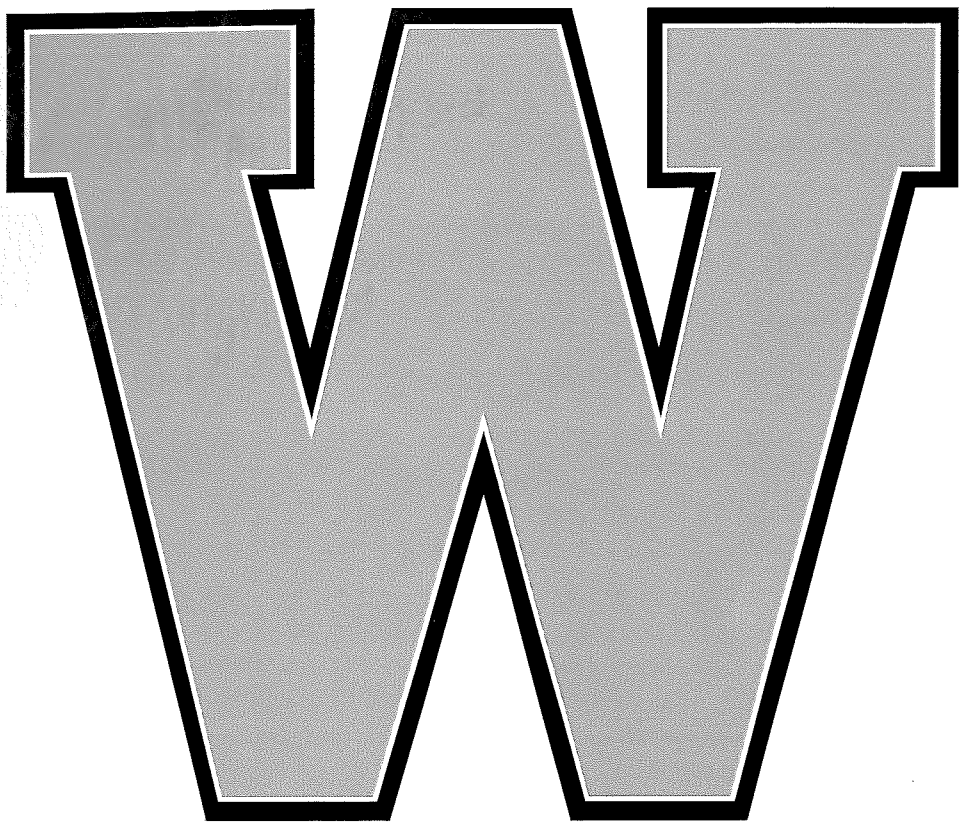

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USING FED. R. EVID. 702 AND DAUBERT

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INTRODUCTION

Daubert v Merrell Dow Pharm., Inc.[1] marked a significant departure in admitting scientific and technical expert testimony. Fed. R. Evid. 702 at the time of *Daubert* provided as follows:

> If scientific, technical or other specialized knowledge will assist the trier of fact understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill experience, training or education, may testify thereto in the form of an opinion or otherwise.[2]

That rule of evidence was passed by 93 PL 595 on January 2, 1975. Prior to *Daubert*, the standard for admissibility of expert witness testimony was found in *Frye v United States,*[3] and required that the admissibility of an expert opinion be based upon whether or not the opinion was "generally accepted" as reliable in the relevant scientific community.[4] Thus, it took 70 years for the United States Supreme Court to depart from the *Frye* standard of general acceptance.[5]

Daubert prompted a 2,000 amendment to Fed. R. Evid. 702, incorporating the so-called *Daubert* principles; thus today, Fed. R. Evid. 702 reads as follows:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:
> (a) the expert's scientific, technical or other specialized knowledge will help the trier of fact to understand the evidence to determine a fact in issue;
> (b) the testimony is based on sufficient facts or data;

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[1] Daubert v. Merrell Dow Pharm., Inc., 509 U.S. 579 (1993).
[2] FED. R. EVID. 702.
[3] Frye v. United States, 293 F.1013 (D.C. Cir. 1923).
[4] *Id.*
[5] Daubert, 509 U.S. at. 583.

