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## **Legal Challenges to Expert Testimony of the Exercise Physiologist**

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**Abstract:** The expert testimony of an exercise physiologist may be valuable support in legal cases involving physical work capacity. Case law review indicate three common challenges for an exercise physiologist; qualification of the expert, methodology used to reach conclusions, and inconsistencies between an agency's prior findings and the testimony of the expert. This paper provides examples of these legal challenges to clarify the role for expert testimony from an exercise physiologist.

## **INTRODUCTION**

This article is offered to both encourage and advise professionals in exercise physiology who are interested in sharing their expertise in a legal forum. Success as an expert requires an understanding of what testimony the courts allow and how opinions may be discredited. Both of these issues are directly applicable to how an expert approaches a problem, reaches conclusions, and then frames an opinion.

Three legal challenges to the expert testimony of exercise physiologists are common: whether the expert is qualified to offer an expert opinion, the expert's methodology in reaching conclusions, and inconsistencies between an expert's findings and an agency's internal documents. This article will offer an overview of these three challenges using case law as examples.

Determining the physical requisites to perform job tasks is often the subject of a legal dispute. In such cases, exercise physiologists are often retained as experts to establish or review minimal physical qualifications necessary to do a particular job. Case law documents the legal role of exercise physiologists who testify on the metabolic requirements necessary for various occupations and/or the metabolic ability of individuals to meet these requirements.

Specialized issues require specialized knowledge. When work capacity is central to a case, who could be more qualified than an exercise physiologist to contribute to its resolution?

## **QUALIFICATIONS**

Whether a person is qualified to give an opinion at all is often the initial challenge to an expert witness. Specialized knowledge is a common requirement in statutes regulating the admissibility of evidence. In California, for example, a person is qualified to testify as an expert “if he has special knowledge, skill, experience, training, or education sufficient to qualify him as an expert on the subject to which his testimony relates.” California Evidence Code, Section 720(a).

In the *Ernst v. City of Chicago* (2014), the City challenged the expertise of Dr. William McArdle who is a highly regarded exercise physiologist. Dr. McArdle was retained as an expert on the physical qualifications necessary to do the job of a paramedic. The City moved to exclude his testimony asserting that Dr. McArdle was not qualified to offer opinions on a Physical Abilities Test (PAT) relevant to paramedic job requirements. The City challenged McArdle’s conclusions stating that they were based solely on his unsupported statements proffered as an authority and characterized by the City as “nothing more than his *‘ipse dixit’*...which is never sufficient”<sup>1</sup> (pp. 1010-1011).

The court disagreed finding that Dr. McArdle did not expect unsupported deference to his authority. “[R]ather, he linked his assertion to what he has seen and experienced in his work in the field over the years.” The court enumerated aspects of Dr. McArdle’s extraordinary background including a PhD from the University of Michigan, over 45 years of experience as an exercise physiologist, professorships of exercise science at several universities, numerous peer-reviewed articles and books, and sophisticated expertise in research design and protocol supported by highly recognized organizations such as the National Institutes of Health (pp. 1010-1011).

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<sup>1</sup> “He himself said it”. *Ipse dixit* is a Latin phrase that is used to reference an unsupported statement that rests solely on the authority of the individual who makes it.  
<https://legaldictionary.thefreedictionary.com/Ipse+Dixit>

The court found that the City conflated qualifications and methodology. It concluded that Dr. McArdle was a qualified expert whose testimony was admissible evidence. The court distinguished admissibility from credibility based upon questionable methodology stating that Dr. McArdle's opinions were a matter of the perceived "weight of his testimony" rather than its admissibility (p. 1010).

McArdle's experience in this case is the more typical scenario in a lawsuit where the expert's qualifications are challenged from the outset. Experts vary widely in the depth and breadth of expertise on any given issue. Given a reasonable choice of an expert with a reasonably relevant background, the court is unlikely to exclude testimony as long as it relevant to and probative of a material fact in the case (see below). The trier of fact (judge or jury) will be given leeway to determine what weight to give the opinions and conclusions of the expert.

## **METHODOLOGY**

A court may limit expert testimony so that it comports with the rules of evidence. Expert testimony must help the trier of fact to understand a fact that is at issue in the case. Therefore, evidence must be both relevant and probative in order for it to be admissible. This basic understanding of the rules of evidence is directly applicable to how an expert approaches a problem and frames an opinion.

