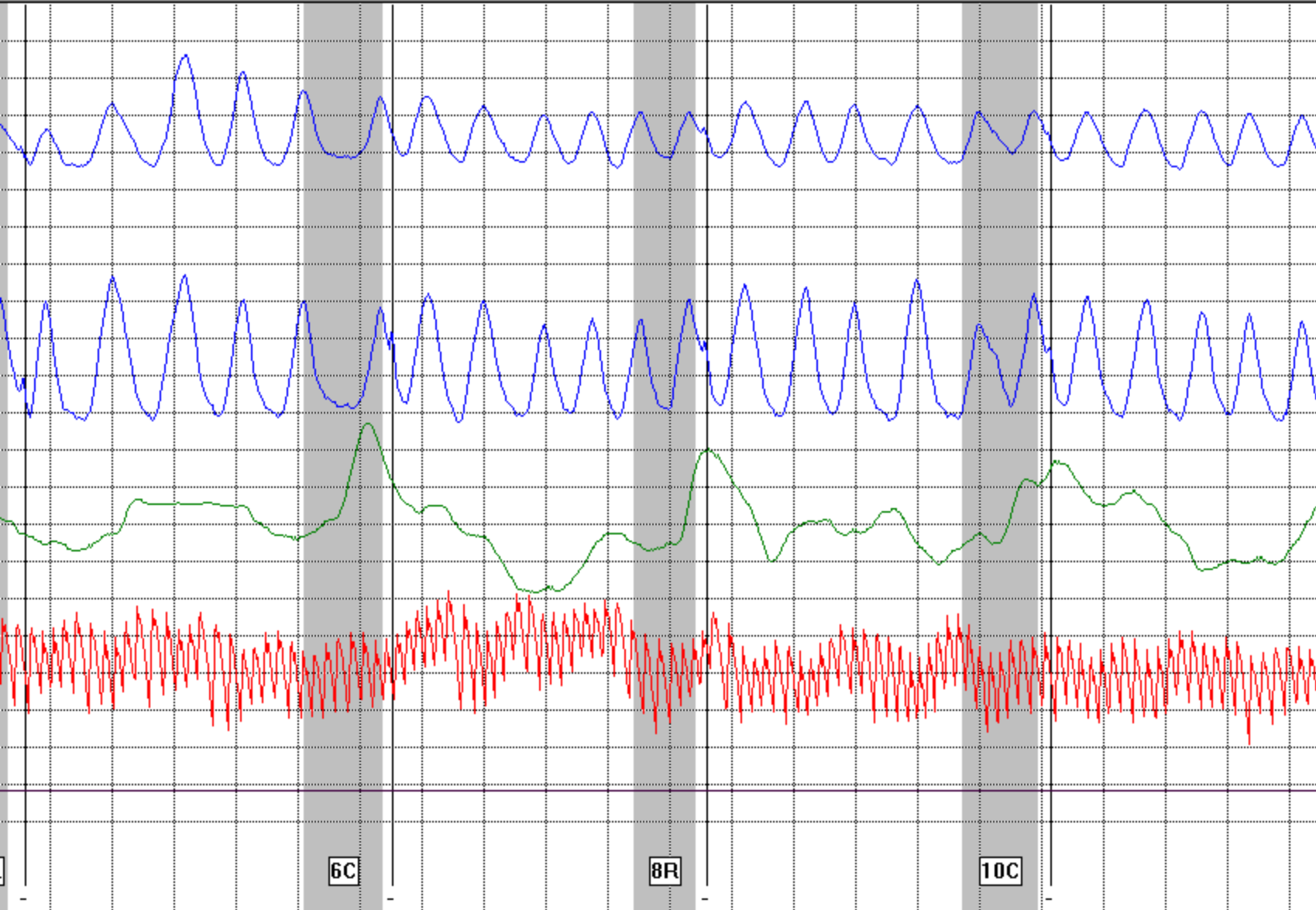
GS 1.9

CA 2.2

AU 6.0

Question Selected.

