Take 3: What does the polygraph measure?

(in 250 words or less)

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The polygraph instrument records data from sensors that monitor autonomic and physical activity, including respiration, cardiovascular, electrodermal, and somatic activity, in response to test stimulus questions. Although lies *per se* cannot be measured in the same way as a physical substance, several measurable physiological responses have been shown to be statistically correlated with differences in the strength of response to different test stimuli as a function of the criterion state of deception and truth-telling. Numerical scores are assigned to these responses either though objective linear metrics, through non-parametric methods such rank ordering, or through a procedural rubric. Numerical scores are combined together in structural models that have been shown to optimize the discrimination and classification of deceptive and truthful persons with accuracy that exceeds the capabilities of any single measurement or response symptom. Recorded physiological data can then be partitioned according to either the individual question source or the type of test stimuli, and the level of statistical significance can be calculated using either normative or ipsative methods. A categorical result, indicating either deception or truth-telling, is supported when the confidence level or probability of error associated with the test result is equal to or exceeds a required level of precision or maximum tolerance for error. This can also be accomplished by comparing a numerical test score to a required cut-score. For convenience, the polygraph test is often referred to simplistically as a lie-detector test.