# The Use and Abuse of Erection Measurements: A Forensic Perspective

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The use of erection measurement studies is proliferating in the assessment and treatment of sexual deviants. Because of the nature of sexual offense, there are many inherent legal complications with the implementation of this technology, specifically its use as evidence. The authors present data from a study of 185 sex offenders in an attempt to illustrate the appropriate utility of erection measurements in treatment and its potential for abuse in the legal context.

Penile tumescence studies are being used increasingly in the assessment and treatment of sex offenders.<sup>1</sup> Despite growing implementation by clinicians this technique is still a relatively new methodology. As with many other newly introduced techniques, there is the tendency to overvalue its use while minimizing its potential for abuse. Since many sexual deviants enter treatment after involvement with the criminal justice system, the use of the penile transducer has inherent legal complications. Specifically, there are questions regarding the value of erection measurement data offered as relevant evidence or utilized in making diagnostic and legal decisions based upon these laboratory results. The purpose of this article is to discuss the appropriate use of erection measurement studies and the potential for abuse in the legal context.

The use of phallometric monitoring in the treatment of sexually deviant patients is a commonly employed methodology. As part of a comprehensive evaluation and treatment paradigm in a forensic psychiatry clinic, the authors have conducted physiologic studies on 185 sex offenders. The data obtained are presented to illustrate the proper use of this technique. The incorporation of erection measurement data has greatly increased our diagnostic skill and capacity to more accurately monitor treatment response.<sup>2</sup> However, if erection

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measurement data is offered in expert testimony to decide guilt or innocence, appropriateness for release on probation or parole, or the outcome of child custody suits, or other such legal questions, there is great potential for abuse of the technique as it may exceed what is scientifically valid or even reliable.

Although the courts often fail to distinguish between the terms validity and reliability, as noted by Giannelli,<sup>3</sup> this distinction is significant in scientific terminology. While the validity and reliability of psychological tests are interrelated in that "only a reliable test can be valid,"4 validity refers to the accuracy of the measurement, and reliability refers to the consistent replication of the measurement, but does not denote accuracy. If the pattern of an individual's erection responses to erotic stimuli in the laboratory is repeated, it could be argued that the procedure is reliable. However, the absolute correlation between the individual's physiologic responses and paraphiliac disorder, and therefore the validity of the measurement technique's underlying principle has not been scientifically proven. In the strictest sense of the term, therefore, the technique has not been conclusively shown to be valid. Due to this question of validity, penile tumescent studies when viewed from a forensic perspective face the same legal constraints as do other newly introduced technologies.

# Admissibility of Expert Testimony Based on Novel Scientific Techniques

To the best of the authors' knowledge there are no specific cases relating to the

admissibility of penile tumescence studies. According to the cases that have been decided pertaining to the admissibility of the results of physiological or psychological deception tests for the specific purpose of supporting an expert's testimony, the problem has "generally been resolved by the courts on the general rules of the law of evidence respecting the admissibility of facts constituting the basis for opinions expressed by expert witnesses.... The admissibility of such evidence rests largely in the discretion of the trial judge, whose exercise of discretion will not be reversed unless abused."5

The landmark case that established criteria in deducing expert opinion from a scientific test not yet widely accepted was *Frye v. United States.* In this 1923 decision the Court of Appeals stated:

Just when a scientific principle crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.<sup>6</sup>

Although this case dealt specifically with systolic blood pressure recordings (as early polygraph evidence), it set the standard for acceptance of a whole array of scientific techniques. This "general acceptance in the particular field in which it belongs" formulation established in Frye remains the test of admissibility of experimental scientific evidence in many jurisdictions. However, an increased number of jurisdictions no longer absolutely adhere to the Frye formulation as they once did.