1 2 3R 4 5R 10C 7 8R 6C 13



Date/Time
4/22/20
12:43 PM
05:20

CP mmH
X: 63
XX: 66
GSC Ohm

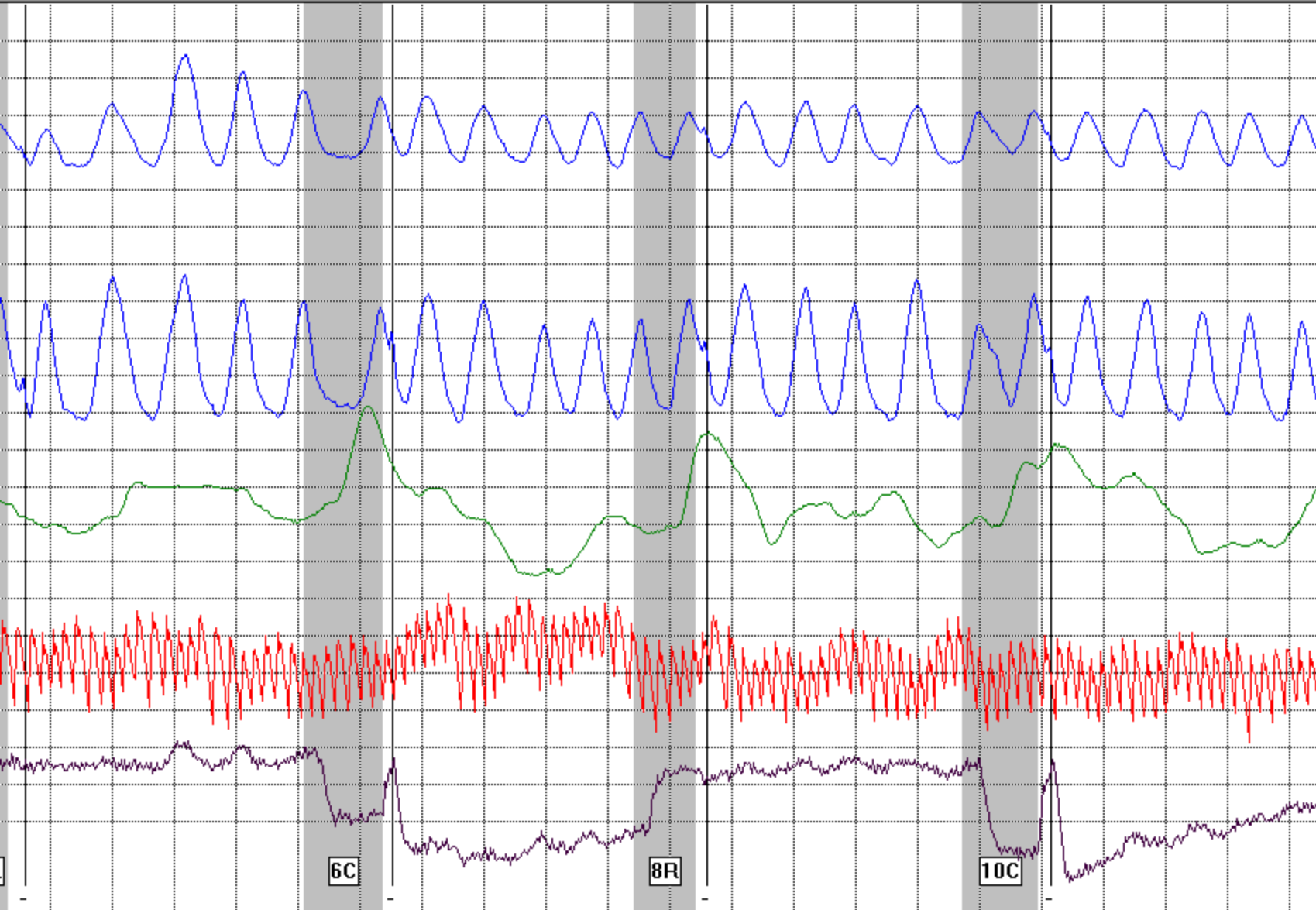
Avg: 300
Min: 268
Max: 346

View Size
Normal

Gain Value
ID Start E

P2 5.0
P1 5.0
GS 2.5
CA 5.0
AU 6.0

Question Selected.



Date/Time
4/22/20
12:43 PM
05:20

CP mmH
X: 63
XX: 66
GSC Ohm

Avg: 300
Min: 268
Max: 346

View Size
Normal

Gain Value
ID Start E

P2 5.0
P1 5.0
GS 2.5
CA 5.0
AU 6.0

P2 5.0

P1 5.0

GS 2.5

CA 2.5

AU 6.0

Question Selected.



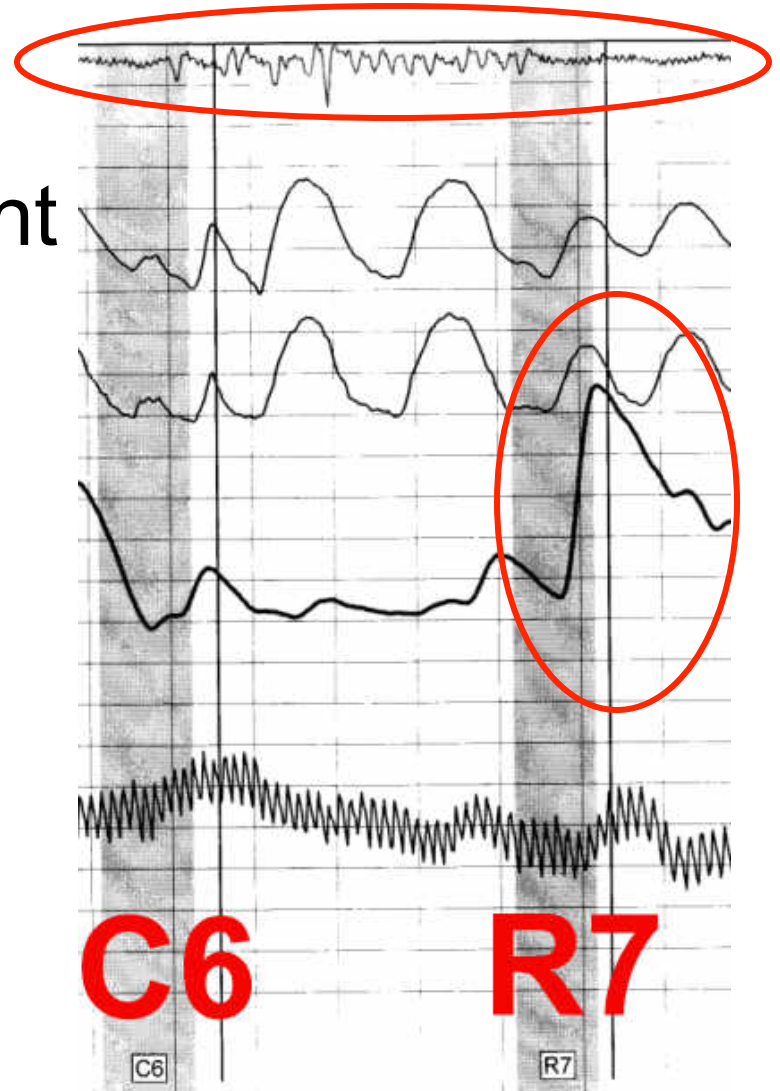
Activity monitor...