(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.[6]

Note that the four requirements are in the conjunctive, so all four are required. Each of these four requirements are explicated in *Daubert* and its progeny.

This article intends to explain Fed. R. Evid. 702 in light of *Daubert* and its progeny, while providing advice on using *Daubert* challenges to disqualify adverse expert witnesses.

THE *DAUBERT* DECISION

Daubert started as a product liability case over the ingestion of Bendectin taken by mothers for nausea, which was the alleged cause of birth defects.[7] The eight experts offered by plaintiff based their causation opinions on chemical, in vitro and in vivo studies, together with an analysis of epidemiological studies.[8] The Court held that the most reliable causation evidence must be based on epidemiological evidence,[9] and that the chemical and animal studies and the recalculation of epidemiological studies do not demonstrate a "significant relationship" of causation.[10] Indeed, epidemiological studies demonstrated no relationship.[11]The case made no reference to Fed. R. Evid. 702.[12] The Court granted summary judgment to the defendant.[13]

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[6] FED. R. EVID. 702.
[7] *See* Daubert v. Merrell Dow Pharm., 727 F. Supp. 570, 570-71 (S.D. Cal. 1989).
[8] *Id.* at 573.
[9] *Id.* at 575.
[10] *Id.*
[11] *Id.*
[12] Daubert, 727 F. Supp. at 570.
[13] *Id.* at 576.

The Supreme Court made Fed. R. Evid. 702 the basis of its decision when it decried the *Frye* decision.[14] The Court made the trial judge the gatekeeper for expert testimony, which must be both relevant and reliable.[15] Fed. R. Evid. 702 requires that expert opinion be based on the methods and procedures of science;[16] it also requires "knowledge" which connotes more than subjective belief or unsupported speculations.[17] The Court stated:

> Proposed testimony must be supported by appropriate validation ie, "good grounds," based on what is known. In short, the requirement that an expert's testimony pertain to "scientific knowledge" establishes a standard of evidential reliability.[18]

The Court went on to explain that the opinion evidence must assist the trier of fact to understand the evidence or determine a fact at issue.[19] This "fit" requirement is partially relevant and mandates that the proffered testimony be tied to the facts of the case.[20] The Court suggested using the following non-exhaustive factors to determine whether the testimony is reliable and relevant: whether the testimony or technique has been tested; whether the testimony or technique has been subjected to peer review and publication; the known or potential error ratio of the particular technique; and the general acceptance in the relevant scientific community.[21]

The Court concluded by extolling the virtues of cross-examination, presentation of contrary evidence and careful instructions to prevent jury befuddlement from differing expert opinions.

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[14] *Id.* at. 579.
[15] *Id.* at 599.
[16] *Id.* at 579.
[17] *Id.*
[18] *Id.* at 590.
[19] *Id.* at 579.
[20] *Id.* at 591.
[21] *Id.* at 591-95.

On remand, the 9th Circuit Court called its post-*Daubert* world a "Brave New World," more "complex and daunting" than before.[22] In summarizing the Supreme Court's requirements, the 9th Circuit added one additional factor to the four suggested by the Supreme Court, namely, that the expert's opinion grow naturally and directly out of research conducted independently of litigation or whether the expert has developed the opinions expressly for purposes of testifying.[23]

Upon an analysis of the four-now-five factors, the 9th Circuit sustained the summary judgment by the District Court.[24]

The Supreme Court's *Daubert* decision was followed by *Gen. Elec. Co., v. Joiner,*[25] wherein the Court held that appellate courts' review of evidentiary rulings are based on an abuse of discretion standard.[26] The *Joiner* court also re-emphasized the focus must be on "principles and methodology, not on the conclusions they generate.[27] The Court also famously stated:

> . . . nothing in either Daubert or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the ipse dixit of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.[28]