In various publications, Giannelli<sup>3,7</sup> has pointed out the rationale for the Frye test and some recent major criticisms. These criticisms include the Frye test's selective application, vagueness, and the delay it imposes on the admissibility of reliable evidence.<sup>7</sup>

In order for scientific evidence to be accepted as reliable by the court it must fulfill at least three criteria: (1) validity of the underlying principle; (2) validity of the technique applying that principle; and (3) the competent application of the technique to that particular instance.<sup>3</sup> In an alternative approach to the Frye test, McCormick argued that "any relevant conclusions which are supported by a qualified expert witness should be received unless there are other reasons for exclusion. Particularly, probative value may be overcome by the familiar dangers of prejudicing or misleading the jury, and undue consumption of time."8 The leading case involving the relevancy approach is Coppolino v. State.9 In this case the prosecution's expert witness devised a new test to detect traces of succinvlcholine chloride in human tissue resulting in a conviction of murder. The court upheld the admissibility of this specifically devised test because of its relevancy to the case even though the medical profession at large was not familiar with the test. Giannelli criticizes the relevancy approach because of its "failure to recognize the distinctive problems of scientific evidence. In assessing probative value under this approach, the judge frequently is forced to

defer to an expert, thereby permitting admissibility based on the views of a single individual in some cases."<sup>3</sup> Giannelli accepts the underlying premise of the Frye test in requiring experimental evidence to meet a special burden of admissibility but not the actual Frye standard.

The enactment by Congress in 1975 of the Federal Rules of Evidence<sup>10</sup> into law and accepted to varying degrees in numerous jurisdictions did not clarify whether the general acceptance standard had been supplanted. Of particular importance are Federal Rules of Evidence 401-403 and 702. Rule 401 defines relevant evidence as "evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence." Rule 402 pertains to the general admissibility of relevant evidence and Rule 403 refers to the exclusion of evidence based on "grounds of prejudice, confusion or wasting of time." Rule 702 sets the parameters for qualification as an expert witness to render an opinion to help the trier of fact understand the evidence or determine a fact at issue.

Once the scientific principle or technique has been generally accepted in the field, then Federal Rule 201 permits judicial notice to be taken of the fact. The new Uniform Rules of Evidence that were approved by the National Conference of Commissioners on Uniform State Laws in August 1974 are almost identicle to the Federal Rules of Evidence.<sup>11</sup>

In an attempt to resolve the question of admissibility, Moenssens<sup>12</sup> advocates the acceptance of a flexible approach rather than any new specific test to determine the reliability of novel scientific evidence. He believes that the new approach should provide a meaningful bridge between lawyers and scientists. This approach would raise the issue of reliability determinations of the evidence in each of the three stages of the litigation process: the discovery, pretrial hearing, and decision-making stage. The increased clarity of communication between lawyers and scientists would facilitate the trial judge's ability to make a better-informed decision regarding admissibility of the evidence.

# **Novel Scientific Precedence**

The admission of scientific techniques and tests ranges from those that are so widely recognized as to receive judicial notice such as fingerprint evidence to those encountering more resistance if not immediate rejection.<sup>13</sup> Among the more common psychiatric techniques and testing devices that have been introduced into the forensic scientific arena are narcoanalysis, hypnosis and polygraphy, with varying degrees of acceptance.

Courts have generally not accepted statements obtained during physiological or psychological testing such as narcoanalysis.<sup>5</sup> It is recognized that persons lying before the test are likely to continue to do so while under the influence of narcosis.<sup>14</sup> Thus, evidence introduced in the California Supreme Court case, *People v. Jones*<sup>15</sup> did not address the veracity of statements made by the individual while under narcoanalysis. Rather, the evidence offered in expert testimony was an analysis of the defendant's responses. However, in *State v*. *Sinnott*,<sup>16</sup> the court rejected expert testimony based on narcoanalysis because of its similarity to "good character" evidence, which is of minimal probative value.

Although hypnosis initially held great promise for enhancing witness recall its use has been increasingly restricted in the courtroom. Orne<sup>17</sup> has enumerated many of the limitations and potential misuses of hypnosis in the courts, particularly the increased suggestibility of the subject in the hypnotic state and the subject's conviction of absolute accuracy of events recalled under hypnosis in the posthypnotic state. Appelbaum,<sup>18</sup> in a 1984 review article, cites the *State v*. *Hurd*,<sup>19</sup> *People v*. *Hughes*<sup>20</sup> and *People v*. *Shirley*<sup>21</sup> cases as indicative of this trend.