The following charts are from an exam conducted in 2003 by Portland examiner Jim Scharmota. The activity monitor consisted of a seat cushion.

Note that subject can *not suppress* electrodermal reactions on relevants.

Activity monitor...

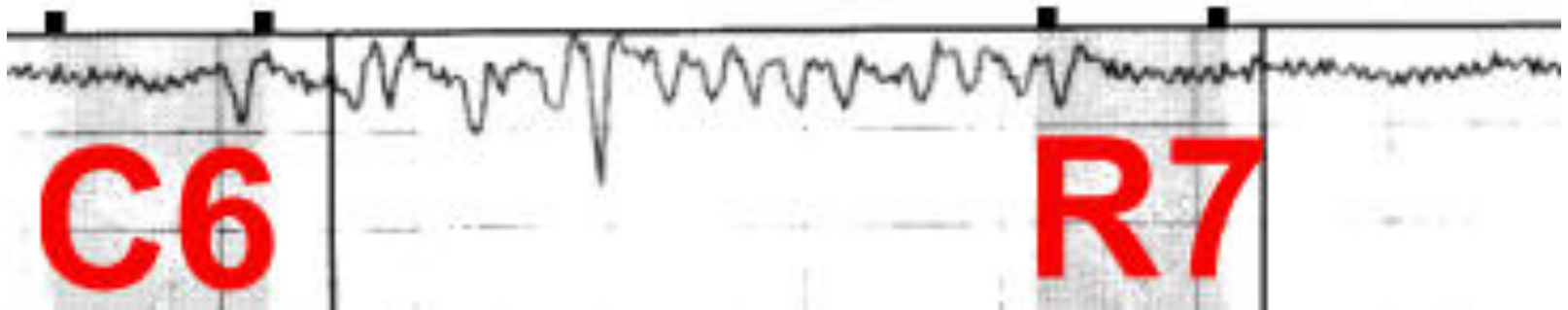
No physical movement was observed, but the activity monitor repeatedly showed distortion only on comparison questions.



Activity monitor...

The examinee was a well-educated convicted sex offender who had undergone previous examinations.

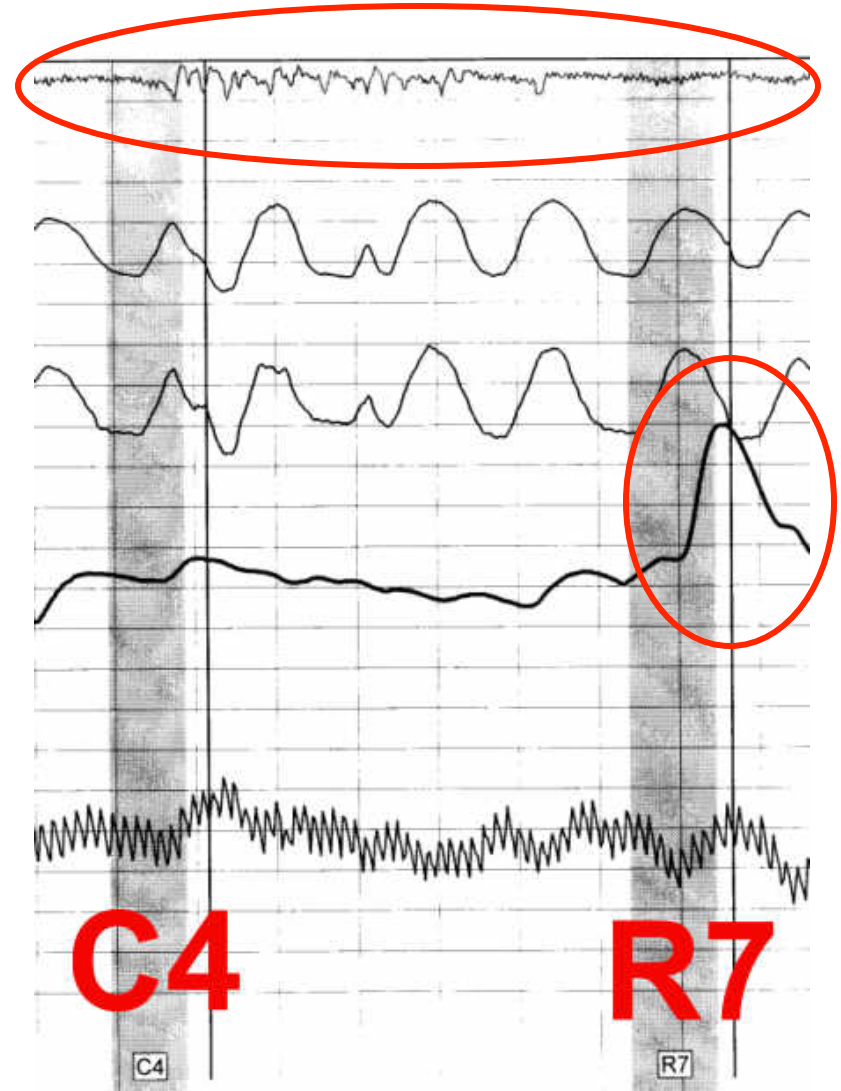
activity monitor tracing from the previous slide



Activity monitor...