Kumho Tire Co. v Carmichael[29] followed and expanded the gatekeeping role to testimony that involves not only scientific knowledge, but also testimony based on technical or other specialized knowledge, such as accountants and other experts who are not scientists.[30]

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[22] Daubert v. Merrell Dow Pharm., 43 F.3d 1311, 1315 (9th Cir. 1995).
[23] *Id.* at 1317.
[24] *Id.* at 1322.
[25] Gen. Elec. Co. v. Joiner, 522 U.S. 136 (1997).
[26] *Id.*
[27] *Id.* at 146.
[28] *Id.* at 146 ("Ipse dixit" means an assertion made but not proven).
[29] Kumho Tire Co. v Carmichael, 526 U.S. 137 (1999).
[30] *Id.*

INTERMEZZO

Having considered the *Daubert* triad (*Daubert*, *Joiner* and *Kumho*), it is important to reiterate that Fed. R. Evid. 702 was amended in 2000 to reflect the requirements of helpfulness, sufficiency of data, reliability and relevance, or fit required by *Daubert*. The basic requirement of qualification of the expert remained intact.

The four factors suggested by *Daubert* as standards grew to five factors by the 9th Circuit[31] adding the requirement that an opinion should arise out of research independent from the lawsuit; the Sixth Circuit has held similarly.[32]

The 3rd Circuit in *In re Paoli RR PCB Litigation*[33] expanded the five factors to eight by adding:

> 6) the existence and maintenance of standards controlling the technique's operation,
> 7) the relationship of the technique to methods which have been established to be reliable, and
> 8) the qualifications of the expert witness testifying based on the methodology.

The basis of the gatekeeper requirement of Daubert is Fed. R. Evid. 104(a), which reads as follows:

> The court must decide any preliminary question about whether a witness is qualified, a privilege exists, or evidence is admissible. In so deciding, the court is not bound by evidence rules, except those on privilege.

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[31] Daubert, 43 F.3d at 1317.
[32] Smelser v Norfolk S. Ry. Co., 105 F.3d 299, 303 (6th Cir. 1997).
[33] In re Paoli RR PCB Litigation, 35 F.3d 717, 742 (3rd Cir. 1994).

MOTIONS IN LIMINE

The customary method of raising a *Daubert* motion is via a motion in limine. The federal rules do not specifically mention such motions, but their use has evolved under the court's inherent authority to manage its docket and trials.[34] Preparation for the *Daubert* motion will include the following:

- research regarding the expert's specific qualifications.
- research regarding the expert's publications.
- questioning regarding the *Daubert* and *In Re Paoli RR* factors as to each opinion of the expert.
- marshalling relevant publications generally.
- accounting for alternative explanations.
- does this testimony grow out of research conducted independently of litigation?
- general acceptance of the opinions.
- foundations of the opinions.
- assumptions of the opinions.
- methodology of arriving at opinions.
- fit between opinion and known facts of case.
- relationship between premises and conclusions.
- internet research regarding expert.
- analysis of prior depositions of the expert.

These matters and other relevant matters may be presented to the court by motion or by an evidentiary hearing. Detailed briefs with supporting affidavits, published material, expert reports, CVs and supporting documentation in all respects should be submitted to the court.[35] Opposing experts may be adduced to testify on relevant matters.[36]

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[34] Goldman v. Healthcare Mgmt. Sys., 559 F. Supp. 2d 853, 858 (W.D. Mich. 2008).

[35] Claar v. Burlington N. R.R., 29 F.3d 499 (9th Cir. 1994).

[36] In re Paoli R.R. PCB Litig, 35 F.3d at 736.

The proponent of the expert has the burden to qualify the expert under *Daubert*.[37] The burden is by a preponderance of the evidence.[38] At the hearing, the judge will want information on qualifications, reliability, helpfulness and fit, as well as the factors explicated in *Daubert*.

What follows constitutes the case law relevant to the various aspects of the inquiry.