According to Reid and Inbau, in Truth and Deception,<sup>22</sup> there has been a general refusal by the appellate courts to accept polygraph findings as admissible trial evidence. These authors have pointed out notable exceptions to this general rule. In the Arizona case of People v. Valdez,<sup>23</sup> the court ruled on the admissibility of polygraph examination results based on the adversaries entering into a stipulation before trial. Another exception was found in the Massachusetts case in Commonwealth v. A Juvenile (No. 1).24 In Commonwealth, the defendant agreed in advance to the administration of the polygraph test re-

gardless of the outcome and the inclusion of those results as one part of all the considered evidence. However, the judge must fully inform the defendant about his Fifth Amendment right against self-incrimination that must be then waived by the defendant before the examination is administered. A third exception to the inadmissibility of polygraph evidence was cited in State v. Dorsey,<sup>25</sup> in which the New Mexico Supreme Court ruled that the defendant had the right to have polygraph results introduced "as evidence as a right of due process" under the constitution. A common condition stressed in these instances was the need to demonstrate the expertise of the polygraphist.

Abrams<sup>26</sup> offers a more positive view of the recognition of polygraph evidence, stressing the longevity of the technique and its increasing acceptance by the legal system. He notes that polygraph evidence has been admitted on a stipulated basis and in thirty states, thirteen times in state supreme courts, and in seven out of ten circuits of the district courts. Abrams maintains that there are four essential elements needed to establish a foundation for polygraph evidence. They are "the physical, mental, and emotional state of the subject; the instrument being used; the testing environment and the expertise of the examiner." An important caveat is that members of certain populations such as antisocial personalities, individuals with circumscribed amnesia, mental retardates, and psychotics are inappropriate candidates for polygraphic examination.<sup>27, 28</sup> Also, questions have been raised about the limitation in the technique's use for certain individuals who committed crimes and are able to repress this evidence by giving false negatives, and those anxious individuals who test-react as false positives.<sup>29</sup> There are similar potential confounding factors involved in erection measurement studies. In order to appreciate these measurement limitations it is important first to review the complexity of male sexual response.

# Dynamics of Human Penile Erection

While the physiology of human penile erection remains poorly understood, Weiss<sup>30</sup> writes that it is not directly under voluntary control, but is rather a reflex phenomenon with two forms of stimulation, "reflexogenic" and "psychogenic." There are suggestions that autonomic nerve fibers in S2, S3, and S4 mediate the exteroceptive stimulation of genital contact or interoceptive stimuli from the bladder or rectum producing a "reflexogenic erection." Erections of a "psychogenic" nature in response to such stimuli as sight, sound, smell, taste, touch, and imaginitive stimuli are probably mediated by the higher cord center in T12 and L1.<sup>31</sup> Both of these stimuli, reflexogenic and psychogenic, seem to act synergistically in causing erections.<sup>30</sup>

The autonomic nervous system fibers from sacral cord segments S2, S3, and S4 and thoracolumbar cord segments T12 and L1 appear to act by relaxing the "polsters," valve-like structures situated at the anastamoses between the arteriole and vascular spaces,<sup>32</sup> permitting engorgement in the vascular spaces. Just as erection occurs in response to a complex interweaving of both physiologic and psychic stimuli, suppression of these stimuli may result in its inhibition.

# Validity Issues in Penile Measurement Studies

Historically many attempts have been made to objectively measure male sexual response including galvanic skin response,<sup>33</sup> pupillary dilation,<sup>34</sup> blood pressure, heart rate and erection measurements. Consistently, measurements of erection response have proven to be the most sensitive index of male sexual arousal.<sup>35</sup> Bancroft and Mathews<sup>36</sup> found that among various physiological measures, only erection responses differentiated between sexual and nonsexual stimuli and that these erection responses occurred in a consistent pattern specific to the individual.