The examiner confronted her and she denied doing anything. She was jailed.

Another question pair from same exam...





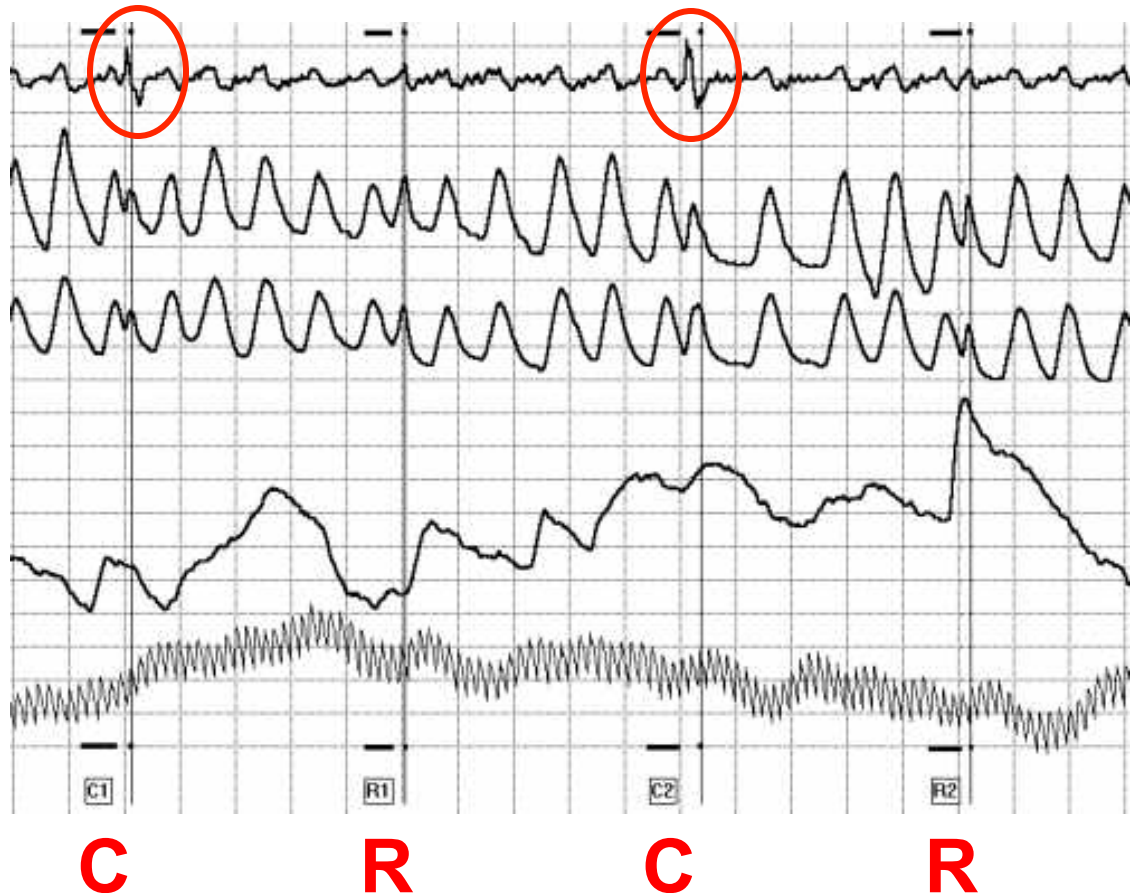
Activity monitor...

The following charts are from an exam conducted in 2004 by Portland examiner Ken Simmons. The activity monitor consisted of a seat cushion.

In pretest interview this subject denied getting polygraph info from the Internet. Afterwards, he admitted he'd read Internet tips about anal sphincter control & used it during test. He continued to insist he'd been truthful.