Peer Review and Publication

Daubert stated that submission to the scrutiny of the scientific community is a component of "good science" since it increases the likelihood that substantive flaws in the methodology will be detected.[39] Publication in a peer reviewed journal is relevant but not dispositive in assessing reliability.[40] The peer review factor can be satisfied by general design manuals or industry specific journals.[41] Three types of peer review exists, including: (1) formal peer review wherein an article submitted to a scientific journal is submitted to outside reviewers prior to publication, (2) presentation of a study at a scientific conference, where it is critiqued for methodology and then commented on by attendees; and (3) review and comment on an article by the editor of a journal.[42] But just because an article is published in a journal does not mean per se that it is scientifically valued.[43] Case reports are not a scientifically reliable basis for a causation medical opinion.[44] Even if the expert has never done any relevant research of his own, his testimony could be reliable if he relies on the published works of others.[45]

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[37] Pride v. BIC Corp., 218 F.3d 566, 578 (6th Cir. 2000).
[38] Daubert, 509 U.S. at 594 n.10.
[39] Daubert, 509 U.S. at 593.
[40] *Id.* at 594.
[41] Milanowicz v. The Raymond Corp., 148 F. Supp. 2d 525, 533 (2001).
[42] Allen v. IMB, 1997 F. Supp. 2d 8016 (1997).
[43] Milanowicz, 148 F. Supp. 2d at 533.
[44] Allison v. McGhan Med. Corp., 184 F. 3d 1300, 1317 (11th Cir. 1999).
[45] Sanderson v. Int'l Flavors, 950 F. Supp. 981, 994 (C.D. Cal. 1996).

Error Rate

Daubert asserts that the court should "ordinarily" consider the known or potential rate of error and the "existence and maintenance of standards controlling the technique's operation."[46] The absence of an error rate will "rarely" be dispositive if the rest of the evidence establishes that the test or theory has been properly validated.[47] When the testing conditions and error rate are not provided by the expert, he or she is not engaging in "good science" since the results cannot be verified and critiqued.[48] One case has held that a 24% rate of false negatives would not assist the jury.[49] Another case pointed out that a 22 - 64% error rate was "appalling."[50]

Testing

Daubert called whether a theory or technique has been or can be tested as a "key factor in determining whether expert's theory or technique is a scientific knowledge that will assist the trier of fact."[51] The trial court must consider whether the expert's theory can be tested by objective means or whether it is based on the subjective, conclusory assertions of the expert. A court is not required "to admit opinion evidence that is connected to existing data only by the ipse dixit of the expert."[52] An opinion is deemed speculative and unreliable when an expert never attempts to reconstruct the accident and test his theory.[53] Also, courts held that "if testing does not generate consistent results, an expert's method

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[46] Daubert, 509 U.S. at 594.
[47] U.S. v. Shea, 957 F. Supp. 331, 340 (D. N.H. 1997).
[48] Smelser v. Norfolk S. Ry. Co., 105 F.3d 299, 304 (6th Cir. 1997).
[49] U.S. v. White Horse, 177 F. Supp. 2d 973, 975 (D. S.D. 2001).
[50] U.S. v. Birdsbill, 243 F. Supp. 2d 1128, 1135-36 (D. Mont. 2003).
[51] Daubert, 509 U.S. at 593.
[52] Gen. Elec. Co., 522 US at 146.
[53] *See* Brooks v. Outboard Marine Corp., 234 F.3d 89, 92 (2d Cir. 2000).

is unreliable because it is subjective and unreproducible."[54] In addition, although testable, if an expert's theory has not been tested, it is inadmissible.[55] However, "hands-on-testing is not an absolute prerequisite to the admission of expert testimony," as the expert may "review scientific data generated by others in the field."[56]