The early work in discriminating between homosexual, heterosexual, and pedophilic was done by Freund<sup>37, 38, 39, 40</sup> who recorded penile responses as changes in penile volume. Although the phallometric technique used by Freund provides precise measurement it is cumbersome and somewhat restrictive. In order to overcome the limitations of the volumetric method several circumferential devices were developed, most prominent of which is the mercury strain gauge consisting of a thin rubber ring that encircles the penis.<sup>41</sup> As erection occurs the strain gauge widens and generates a change in electrical output that can then be measured as a percentage of the individual's full erection. Abel and Becker<sup>42</sup> have expanded the use of circumferential measurement as an assessment and monitoring technique in the treatment of sexual aggressives. These researchers have shown that the majority of pedophiles show arousal to other paraphilias and often to appropriate sexual stimuli.<sup>43</sup>

Despite its potential value as a diagnostic and treatment instrument. Farkas<sup>44</sup> raises serious questions about the internal and external validity and the generalization of these sexual arousal studies outside of the laboratory setting. A challenge to the internal validity of erection measurements relates to the individual's ability to voluntarily control erection response. Laws and Rubin<sup>45</sup> found that upon instruction subjects were able to reduce their erections in the presence of stimulus films by at least 50 percent and when instructed to develop an erection without the stimulus films were able to generate response up to 30 percent. Henson and Ruben,46 who ensured that the subjects paid attention to the erotic stimuli by requiring a description of the film's content, also found that the subjects were able to inhibit penile erection. Rosen et al.47 showed that by using proper motivation techniques subjects were able to voluntarily control penile tumescence. The fact that there exist discrepancies between the subject's self-report of overt behavior and the subject's erection measurements to erotic stimuli, as pointed out by Farkas,<sup>44</sup> calls into question the external validity of the technique. Another question relating to external validity is

whether the response to erotic stimuli in the laboratory can be generalized to include "real-life" stimuli.<sup>44</sup>

The key question to the validity of penile erection measurements in diagnosing sexual deviants remains the comparison of those findings with the response of a normal population to the same erotic stimuli. Only then could the examiner assert with reasonable certainty that the subject who denied having a paraphiliac disorder but showed a positive arousal pattern was in fact not telling the truth. Unfortunately, there have been few studies that have compared large normal subject populations with paraphiliacs. The majority of comparative studies have tested intragroup differences, e.g., aggressive pedophiles versus nonaggressive pedophiles.43,48 Studies that have attempted to differentiate pedophiles from normal controls have not been conclusive but have shown positive trends.38,39 A recent study by Murphy et al.49 compared rapists being treated as outpatients with normals and found that while normals showed on an average 30 percent erection response to audiotaped rape cues, rapists showed 70 percent arousal to the same stimuli, but normals showed high arousal to consensual sex whereas rapists showed low to medium arousal to the same stimulus. Thus, this seemed to establish a norm for differential diagnosis of rapists versus nonrapists. However, as a corollary, Krisak, Murphy, et al.50,51 pointed out in other studies that there were no significant differences between the erection measurements of incarcerated rapists and incarcerated nonrapists.

It is important therefore to be cognizant of the variety of factors that confound the validity of differential diagnosis. A major factor would be the issue of secondary gain for the individual tested and hence the likelihood of voluntary suppression (faking). There is less likelihood of response faking when erection measurement results are used as an instrument of treatment monitoring in an outpatient facility, as opposed to being used as a determinant of sentencing, of child custody visitation rights, or of length of incarceration.

# Erection Measurement Studies of Outpatient Sex Offenders

In an attempt to evaluate the utility of erection measurement studies, the authors reviewed the results of 185 subjects tested in the Forensic Psychiatry Clinic.