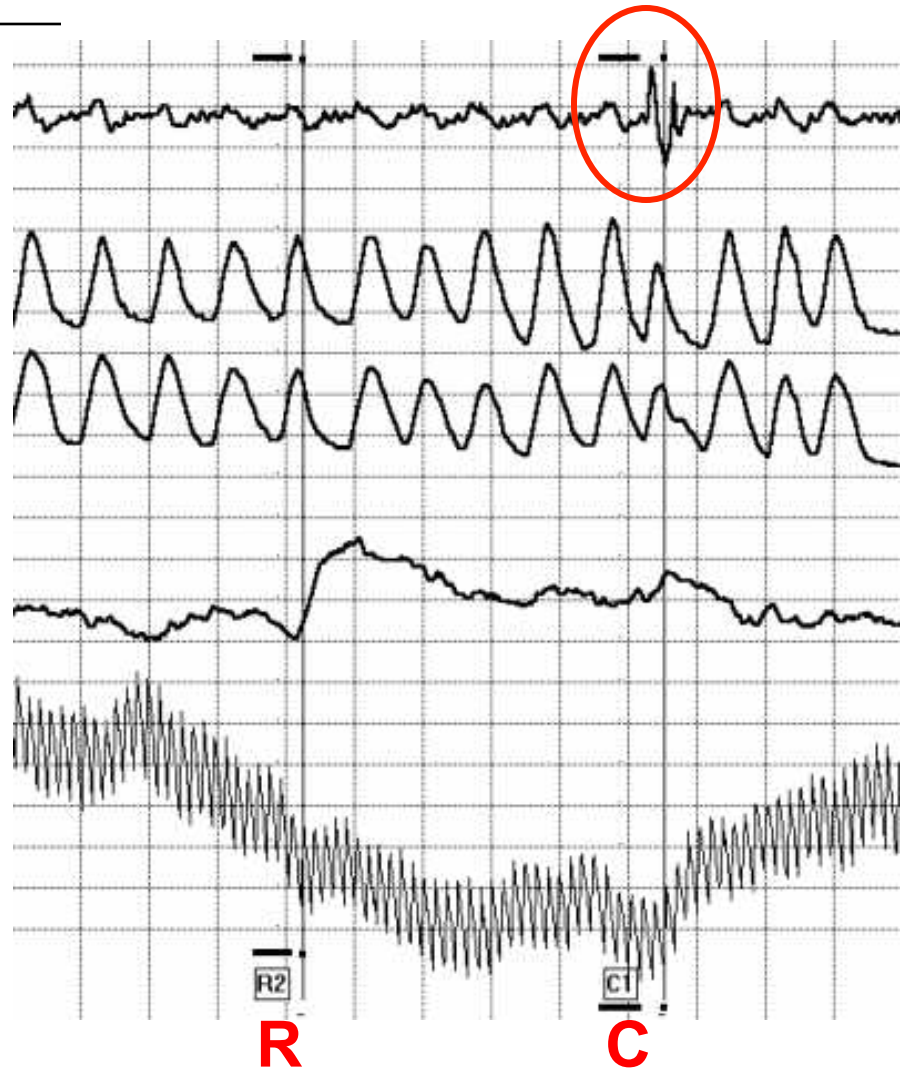
Activity monitor...

Again, note that subject can *not suppress* electrodermal reactions on relevants. This is from first chart.



Activity monitor...

This is from
second chart.
Third chart
showed less
distortion. A
fourth “yes”
answer chart
showed
distortion on
everything.





Electrodermal *red flags*

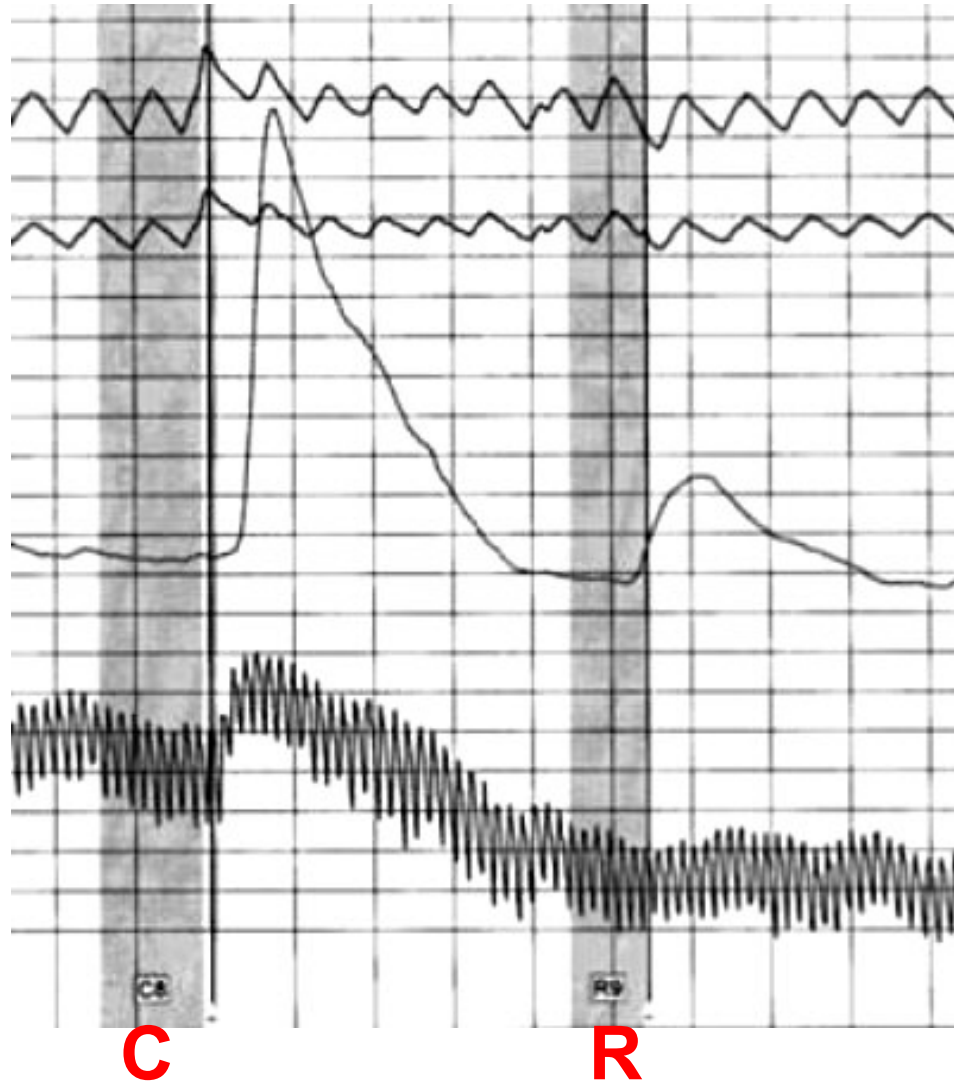
- sphincter contraction responses appear normal in electrodermal, but effect is less than in respiration or cardio
- induced pain may cause electrodermal responses that rise too abruptly
- complex (multi-peak) responses on comparison question electrodermal is believed to be rare in truthful examinees