For example, in *Ernest v. City of Chicago* (2014), the court limited a qualified expert's testimony to probative and fact-based opinion that relies upon appropriate methodology.

A witness is qualified . . . to] testify in the form of an opinion if: (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case (p. 1008).

It is not uncommon for a challenge to be premised upon the expert's methodological failure to use sufficient facts or for taking an unreliable approach in reaching conclusions.

In *EEOC v. State of Mississippi* (1987), conclusions from opposing experts using different methodologies had to be resolved by the court. The case centered on a Wildlife Commission policy of mandatory retirement at age 60 for conservation officers. The Commission's pre-lawsuit study indicated that

officers over 60 could not effectively perform “critical tasks” such as pursuit driving and dealing with hostile, aggressive individuals who are sometimes armed (p. 1174). Additionally, the Commission asserted a “necessity” for health and physical fitness in strength, running, reaction time, and cardiovascular fitness given the demands of the job (p. 1177).

The Commission’s expert, an exercise physiologist, relied on scientific evidence of the generally debilitating effects of aging. He did not rely on any specific physical qualifications necessary to be a conservation officer. He testified that aerobic capacity declines with age and that the older officers would be less likely to have a certain aerobic capacity. The expert therefore concluded that older officers are less capable than younger officers to respond to an emergency situation (pp. 1173, 1182).

The EEOC's expert exercise physiologist took a different approach and considered what the Wildlife Commission specifically required of its officers. Despite physical training, he found that officers did not have to meet any physical standards to graduate from the academy and become an officer. Once hired, no physical or health standards existed for retention. He therefore testified that there were no facts to support the assertion that officers over the age of 60, as a group, had either inadequate aerobic or muscular strength to effectively perform the job (p. 1175).

The court held that the policy violated Age Discrimination in Employment Act (ADEA) (p. 1184). In explaining its holding, the court stated that the Commission attempted to establish vague qualifications for the job, including “vigor, strength, quickness, and other imprecise qualities generally thought of as youthful attributes” (p. 1180). The court emphasized the role of the courts and the factual foundation necessary to the establishment of job qualifications.

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An employer of law enforcement personnel who wishes to establish good health and physical strength as qualifications for law enforcement jobs may not ask the Court to presume the reasonable necessity of employing only individuals in top physical condition, but must have factual support for the proposition (p. 1181).

Finally, the court agreed with the testimony of the EEOC’s exercise physiologist that physical testing of officers was available and practical (p. 1183). The implication was that there was little reason for the failure of the Commission to evaluate each officer on a regular basis.

In *Ernst v. City of Chicago* (2014), the expert's conclusions were challenged because of an alleged failure to employ reliable methodology. In this case, women who applied for paramedic positions with the Chicago Fire Department sued after being rejected for failing the PAT. William McArdle, PhD, the Plaintiffs' expert, determined that the test disproportionately eliminated female candidates for paramedic jobs, failed to evaluate the "full spectrum of paramedic responsibilities" and failed to identify applicants "most likely to become competent paramedics" (p. 1010).

The City claimed McArdle's methodology was unreliable and that he had no basis to say that the PAT was an invalid test relevant to the demands of a paramedic (pp. 1010-1011). It stated that McArdle did not do a thorough review of the job citing his reliance primarily on a review of written reports, his failure to conduct a specific study of the job, and his failure to participate in a single ride-along so that he could observe the requirements of paramedics. The City therefore argued that McArdle's conclusions about the sex differences in the PAT were unsupported and that he did not employ reliable methods to reach his conclusions (p. 1010).

The court disagreed with the City stating that Dr. McArdle "did not simply eschew reliance on proper methodology and author an unsupported expert opinion" (p. 1012). He linked his assertions to his professional experiences and his study of both the job requirements and the test. The court found that the thoroughness of McArdle's study of the paramedic job (reading about it versus observing it) went to the "weight of his testimony rather than its admissibility" (p. 1011) and therefore denied the City's motion to exclude his testimony.