These subjects were referred to the clinc by probation, parole or child protective agencies for evaluation in consideration of treatment for paraphiliac disorder. The purpose of the erection studies was to help in assessing the individual's suitability for acceptance into an outpatient cognitive-behavioral treatment program for sex offenders. All of the subjects were interviewed to determine mental status and were administered psychometric testing. The subjects were thus determined to be free of severe mental illness, mental retardation or organicity, substance abuse, and a diagnosable antisocial personality disorder. The subjects necessarily represent a subset of sex offenders, as these studies were conducted in the presentence or postconviction stage at a time when the ultimate question of guilt or innocence had been resolved.

It is important to note that the authors did not evaluate the larger population of individuals who had been accused of sexual crimes, whose guilt or innocence had not been established. Although the assessment of these individuals is a major societal concern, there are several factors that impeded this study.

Due to the limitations of confidentiality imposed by applicable state laws, the results of erection measurement studies could be subpoenaed and used in an adversarial manner. Given the present state of uncertainty regarding the validity of the diagnostic technique, the authors viewed this use of erection measurement results during the trial phase in an adversarial fashion as a potential abuse of the technique. Also, we believed individuals cognizant of the potential adversarial use of the results of erection measurements would be more likely to attempt to consciously control the responses, i.e., fake their reactions to the deviant material. Thus, conversely, individuals evaluated in the postconviction stage would seemingly be less motivated to consciously fake the results. And, therefore, the results on this population promised to be more accurate as they are less influenced by factors of secondary gain. Finally, in order to utilize this technique for differential diagnosis it would be necessary to have normative data and a comparison with a control group. Unfortunately, there is an absence of data on the responses of a normative group. Whereas it is possible to obtain a matched sample based on

such parameters as age, race, and educational level, it is impossible to have parallel degrees of psychic stress such as the shame of discovery or public opprobrium faced by the paraphiliac.

#### Methodology

The assessment procedure of the 185 subjects began with a review of the subject's background data, i.e., police record, probation and court reports. The subjects then underwent a standard psychiatric interview combined with a detailed sexual history, in-depth psychometric testing, and erection measurement studies.

Therefore, the physiological testing was one component of an extensive evaluative process. Each subject was required to sign an informed consent, detailing the risks, benefits, and procedures of the assessment. The limits of confidentiality in accordance with applicable laws and regulations were carefully explained to the subjects.<sup>52</sup>

As mentioned above, all 185 of these subjects had either pled guilty or had been found guilty of a sexual offense. However, at all phases of interview and testing, before confrontation with the results of the erection studies, 107 subjects denied involvement in deviant sexual activity and only 78 subjects acknowledged the deviant behavior. As will be shown later, following discussion of these physiological results with the subjects in regard to their indications for treatment, 59 of the initial 107 deniers admitted deviant behavior. The authors had assumed that, because denial is a hallmark of paraphiliac disorder, subjects would continue to evidence a high level of denial regardless of their erection responses.

The equipment used for physiologic testing was a PRS-102 recording system, which is a two-channel pen data recorder. A mercury strain gauge, a thin rubber ring that encircles the penis, was used as the measurement device. The stimuli consisted of 28 visual cues, 16 female pedophile audio cues and 18 male pedophile cues following the paraestablished Abel digm by and Becker.<sup>42,43</sup> The visual cues contained four slides in each of seven categories: adult female, adult male, adolescent female, adolescent male, young female, young male, and sadomasochism. The female pedophile cues are two-minute audiotape descriptions of sexual interaction between an adult male and 8- to 12-year-old females. Similarly, the male pedophile cues describe sexual interaction between an adult male and 8- to 12-year-old males. Each one of these audiotapes describes different types of coercion used by the offender to initiate the sexual activity. The audiotapes also include scenes describing incest behavior to discriminate between incest and nonincest pedophilic behavior. Additionally, other stimulus tapes were used describing exhibitionism, rape of adults, and frottage behavior when appropriate to the history and presenting problem(s).