Generally watch for...

- **answers delayed** on comparisons even briefly
 - usually indicates distraction from effort to simultaneously recognize question, give correct answer, and execute countermeasure
- **any distortion** in pneumo or cardio that appears repeatedly on one kind of question
- **inconsistencies** between tracings (positive scores on respiration and cardio but negative on electrodermal)
- changes in **activity monitor**

Countermeasures?



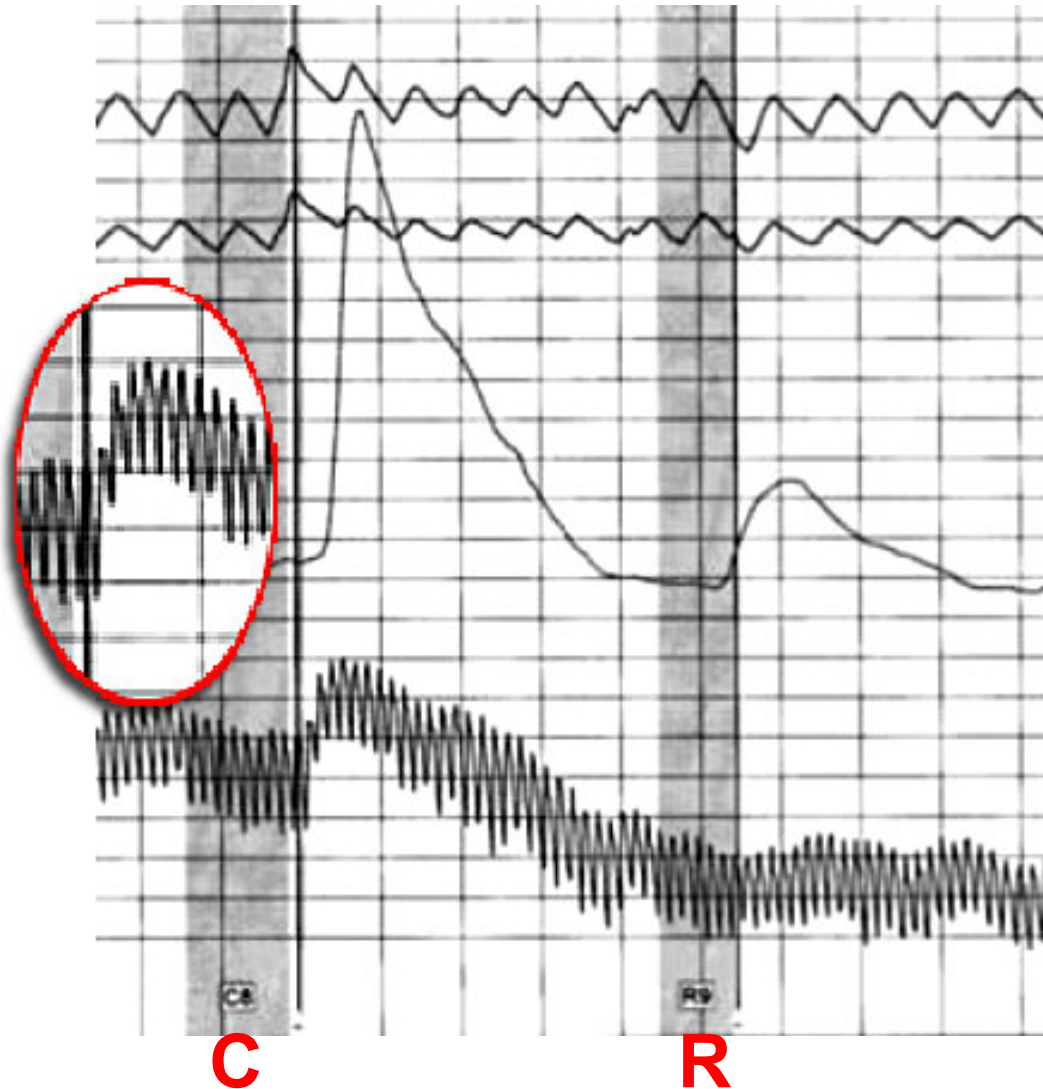


Countermeasures?

The examiner asked herself the following questions. Not all of these were derived from the sample but were apparent elsewhere on the charts of this examination.

- Do movement artifacts appear only on comparisons? YES
- Does cardio show distortion on comparison questions? YES
- Does respiration lose baseline only on comparisons? YES
- Do answer delays appear only on comparison questions? YES
- Is onset of reaction delayed for comparison questions? YES
- Are some reactions “too good to be true”? YES
- Does electrodermal on comparisons have abrupt onset? YES
- Does a stim chart produce erratic responses? YES
- Does panting appear as respiration artifact? YES

Countermeasures? YES!