General Acceptance

Though rejecting the Frye sole factor of "general acceptance," Daubert yet held that "general acceptance" "bears" on the inquiry by identification of the relevant scientific community and a determination of the degree of acceptance within that community.[57] A known technique which has attracted "only minimal support may properly be viewed with skepticism".[58] Further, "an expert cannot establish that a fact is generally accepted merely by saying so;" the expert must identify an authoritative source which recognizes the proposition as generally accepted.[59] In addition, when an expert's theory is novel and unsupported by any article, test, study, scientific literature or scientific data, it is not admissible.[60] The focus is on principles and methodology, not on the conclusions generated by such principles and methodology.[61]

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[54] *See* Elcock v. Kmart Corp., 233 F.3d 734, 747 (3d Cir. 2000).
[55] *See* Booth v. Black & Decker Inc., 166 F. Supp. 2d 215, 221 (D. Pa. 2001) (holding expert's testimony inadmissible when the expert performed no tests of his own to determine whether his hypotheses were true, but "merely examined the toaster oven and concluded it could have been safer"); *see also* Brumley v. Pfizer, 200 FRD 596, 602 (D. Tex. 2001) (quoting another source that "a theory that is untestable is unfalsifiable and of no value in the courtroom").
[56] Cummins v. Lyle Indus., 93 F.3d 362, 369 (7th Cir. 1996).
[57] *See* Daubert, 509 US at 594.
[58] *Id.*
[59] Grimes v. Hoffman-LaRoche, Inc., 907 F. Supp. 33, 38 (D.N.H. 1995).
[60] Chapman v. Maytag Corp., 297 F3d 682, 688 (7th Cir. 2002).
[61] Daubert, 509 US at 595.

Research Independent of Litigation

On remand of Daubert, the 9th Circuit considered as "significant" the fact of whether the expert was testifying about matters growing naturally and directly out of research conducted independent of the litigation or whether the expert developed opinions expressly for the purpose of testifying.[62] The court considered research independent of litigation important and objective proof that the research comports with good science.[63] Independent research is an indication of reliability of the opinion, as it is conducted in the normal course of business and must have standards to attract funding and institutional support.[64]

The Existence and Maintenance of Standards Controlling the Technique's Operation

This factor appears in *In Re Paoli RR Yard PCB Litig.* and was regarded by the 9th Circuit as "important."[65] The cases do not explain this factor well, but it appears to refer to institutional standards for funding and research, which in turn provide some degree of assurance for quality control and peer review.

The Relationship of the Technique to Reliable Methods

This factor once again is a *Paoli RR Yard PCB Litig.* factor,[66] which is not explained in the cases. It seems to refer to whether or not the technique has been accepted or rejected by other courts.

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[62] Daubert, 43 F.3d at 1317.
[63] *Id.*
[64] *Id.*
[65] *In re* Paoli RR Yard PCB Litig., 35 F.3d at 742.
[66] *See id.*

THE DAUBERT HEARING

Procedural Matters

A challenge to an expert under the Federal Rule of Evidence 702 may be raised procedurally in various ways, including by a Daubert hearing using Fed. R. Evid. 104(a),[67] by motion for summary using Fed. R. Civ. P. 50 or 56,[68] or by *voir dire* of the expert during trial.[69] When courts allow a *Daubert* hearing during trial,[70] the moving party cannot wait until after the testimony comes in without objecting or requesting a *Daubert* hearing, as the challenge will be deemed waived or forfeited.[71] It appears that an *in limine* hearing under Fed. R. Evid. 104(a) is deemed the most efficient procedure,[72] but a hearing is not mandated by *Daubert*, so one is not required where the record is fully developed.[73]The burden of persuasion rests with the proponent of the expert.[74] A preponderance of the evidence is required.[75] The court is required to make a specific finding on the relevant *Daubert* issues and on the record.[76]

The *Daubert* hearing is conducted before the judge only, and counsel should use appropriate methods of persuasion and preserve the appellate record as in a bench trial. Evidence must be marked and moved into evidence and witnesses should be presented and cross-examined. The judge should be presented with trial notebooks with the exhibits, including depositions, articles, and summaries. Flip charts or video may also be useful.