The recording system was calibrated so that 1-mm increase in circumference of the penis as measured by the strain gauge equaled 1-mm upward deflection of the pen on the data recorder. The stimuli were presented for two-minute periods during which time erection response was measured. Erection responses less than 10 percent of the subject's measurement of full erection were discarded as artifact. The interval between presentations of the stimuli was at minimum one minute or the time required by the patient to return to baseline.<sup>53</sup>

During the evaluation each subject was given the opportunity to acknowledge a paraphiliac disorder at three stages of the assessment: (1) during the interview process; (2) during psychometric testings; and finally (3) following completion of the erection measurement studies.

The basic question was whether or not the technique was significantly able to assist in the diagnosis of paraphiliac disorder.

In order to do so there should be a high correlation between the subject's erection response to specific deviant stimuli and the professed disorder.

## **Results of Study**

The postphysiologic assessment results showed a breakdown into six groupings (see Figure 1).

Of the entire sample of 185 subjects tested, 167 or 90.3 percent (Groups I, III, and V) showed arousal to deviant stimuli related to the purported paraphiliac disorder. Only 18 or 9.7 percent (Groups II, IV, and VI) of the 185 subjects tested failed to show arousal to the appropriate deviant stimuli. Thus, there is strong evidence that there is a high correlation between arousal patterns and deviant sexual disorder.

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Figure 1. Total of 185 subjects tested. Group I: Admitters who showed arousal. Group II: Admitters who did not show arousal. Group III: Deniers who showed arousal but continued to deny. Group IV: Deniers who did not show arousal and continued to deny. Group V: Deniers who, when confronted with arousal measurements, acknowledged deviant behavior. Group VI: Deniers who did not show arousal but afterward acknowledged deviant behavior.

As was anticipated, many subjects initially denied a paraphiliac disorder despite the outcome of legal proceedings regarding the instant offense. Before confrontation with the results of their physiologic assessment, 107 of the 185 subjects denied having any paraphiliac disorder. This level of denial is striking given, again, all of the subjects had either pled or been found guilty of the instant sexual offense before evaluation. The remaining 78 subjects admitted having a paraphiliac disorder at stage one: during the initial interview.

**Group I** Seventy-three subjects or 39.5 percent of the entire sample of 185 subjects admitted at stage one having a paraphiliac disorder and showed arousal to the pertinent stimuli. This group represented 93.5 percent of the total number of 78 subjects who admitted to the sexual deviation.

*Group II* Only five or 2.5 percent of the entire sample of 185 subjects admitted to the paraphiliac disorder at stage

one but did not show arousal in the laboratory. This group constituted 6.4 percent of the total number of 78 admitters.

*Group III* Thirty-five subjects or 19 percent of the entire sample of 185 subjects continued to deny a paraphiliac disorder throughout the three stages of interview, psychometric testing, and confrontation with their laboratory results. This group accounted for 32.7 percent of the total number of 107 subjects who denied the deviant behavior. Although the physiologic results supported a paraphiliac diagnosis, it was impossible to involve these subjects in treatment in the face of their continued denial.

**Group IV** Twelve subjects or 6.5 percent of the entire sample of 185 subjects denied the paraphiliac disorder throughout stages one, two, and three and did not show arousal to deviant stimuli in the laboratory. Again, as with Group III, it was impossible to engage these subjects in treatment. It is impor-

tant to point out that the absence of arousal response does not equal conclusive evidence of lack of pathology. Treatment was offered to them, based on information supplied on referral consisting of the court testimony of the victim, police reports, etc., which tended to corroborate a positive diagnosis of paraphilia, but they refused to engage in therapy.

Group V Fifty-nine subjects or 32 percent of the entire sample of 185 subjects denied the deviant behavior during stages one and two and showed arousal to deviant stimuli in the laboratory. When confronted with their positive laboratory findings, however, these subjects then acknowledged their involvement in the deviant behavior. This group represented 55.1 percent of the total number of 107 subjects who initially denied a paraphiliac disorder. Therefore, it is important to note that more than half of the initial deniers admitted at least to their primary deviant behavior when confronted with their laboratory results. Abel et al,<sup>54</sup> in a workshop presentation at the World Congress of Behavior Therapy in 1983 presented data on a similar study of the use of erection measurements as a means of motivating sex offenders to engage in treatment. Of the 24 sex offenders who "underwent extensive clinical interviews, paper and pencil tests and psychophysiologic assessment," 17 (70.8%) clients initially denied having a paraphiliac disorder. "Feedback/confrontation of these 17 clients led to [12 clients or] 70.6% ... admitting currently having at least one category of paraphilia."