What liars are told...

- examples of common comparison questions (theft, lie)
- differences between comparison & relevant questions (“character”)
- comparison question test format, and formats of pre-employments & stim tests
- respiration & sphincter manipulations

and...



...they are told

- practice & do not overdo efforts during exam
- focus on one comparison question, or all three, or different each chart
- answer “no” to comparisons without making any admissions

and...



...they are told

- if challenged after test...
 - plead ignorance
 - “I’ m too sensitive”
 - “I feel guilty when accused”
 - “I get angry about the issue”
 - leave! (Maschke’ s advice)



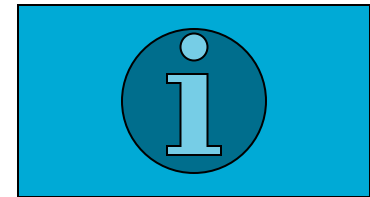
Know your enemy!

- **polygraph.com** (Doug Williams sells “*How to Sting the Polygraph*” & offers personal advice) – first “consultant” on the internet in March, 1996
- **antipolygraph.org** (free download site for “*The Lie Behind the Lie Detector*” by George W. Maschke & Gino J. Scalabrini, since Sept., 2000)

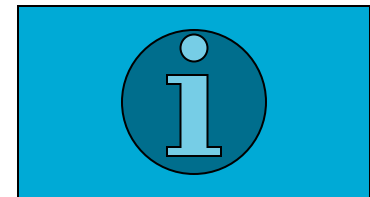
Doug Williams -- who is he?

- former examiner with Oklahoma City P.D. for about 10 years in 1970s

Bio from Polygraph.com:



Polygraph.com home page:



Doug Williams: *pneumo patterns*

PNEUMO REACTIONS

FIGURE NO. 1



FIGURE NO. 2



FIGURE NO. 3



FIGURE NO. 4



FIGURE NO. 5



Pneumo patterns recommended by Douglas G. Williams

[from Williams, D.G. (2001) How to Sting the Polygraph. www.polygraph.com]

George Maschke -- who is he?

primary focus on gov' t hiring – wants to amend EPPA to prohibit all exams on gov' t employees & applicants

Bio from personal site at UCLA, 2002



Bio from AntiPolygraph.Com, Jan. 2005



AntiPolygraph.Com home page



AntiPolygraph.Com message forums



FAQ from AntiPolygraph.Com



Gov' t documents obtained via FOIA





The Lie Behind the Lie Detector

by George Mashke &
Gino Scalabrini

3rd ed. 2003

*double size of 1st ed.,
Sept. 2000*

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42 pages on countermeasures

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The Lie Behind the Lie Detector

respiration

Your polygrapher will be happy if your breathing rate is between about 15 and 30 breaths (in and out) per minute, or 2-4 seconds each. Pick a breathing rate within this range that is comfortable for you and take relatively shallow—not deep—breaths. Each breath should be about the same length. Practice until it becomes second nature.

You should maintain this baseline breathing pattern until the pneumograph tubes are removed from your chest and abdomen. Don't relax and change your breathing pattern as soon as the last question has been asked! The polygraph is still recording your breathing, and your polygrapher may let the instrument continue recording your physiological responses for a minute or so after asking his last question in order to see if your breathing pattern changes. He may interpret any change after the last question is asked as an indication that you were employing countermeasures.



The Lie Behind the Lie Detector respiration

Your polygrapher will ask his series of questions, with a pause of about 20–30 seconds between questions. You will have already mentally categorized the questions he reviewed with you as “control,” relevant, or irrelevant during the “pre-test” interview. There will be no surprises. *If you cannot decide whether a question is a “control” question, then you should err on the side of caution and assume that it is relevant.*

As soon as you recognize that the question your polygrapher is asking is a “control” question, or, alternatively, immediately after answering the question, change your baseline breathing pattern to produce one of the twelve pneumograph reactions that DoDPI considers to be significant in chart scoring: The change should last about 5–20 seconds, ending before the asking of the next question.

Note: None of these manipulations call for deep breathing, that is, filling your lungs to full or nearly full capacity. Such deep breathing is likely to be interpreted by your polygrapher as an attempted counter-measure.

The first two scorable reactions, a respiration rate decrease or increase, may be produced by simply breathing more slowly or more rapidly, as illustrated in the following DoDPI graphic²⁹:

← Added to
2nd ed.