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[67] *Cf. Id.* at 739.
[68] Cortes-Irizarry v. Corp. Insular De Seguros, 111 F.3d 184, 188 (1st Cir. 1997).
[69] *Cf.* Krik v. Exxon Mobil Corp., 870 F.3d 669, 672 (7th Cir. 2017).
[70] *Cf.* Smith v. Ford Motor Co., 215 F.3d 713, 717 (7th Cir. 2017).
[71] *See* Macsenti v. Becker, 237 F.3d 1223, 1231-32 (10th Cir. 2001).
[72] *Cf.* Oddi v. Ford Motor Co., 234 F.3d 136, 154 (3d Cir. 2000).
[73] *Cf. Id.* at 153.
[74] United States v. Barnes, 573 F.3d 979, 985 (10th Cir. 2009).
[75] Daubert, 509 U.S. at 592 n. 10.
[76] United States v. Roach, 582 F.3d 1192, 1207 (10th Cir. 2009).

Substantive Concerns

The preparation for a *Daubert* hearing begins with a clear understanding of Fed. R. Evid. 702.

That rule provides that an expert (a witness who gives opinion testimony) must first be qualified. That qualification may be by knowledge, skill, experience, training or education. The testimony may be given if it is relevant and will help the trier of fact understand issues in the case, if the testimony is based on sufficient facts or data (good grounds) and the testimony is the product of reliable principles and methods (reliability), and if the expert has reliably applied the principles and methods to the facts of the case (fit). Reliability is determined by the four factors of *Daubert*, i.e. testing, peer review, error rate, or general acceptance, as augmented by the *In re Paoli RR PCB Litig.* factors; existence and maintenance of standards, relationship of the technique to methods which have been established to be reliable, or the non-judicial use of the methodology.[77]

Qualifications

A witness may be unqualified in the general field of inquiry or in the particular subject matter in question. For instance, in *Wilson v. Woods, 163 F.3d 935 (5th Cir. 1999),*[78]plaintiff offered an accident reconstruction expert who was a mechanical engineer, but who mostly did fire investigations, had no certificates in accident reconstruction, and had never qualified in any court as an accident reconstructionist. The Court ruled he was not qualified in the general field of accident reconstruction.[79] Furthermore, he had not taken measurements for this accident and did not examine the tires on the vehicles.[80] The court ruled he was not qualified based on facts of this accident saying "*[a] district court should refuse to*

[77] In Re Paoli RR Yard PCB Litig, 35 F.3d at 742 n.8.
[78] Wilson v. Woods, 163 F.3d 935, 937 (5th Cir. 1999).
[79] *See id.*
[80] *See id.*

allow an expert witness to testify if it finds that the witness is not qualified to testify in a particular field or on a given subject."[81]

In *Smelser v. Norfolk S Ry,* 105 F.3d 299 (6th Cir. 1997)[82], a biomechanical engineer was precluded from testifying as to medical causation. The court ruled that a biomechanical engineer is not qualified to testify about the cause of plaintiff's specific injuries, though he is qualified to testify in general about forces involving the collision and the type of injuries those forces would generate.[83]

The key question is not the expert's general qualifications in some field, but whether the precise question on which he will be asked to opine is within his field of expertise.[84] Attacking an opposing expert presupposes, as a minimum:

- a detailed inquiry into the expert's background and publications;
- verification of all items in the CV;
- a comprehensive deposition;
- marshalling/analyzing prior depositions of the expert;
- intensive internet research regarding the expert;
- review of appellate cases mentioning the expert.

