

UNITED STATES DISTRICT COURT

EASTERN DISTRICT OF LOUISIANA

KATHLEEN MOLLER	*	CIVIL ACTION NO. 24-0228-WBV-DPC
	*	ALL CASES
	*	
VERSUS	*	JUDGE WENDY B. VITTER
	*	
MARTIAN SALES, INC; JOPEN, LLC,	*	MAGISTRATE DONNA PHILLIPS
a Texas limited liability company;	*	CURRAULT
JOHNSON FOODS, LLC, a Wyoming	*	
limited liability company; NUZA, LLC, a	*	
Wyoming limited liability company;	*	
CALIBRE MANUFACTURING, LLC, a	*	
Wyoming limited liability company; LP	*	
IND., LLC, a Wyoming limited liability	*	
company; CAG HOLDINGS, LLC, a	*	
Wyoming limited liability company;	*	
RMH HOLDINGS, INC., a Wyoming	*	
corporation; FMK GROUP, INC., a	*	
Wyoming corporation; PNW	*	
HOLDINGS, LLC, a Wyoming limited	*	
liability company; CC US HOLDINGS,	*	
LLC, a Wyoming limited liability	*	
company; PEYTON SHEA PALAIO;	*	
MARK JENNINGS; EYAL DAVID	*	
GABBAY; and MARK REILLY.	*	
*****	*	

**MEMORANDUM IN SUPPORT OF PLAINTIFF’S DAUBERT MOTION TO EXCLUDE
TESTIMONY OF DEFENSE EXPERT EDWARD W. BOYER M.D., PH.D.**

I. INTRODUCTION

Plaintiff, Kathleen Moller (“Plaintiff”), respectfully moves this Court to exclude the testimony of Defense Expert Edward W. Boyer, M.D., Ph.D. (“Dr. Boyer”) pursuant to Federal Rule of Evidence 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

II. BACKGROUND AND STATEMENT OF FACTS

This wrongful death action presents claims arising from the preventable death of Harmony Moller. On February 6, 2023, Harmony Moller died suddenly and unexpectedly at the age of 36.

Third Amended Complaint (“TAC”), Dkt. No. 100, at ¶ 30. A postmortem exam determined the cause of death was “Abnormally high left coronary ostia takeoff exacerbated by mitragynine use.” *Id.* at ¶ 33. Mitragynine is the most abundant active alkaloid in the Southeast Asian plant *Mitragyna Speciosa*, commonly known as kratom.¹ *Id.* at ¶ 34. The product leading to Harmony Moller’s death was “OPMS kratom.” *Id.* at ¶ 30.

Dr. Boyer is one of Defendant’s nine experts, and one of eight experts opining on medical causation and kratom’s risk and safety profile. See Motion to Exclude or Limit Cumulative Experts simultaneously filed herewith.

Dr. Boyer provides opinions in this matter that are unreliable and based on faulty methods. Dr. Boyer employs such unreliable and faulty methods to opine that Harmony Moller did not die from her underlying cardiac condition exacerbated by kratom but instead died of an independent cardiac event or a cardiac event caused by caffeine. See Exhibit 1, Expert Report of Dr. Boyer at ¶ 74-85; compared to Exhibit 2, Autopsy Report and Toxicology Reports of Harmony Moller (stating cause of death: “Abnormally high left coronary ostia takeoff exacerbated by mitragynine use.”). Dr. Boyer is biased and generally aligned with the pro-kratom industry. For example, Dr. Boyer has presented at conferences organized by pro-kratom advocacy groups, including the American Kratom Association (“AKA”), and was invited by its top lobbyist to speak on kratom’s adverse events.² This may explain why Dr. Boyer provides far-fetched and unsupported opinions in conflict with other defense experts.

Ultimately, Dr. Boyer’s opinions lack a sufficient basis in fact or data such that his opinions should be excluded. Exclusion of Dr. Boyer’s opinions will ensure that only reliable medical opinions reach the jury and that trial is as efficient as possible.

¹ <https://www.merriam-webster.com/dictionary/mitragynine>

² Exhibit 8 at 220:13-221:3.

III. LEGAL STANDARD

Under Rule 702, expert testimony is admissible only if the proponent establishes that, 1) the witness is qualified; 2) the testimony is reliable; and 3) the testimony will assist the trier of fact.

The Court serves as gatekeeper to ensure that proposed expert testimony is both relevant and reliable. *Daubert*, 509 U.S. at 589; *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999). The central goal “is to ensure the reliability and relevancy of expert testimony.” *Daubert v. Merrell Dow Pharm.*, 509 U.S. 579, 589 (1993). Courts must evaluate qualification’s **opinion by opinion**, not in the abstract. *Hall v. Flannery*, 840 F.3d 922 (7th Cir. 2016). The focus, of course, must be solely on principles and methodology, not on the conclusions that they generate. *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 594–95 (1993).