The Lie Behind the Lie Detector

respiration

The fifth scorable reaction, a decrease in amplitude (also known as suppression), may be produced by taking shallower breaths and then returning to one's baseline breathing pattern, as illustrated below:

2. *Change in Amplitude*

Suppression/Decrease in Amplitude



11-5

The Lie Behind the Lie Detector

cardio - electrodermal

Cardio/Electrodermal Countermeasures

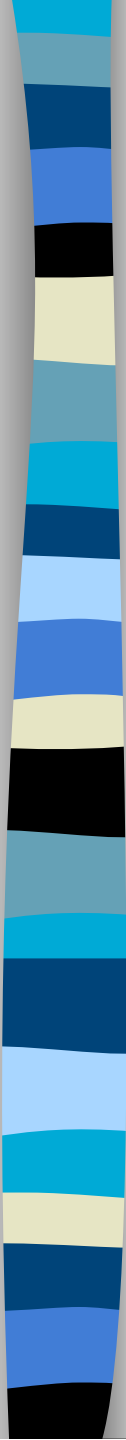
In addition to the breathing countermeasures described above, you can enhance your cardio (heart rate and blood pressure) response to the “control” questions by choosing *one* (and only one, as combining them may be overkill) of the following, additional countermeasures. These countermeasures may also produce an associated electrodermal response:

1. Perform mathematical calculations in your head as quickly as you can. For example, divide 183 by 4 or calculate the square root of 223. Other activity that requires focused concentration is also effective. For example, pick an arbitrary number (say 854) and count backward by 7s as quickly as you can (Honts et al., 1994). Alternatively, you may think exciting thoughts, (e.g., falling off a cliff, an encounter with a rattlesnake, being raped at knifepoint—use your imagination). You want to think of something that will make your heart race and cause an increase in blood pressure. Again, begin either as soon as you recognize a “control” question, or right after answering the “control” question, and continue for 8–20 seconds, but no longer than the beginning of the next question. A breathing reaction may naturally accompany such mental activity without your having to think about it.

The Lie Behind the Lie Detector

cardio - electrodermal

2. Constrict your anal sphincter muscle (anal pucker). (Lykken, 1998; Williams, 1996; Reid & Inbau, 1977) Begin either as soon as you recognize a question as a “control” question, or right after answering the “control” question, and continue for 8-20 seconds, but no longer than the beginning of the next question. The effort should be pronounced but sub-maximal—a little goes a long way. Make sure that it is only your anal sphincter that you contract. Be sure not to tighten your legs at the same time—there may be a strain gauge placed under the front legs of your chair. (Such strain gauges are included with many late-model computerized polygraphs, and are intended to alert the polygrapher to such countermeasures as the tack in the shoe, or pressing one’s toes to the floor. Those countermeasures are to be avoided.) Be sure not to flex your buttocks—some polygraph chairs may be equipped with sensors in the seat cushion. Be sure to constrict only the internal anal sphincter muscle. By sitting on your hand while you practice this countermeasure, you will be able to feel whether you are flexing other, external muscles.



The Lie Behind the Lie Detector

cardio - electrodermal

3. Bite down slowly on the side of your tongue. (Honts *et al.*, 1985, 1994; Stewart, 1941) Bite down hard enough to produce moderate pain, but don't cut your tongue. Again, begin either as soon as you recognize a question as a "control" question, or right after answering the "control" question, and continue for 8-20 seconds, but no longer than the beginning of the next question. If you start biting as soon as you recognize the "control" question, you will of course pause long enough to answer the question, and then resume the tongue bite. Be subtle, your polygrapher mustn't notice. You can practice this "pain countermeasure" in front of a mirror.



Remedies during the exam

- ask about internet

- claim we no longer use the procedure described on the internet, & we now use a procedure in which all of the questions must be answered truthfully

- countermeasure question

- may be a deterrent but *not* useful as a diagnostic tool

and...



...other remedies

- claim that one of attachments (i.e. pneumo tubes) monitors movement
- do not use obvious, common comparison questions -- integrate them into pretest interview -- claim they are intended to show favorable characteristics
- keep comparison questions short! (the longer the question, the less likely an answer delay with a CM)

and...

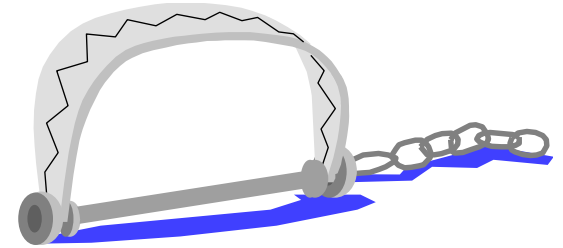


...other remedies

- position yourself during exam so you can see as much of the front of the subject as possible, even feet
- between charts remark on possible countermeasures with a neutral expression (but do NOT identify any particular question or parameter)

and...

...another remedy...



Distortion invitation test (DIT) or “yes” answer test:

- Run one chart after test charts are finished
- Keep only irrelevant, comparison, & relevant questions -- drop all others

and...



...more about DIT

- Explain as necessary for sample of responses when lying
- Have examinee reverse all answers
- *Suspicious*: too perfect reversal of “reactions” or equal reactions on all questions
- Not suspicious: reactions to relevant questions greater than comparisons
- Do not score as part of test



Remedies after exam

- evaluate from cardio up, not pneumo down
- add channel scores to reveal inconsistencies
- look for slight distortions in cardio
- do NOT rely on computer evaluation if countermeasures are a possibility
- get a second opinion from another examiner
- RETEST! do not report truthfulness if you are convinced of countermeasures



What you tell the examinee

- never tell the examinee what you thought he was doing
- never show the examinee the charts
- speak only in general terms about apparent deliberate efforts to “beat” the test



What you report

- never report “countermeasures” unless you have a signed or recorded admission
- never report deception indicated on the charts if you are also claiming countermeasures
- refer to distortions on the charts that in your professional judgment appear to have been deliberately created
- if the charts are still readable, report that distortions were eliminated from consideration and enough data remained for a conclusion of deception



= *The End* =