In *Pietras v. Board of Fire Commissioners* (1999), statistical analysis was the basis for a methodological challenge. Pietras, a female probationary firefighter was terminated for repeatedly failing the PAT, a test that all probationary volunteer firefighters were required to pass. At trial, Pietras presented testimony from Dr. Robert Otto, an expert exercise physiologist. Dr. Otto conducted an extensive review of the PAT concluding that it had a disparate impact on women but that it was not job related. (p. 4) The Board was critical of Pietras' methodology claiming a statistically insignificant sample size, i.e., only seven women took the PAT and only four passed (p. 7). The court required the reinstatement of Pietras holding that a small statistical sample plus expert testimony can support a finding of disparate impact (p. 8).

In *Lanning v. Southeastern Pennsylvania Transportation Authority* (1999) (hereinafter *Lanning I*), statistical methods were also at issue. This challenge was based, in part, on a statistical study that examined the relationship between aerobic capacity and arrests (a measure of job performance). It concluded that a minimal capacity was job related reporting a high correlation between arrests and aerobic capacity (p. 484). However, arrest rates were correlated with "disproportionately large numbers of officers with an aerobic capacity over 42

mL/kg/min" and the court state "if the correlation coefficient of the study was low, the study would "be subject to close review" (pp. 492-493 n. 21). In the subsequent 2002 appeal, the court held that the "correlation coefficient was sufficiently high to be statistically significant" Lanning vs. Southeastern Pennsylvania Transportation Authority (7, p. 292) (hereinafter Lanning II).

The issue of the metabolic capability to do a job extends to disability claims as well. See Rogers vs. Colvin, Acting Commissioner of Social Security (2015) and McNabb v. Barnhart, Commissioner of Social Security, (2003). These cases discuss abnormal stress tests indicating aerobic capacities so low that the ability to work is impaired. Test interpretation in this context is beyond the scope of this article but offers another example of the need for experts in exercise physiology. We will focus on this issue in a subsequent article that examines the unique qualifications of the exercise physiologist to interpret data from a stress test measuring oxygen consumption.

### **INCONSISTENCY WITH INTERNAL DOCUMENTS**

An expert's testimony may be challenged on the basis of conclusions that are inconsistent with an agency's internal documents. Additionally, the manner in which an expert articulates an opinion can be used by the opposition to challenge the expert's conclusions. In all cases, the courts will carefully balance factually based conclusions with perceptions of inaccuracy based upon evidence of inconsistency.

In Lanning I (1999), Plaintiffs/SEPTA, a regional mass transit authority, hired Dr. Paul Davis, an exercise physiologist, to develop a minimal physical standard for its police officers (p. 482). In determining minimal physical qualifications, Davis completed 20 hours of ride-along observation over two days in order to better understand the expectations of transit officers. He then did a study with SEPTA police officers designated as "subject matter experts" (SMEs) to determine what physical abilities are required for the job. Running, jogging, and walking were reported important tasks. SMEs asserted that a reasonable expectation was to run one mile in full gear in 11.78 min. Davis disagreed with the SMEs opining that any individual could meet this low expectation. Instead, he recommended a screening test of 1.5 mile run within 12 minutes (equivalent to an aerobic capacity of 42.5 mL/kg/min) was necessary to perform the job. Failure to meet this would be disqualifying (p. 482).<sup>2</sup>

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<sup>2</sup>Plaintiffs expert, Dr. William McArdle, suggested the use of a "relative fitness" screen test, i.e., applicants would be required to meet the 50th percentile of aerobic capacity for their gender (approximately 42 mL for males, and 36 mL for females). A Defense expert disagreed stating females would not be able to capably perform their duties at that capacity. The District Court rejected Dr. McArdle's proposal (pp. 495-496).

Davis' methodology was not challenged; in fact, the court found that his study, standing alone, met the professional standards for construct validation (p. 496). However, internal SEPTA documents contradicted whether the test accurately screened the necessary minimal aerobic capacity to do the job. "According to internal documents, significant percentages of incumbent officers of all ranks have failed SEPTA's physical fitness test" (p. 483), yet SEPTA took no action on incumbent officers for failing to perform "physical requirements of the job" (p. 484).