Group VI Only one subject of the

entire sample of 185 subjects initially denied a paraphiliac disorder at stages one and two, did not show deviant arousal in the laboratory but acknowledged the disorder following physiologic assessment. It was felt that the reason this one subject admitted the disorder at stage three of the assessment was that he had formed a positive connection with the treatment program.

## **Summary of Findings**

In summary, the most striking results of the study were: (1) that 90.3 percent of the subjects tested evidenced positive laboratory results appropriate to diagnosis regardless of their self-report; (2) that more than half of the initial deniers admitted to the primary paraphiliac disorder (and some to additional paraphiliac disorders) when confronted with positive laboratory results-this finding supports the authors' contention that it is important to offer treatment to individuals purported to be paraphiliacs even in the face of initial adamant denial; and (3) that 93.5 percent of those subjects who admitted having a paraphiliac disorder showed positive laboratory results. There was a high correlation between self-report and laboratory findings among admitters.

The subjects were placed into 11 diagnostic categories based on the presenting problem (see Tables 1 and 2). As can be seen, there were statistically significant differences at the point 0.01 level ( $\chi^2$  test, df = 10) which can be based on primary diagnosis regarding their propensity to initially either deny or admit the paraphiliac disorder. In particular, there were a higher number of rapists, young female pedophiles, and young male incests who tended to initially deny paraphiliac behavior (see Table 3).

Table 1 Admitters*				
	Arousal	No Arousal		
Exhibitionism	5	_		
Rape	6	1		
Frottage	7	_		
Young female pedo- phile	9	-		
Young male pedo- phile	14	-		
Young female incest	16	4		
Young male incest		-		
Adolescent female pedophile	2	-		
Adolescent male pe- dophile	5	-		
Adolescent female in- cest	9	-		
Adolescent male in- cest	1	-		
Totals	73	5		
Percentages	39.5	2.5		

\* N = 185 Tested.

#### Discussion

Based upon the data presented, which adds to the already extensive body of literature on phallometric studies, the authors contend that there is little doubt as to the efficacy of erection measurements in the treatment context. Erection measurements provide an objective method to quantify the level of deviant arousal, to specify the erotic target(s), and often to elicit the chain of behaviors involved in the deviant act(s). Erection studies are used as a means of confronting the patient's denial often resulting in his acknowledging additional paraphilias as well as the presenting problem, and thus facilitate the patient's entry into treatment. Physiologic studies are useful as a monitoring technique of the patient's response to therapy during active treatment as well as in follow-up care.

Even within the limits of a treatment

Deniers*				
	Arousal, Continue to Deny	No arousal, Continue to Deny	Arousal, Then Admit	No Arousal, Then Admit
Exhibitionism	2	-	5	_
Rape	9	2	11	_
Frottage	_	-	4	_
Young female pedophile	6	2	8	-
Young male pedophile	5	2	6	_
Young female incest	6	2	9	_
Young male incest	3	-	2	_
Adolescent female pedo- phile	_	2	3	1
Adolescent male pedo- phile	2	1	5	_
Adolescent female incest	2	1	6	-
Adolescent male incest	-	-	-	-
Totals	35	12	59	1
Percentages	19	6.5	32	0.5

Table 2

\* N = 185 Tested.