Assist Trier of Fact - Helpfulness

This requirement mandates that expert testimony is admissible if it concerns matters that are beyond the understanding of the average lay person.[85] Proffered expert testimony generally will not assist the trier of fact "when it offers nothing more than what lawyers for the parties can argue in closing arguments."[86] *Daubert* made "helpfulness" a matter of relevance; it stated that irrelevant

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[81] *Id.* at 937.
[82] *See* Smelser v. Norfolk S Ry, 105 F.3d 299, 305 (6th Cir. 1997).
[83] *See id.*
[84] Berry v. City of Detroit, 25 F.3d 1342, 1351 (6th Cir. 1994).
[85] United States v. Frazier, 387 F.3d 1244, 1262 (11th Cir. 2004).
[86] *Id.* at 1262-63.

evidence is not helpful.[87] *Daubert* also tied "helpfulness" to "fit" in that the expert testimony must have a valid scientific connection to a pertinent inquiry in the case.[88]

The attack on an expert, based on helpfulness is two-pronged; relevance to and fitting in with the facts. If the opinions are not required by the normal layman, if they are irrelevant to any issue, or if they do not fit the uncontroverted facts of the case, they are not helpful.

Based on Sufficient Facts — Good Grounds

This requirement can be verbalized in a number of different ways: the testimony must be based on sufficient facts or data;[89] whether the expert extrapolated from accepted premises to an unfounded conclusion;[90] whether there exists too great an analytical gap between the data and the opinion,[91] the expert cannot speculate,[92] the expert must use proper methodology;[93] the expert must use scientifically valid reasoning and methodology.[94]

Reliable Application of Principles and Methods to Facts - Fit

Daubert asserts that "fit" is another aspect of relevancy and helpfulness and is defined as, whether the expert testimony proffered is sufficiently tied to the facts of the case that it will aid the jury in resolving a factual dispute.[95] Thus, when a product is tested it must be in substantially the same condition as at the time

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[87] Daubert, 509 U.S. at 591.
[88] *Id.* at 592.
[89] FED. R. EVID. 702.
[90] Gen. Elec. Co., 522 U.S. at 146.
[91] *Id.*
[92] Goebel v. Denver & Rio Grande W. R.R. Co., 215 F.3d 1083, 1088 (10th Cir. 2000).
[93] *In re* TMI Litig., 193 F.3d 613, 655 (3d Cir. 1999).
[94] Daubert, 509 U.S. at 593.
[95] *Id.* at 591.

of the accident.[96] Expert testimony that is based on fake assumptions or random data is inadmissible.[97] In a products case, the plaintiff must prove that the product can cause the problem, but also that it did cause the plaintiff's problem.[98]

Reliable Principles and Method -- Reliability

Unsubstantiated testimony not based on any article, text, study, or scientific literature is unreliable.[99] The reliability requirement mandates the court to consider the non-exclusive factors of *Daubert*.[100]

Miscellaneous Matters

The *Daubert* motion in limine may be combined with a motion for summary judgment.[101] The court may permit an expert to opine on some matters only, thus, limiting expert testimony.[102]The court should be advised early, in the case of *Daubert* challenges, so that the *Daubert* hearing schedule is provided for in the scheduling order. The gatekeeper function is largely irrelevant in the bench trial context.[103] When seeking cases on particular experts, there is no better resource than the annotations found in the United States Code Service (USCS), Fed. R. Evid. 702, and in 3-702 Federal Rules of Evidence Manual V02.0.

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[96] Bogosian v. Mercedes-Benz of N. Am., Inc., 104 F.3d 472, 480 (1st Cir. 1997).
[97] Soldo v. Sandoz Pharm. Corp., 244 F. Supp. 2d 434, 562 (W.D. Pa. 2003).
[98] *In re* Propulsid Prod. Liab. Litig., 261 F. Supp. 2d 603, 617 (E.D. La. 2003).
[99] Chapman v. Maytag Corp., 297 F.3d 682, 688 (7th Cir. 2002).
[100] Daubert, 509 U.S. at 593.
[101] Pluck v. BP Oil Pipeline Co., 640 F.3d 671, 675 (6th Cir. 2011).
[102] Calhoun v. Yamaha Motor Corp., U.S.A., 350 F.3d 316, 320-22 (3rd Cir. 2003).
[103] Deal v. Hamilton Cty. Bd. of Educ., 392 F.3d 840, 852 (6th Cir. 2004).