Additionally, few women but most men could pass the test. SEPTA conceded that the 1.5 mile had a disparate impact on women but argued that the standard was "job related and consistent with business necessity" (pp. 482-484). A review of internal documents produced evidence inconsistent with this assertion. For example, a clerical error resulted in the hiring of a female officer who failed the screening test but was decorated by SEPTA and nominated repeatedly for awards (p. 484).

In spite of these challenges to the test, the Court of Appeals affirmed the judgment of the District Court holding that SEPTA proved the 42.5 mL/kg/min aerobic capacity standard measured the minimum qualifications necessary for the successful performance of the job of its officers (Lanning II, 2002, p. 289). The Court of Appeals found sound statistical analysis and that most women passed the test who moderately trained for it (pp. 291-292).

In *EEOC vs. State of Mississippi* (1987) and unlike the prior examples, internal inconsistency was a primary reason for the court finding a violation of the ADEA with a policy requiring the mandatory retirement of conservation officers over 60 (p. 1184). "Most persuasive is the fact that . . . [the Commission] had extensive and successful experience with conservation officers over the age of 60. The evidence that the officers functioned effectively is persuasive" (p. 1181).

Experts should carefully articulate conclusions so to avoid the use of their own words against them. The war of words and their meaning is "low hanging fruit" when careful consideration is not given to both oral and written comments. It is not necessarily that internal inconsistency actually exists. Rather, it is a matter of successfully arguing that point.

For example, in *Harrison vs. Astrue* (2011), the functional capacity evaluation (FCE) report prepared by an exercise physiologist was reviewed by an Administrative Law Judge (ALJ) in a claim of disabling back pain. Relying in part on the FCE report, the ALJ found that claims regarding the "intensity, persistence, and limiting effects of [his] pain" were not credible and that claimant

was not disabled within the meaning of Social Security Administration (SSA). Therefore, SSA benefits were denied (pp. 1,3,5).<sup>3</sup>

The sole issue raised on appeal was whether the ALJ performed a proper credibility analysis of the claimant's allegation of disabling pain (p. 6). The FCE report was important to the analysis. The exercise physiologist described claimant's "magnification" and "exaggeration" of symptoms as well as his "self-limiting" behavior during the test. These words were used by the ALJ to indicate that the claimant was not believable and not trying his best during the test. In fact, the ALJ testified that the exercise physiologist said that the claimant did not put forth his best effort during the testing. The exercise physiologist denied every making this statement (p. 6). He followed up by testifying that "he did not form opinions during the examination and whether the test was valid or invalid was based on plaintiff's efforts during the testing" and that "I do not form opinions. I just write down only what [claimant] demonstrates" (pp. 6,7).

The court found that the ALJ "clearly misrepresented" the exercise physiologist concluding that his "response was not an opinion regarding plaintiff's efforts; rather, it was his assessment that plaintiff's efforts showed that the test results were valid" (p. 6).

It would be a mistake for an expert to ignore internal documents or policies of an agency that are inconsistent with the expert's conclusions. Courts will consider competing facts and documents entered into evidence. The expert's explicit interpretation of inconsistency is important to the final disposition of a case. Further, experts must be prepared to also interpret their own words if a challenge is presented to their plain meaning.

## **CONCLUSION**

Exercise physiologists are well positioned to serve as legal experts in a wide array of cases. This is especially true when metabolic status is an issue and commonly involves cases examining age, gender, and disability. It is critically important that qualified exercise physiologists avoid unnecessary or baseless challenges to their expertise by attending to more than just the science of the issue. Methodological approaches need to demonstrate an objective and thorough study consistent with basic rules of admissibility. Failures to look for an agency's internal inconsistencies can result in successful challenges even when science and facts are sound.

In our opinion, there are abundant opportunities for exercise physiologists to serve as experts given their unique qualifications relevant to work capacity. This

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<sup>3</sup>See also *Broadus v. Colvin*, Social Security Commissioner (2016), *Martinez vs. Colvin*, Acting Commissioner of Social Security (2013), *Mobile Airport Authority v. Etheredge* (2012), and *Nielson v. State Compensation Insurance Fund* (2003). These cases discuss the use of exercise physiologists as experts who perform FCEs on claims for disability with SSA.

coupled with a clear understanding of what is expected in court offers a strong platform on which to build experience and a reputation as a competent expert.

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