	Table 3	
Initial	Admitters an	d Deniers*

	Initial Admitters	Initial Deniers		
Exhibitionism	5	7		
Rape	5	22		
Frottage	7	4		
Young female pe- dophile	9	16		
Young male pedo- phile	14	13		
Young female in- cest	20	17		
Young male in- cest	-	5		
Adolescent female pedophile	2	6		
Adolescent male pedophile	5	8		
Adolescent female incest	9	9		
Adolescent male incest	1	-		

N = 185 Tested.

context, the clinician must be aware of conditions that may confound the results of erection measurement studies. Particular note should be taken when considering the evaluation of patients in certain psychiatric populations such as psychotics, severe depressives, alcoholics and other substance abusers, as well as patients with chronic medical conditions such as hypertension and diabetes. Patients with severe psychiatric disturbances are likely to produce spurious results on erection measurements because of their poor contact with reality and difficulty attending to the stimuli. In our experience, depressives and substance abusers generally evidence markedly diminished erection responses. Similarly, hypertensive patients on medication and diabetics suffering from peripheral vascular damage show impaired erection

responses. Consequently, these patients are generally inappropriate candidates for physiologic evaluation.

The suggestion that the erection measurement technique be taken out of the treatment context and applied in a forensic arena incurs an increased list of caveats. Foremost of these provisos, as mentioned above, is the question of the validity of the underlying technique. Specifically, is the laboratory technique able to diagnose paraphiliac disorder based on erection response to erotic stimuli? While 167 or 90.3 percent of our subject population of 185 convicted sex offenders evidenced arousal to deviant stimuli representative of the instant offense, 18 subjects or 9.7 percent of the sample did not show positive arousal. It is important to point out that 5 of these 18 subjects who did not show arousal admitted the paraphiliac disorder at stage one prior to physiologic testing (Group II). Additionally, one subject who initially denied and failed to show arousal admitted the disorder following the laboratory evaluation (Group VI). Thus, while 12 subjects denied the deviant behavior at stages one, two, and three and did not evidence deviant arousal, six subjects admitted to the paraphiliac disorder but also failed to show deviant arousal. It must be emphasized that our results were obtained in the postconviction stage at a time when it could be assumed that the level of secondary gains would be lessened. We would anticipate, given the ability of both normal subjects and sexual deviates to control their erection responses, that individuals facing severe penalties if

convicted of sex crimes would be motivated to attempt to control their erection responses.

At the present time the only purpose that erectile measurements have in a forensic setting would be as one evaluative element contributing to an expert opinion offered to the court regarding potential treatment. This treatment recommendation should be given only in the postconviction or presentence stage. Obviously, those individuals who admit their involvement with deviant behavior are suitable candidates for referral for physiological assessment and ensuing treatment. Individuals who deny any paraphiliac disorder despite conviction in the legal proceeding should also be considered appropriate candidates for physiological assessment. Although 47 individuals or approximately 44 percent of the deniers maintained their denial throughout the three stages of assessment, and did not enter treatment, 60 subjects or approximately 56 percent of the initial deniers acknowledged the paraphiliac disorder and subsequently entered treatment.

The authors contend that given the occurrence of both false-positive and false-negative results in the data obtained at a time when secondary gain is greatly reduced, there is a heightened potential for an increased number of false positives and false negatives as well as incidence of response faking in the critical trial phase.

Thus, the major potential for abuse of erection measurement studies in the legal context would be its use as evidence for conclusionary purposes. This would include the use of the technique to "vindicate" an individual who protests his innocence against charges of sexual abuse, to determine an individual's readiness for parole, or to decide an individual's fitness as a parent in a custody dispute. Even given a stipulation of acceptance as evidence regardless of outcome, the results of such studies would be dubious at best due to the obvious inherent secondary gains.

# **Suggestions for Future Research**

What emerges from our study is the need for future research. Of paramount importance is large n-size studies of normative response to paraphiliac cues, especially pedophilia. It would be important to demonstrate that nonparaphiliacs do not have positive arousal to deviant stimuli. This would substantiate the pathologic response and hence the diagnostic value of the technique. However, such normative studies would likely be confounded by the difficulties inherent in forensic contexts as they would not parallel conditions faced by defendants/litigants in legal proceedings. As with other newly introduced technologies, there is a necessity to establish standards of teaching and expertise of those conducting physiologic assessments, and to standardize assessment materials and protocol.

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