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## Lie detector

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A device intended to detect an involuntary physiological response that all persons exhibit when lying but never when telling the truth. Because there is no such specific lie response, the lie detector of popular fancy is mythological. In actual "lie protector" tests, widely used in the United States, breathing movements, blood pressure changes, and electrodermal responses are recorded on a polygraph while the respondent answers "yes" or "no" to a series of 8 to 12 questions. From the polygraph recordings, one can determine whether "relevant" questions had a greater impact on the respondent than did the interpolated "control" questions. In the standard lie test used in specific issue investigations, the relevant questions ask whether the respondent committed the act in question; for example, "On April 12, did you take \$2000 from the office safe?" A typical control question might be, "In the first 20 years of your life, did you ever steal anything?" If the examinee reacts more strongly to the relevant than to the control questions, it is inferred that his or her answers to the relevant questions are deceptive. Because an innocent accused also may be disturbed by the relevant questions and react more strongly to them than to the controls, the lie test is biased against the truthful respondent. Research has shown that as many as 50% of innocent criminal suspects may "fail" control-question polygraph tests.

Polygraph tests are also widely used in the United States for preemployment screening. Screening tests normally do not use control questions, but include instead a series of relevant questions that are of interest to the prospective employer: "Have you ever stolen from a previous employer?"; "Have you ever used street drugs?" Strong physiological reactions to any of these questions are interpreted as indicating a deceptive reply. There has been no scientific study to prove the validity of this type of polygraph test, however.

**For further study:**

**N** NEWS

January 21, 2007: [Video: Better Lie Detectors](#)

**Q** Q&A

**Q:** *How do lie detector tests work and are they always right?*  
[Read the Answer](#)

**D** DICTIONARY

- [lie detector](#)

Several devices have been marketed for use in lie detection which are alleged to measure "stress" in the respondent's voice. Because they do not require attachments to the body, such devices can be used covertly and can even be applied to broadcasts or to recordings of the voices of dead people. It has not yet been shown that these devices can reliably distinguish between different degrees of voice stress. When voice analyzers have been used for lie detection, in parallel with a conventional polygraph, they have done no better than chance in distinguishing truth from deception.

In another type of polygraphic interrogation, the "guilty knowledge" test, the relevant questions name some fact that should be known only by someone who had been present at the crime; the control questions name alternatives that should seem equally plausible to innocent suspects. A differential physiological response to the relevant question suggests that the suspect recognizes its relevance and therefore that he or she possesses guilty knowledge. Although it would seem to hold promise as a tool of criminal investigation, the guilty knowledge test has not yet been adequately studied in real-life applications. See also: [Electrodermal response](#); [Emotion](#)

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- G. Ben-Shakhar and J. J. Furedy, *Theories and Applications in the Detection of Deception*, 1989

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