To qualify as “scientific knowledge,” an inference or assertion must be derived by the scientific method. Proposed testimony must be supported by appropriate validation—i.e., “good grounds,” based on what is known. In short, the requirement that an expert's testimony pertain to “scientific knowledge” establishes a standard of evidentiary reliability. *Moore v. Ashland Chem. Inc.*, 151 F.3d 269, 274–75 (5th Cir. 1998) (Citing *Daubert*, 509 U.S. at 589–90 (emphasis in original)) (internal citations omitted). A question of the validity of the methodology employed brings *Daubert* into play. *MSOF Corporation v. Exxon Corporation*, 2004–0988, p. 12 (La.App. 1st Cir.12/22/05), 934 So.2d 708, 718, *writ denied*, 2006–1669 (La.10/6/06), 938 So.2d 78.

IV. ARGUMENT

- A) **Dr. Boyer’s opinions on alternative cause are not supported by a reliable methodology and will create juror confusion, particularly as he is the only defense expert who opines that kratom could not have contributed to Harmony Moller’s death.**

Dr. Boyer is a physician providing a medical and scientific opinion on cause of death. Recognized methods of doing so include the differential diagnosis approach. Fifth Circuit precedent requires a two-step approach regarding medical opinions: proof of general causation and proof of specific causation. General causation asks whether the agent is capable of causing the injury. See e.g., *Johnson v. Arkema, Inc.*, 685 F.3d 452, 468 (2012) (“General causation is whether a substance is capable of causing a particular injury or condition in the general population, while specific causation is whether a substance caused a particular individual's injury.”); *Knight v. Kirby Inland Marine Inc.*, 482 F.3d 347, 351 (5th Cir. 2007) (Discussing the general and specific causation framework in a toxic tort case); *Allen v. Pennsylvania Engineering Corp.*, 102 F.3d 194, (5th Cir. 1996); and *Freeman v. Fon's Pest Management, Inc.*, 235 So.3d 1087 (2018).

Specific causation requires a reliable method, such as differential etiology, linking the agent to the individual's injury. “A differential diagnosis, properly performed, constitutes a reliable methodology for determining medical causation under *Daubert*.” *In re Trasylol Prods. Liab. Litig.-MDL-1928*, No. 08-MD-1928, 2013 WL 1192300, at *10 (S.D. Fla. Mar. 22, 2013) (Quoting *Guinn v. Astrazeneca Pharms. LP*, 602 F.3d 145, 153 (11th Cir.2010)). A differential diagnosis is a “patient-specific process of elimination that medical practitioners use to identify the most likely cause of a set of signs and symptoms from a list of possible causes.” *Ruggiero v. Warner–Lambert Co.*, 424 F.3d 249, 254 (2d Cir.2005). It requires an expert to “determin[e] the possible causes for the patient's symptoms and then eliminat[e] each of the potential causes until reaching one that cannot be ruled out or determining which of those that cannot be excluded is the most likely.” *Guinn*, 602 F.3d at 1253 (quoting *Westberry v. Gislaved Gummi AB*, 178 F.3d 257, 262 (4th Cir.1999)).

Dr. Boyer failed to engage in such an appropriate methodology and instead cherry picks the record to provide self-serving conclusions which leaves him in disagreement with most other defense experts. Despite the need for a medical opinion to be based on reliable principles and methods such as an analysis of general and specific causation, with methods such as differential diagnosis being well recognized, Dr. Boyer states he simply reviewed documents from the case, reviewed literature, and rendered an opinion.

When asked “What methodology did you use to arrive at the opinions in your report?” He answered,

I used my personal experience as described earlier on in the deposition. I used either PubMed or Google Scholar to identify relevant literature based on the review of documents related to the case. Depending on what I saw in the literature, I might pull other references or look for other – look for other topic -- look for other citations on the topic that I gained an interest in.

Exhibit 8, Deposition of Dr. Boyer at 104:15-105:3. In other words, Dr. Boyer claims that his methodology is using his personal experience as a physician to engage in a literature review and applying that review to the facts of the case. Though that may suffice for certain expertise it does not suffice for the central question of medical causation which requires a methodology such as a differential diagnosis, and not a literature review with nothing more.

Dr. Boyer utilizes his faulty methodology to posit two alternative causes that he states are more likely than OPMS Kratom to have caused Ms. Moller’s death. The two alternative causes are: 1) sudden cardiovascular collapse caused by Harmony Moller’s underlying cardiac condition; and 2) sudden cardiovascular collapse caused by caffeine overdose (methylxanthine toxidrome).

Yet Dr. Boyer cannot provide a safe level of kratom to use, nor can he provide a toxic one. Nonetheless he bafflingly claims to be able to rule out kratom entirely. To do so, he logically must know the maximum safe dose of kratom a person can use—he does not. See Exhibit 8, Deposition

of Dr. Boyer at 82:8-11 “Q: What is the maximum safe dose known for mitragynine? A: I don’t know that there are any publications that define a maximum safe dose...”), 83:14-19 (“Q: Do you know the maximum safe dose for 7-hydroxymitragynine? ...A: I know that no maximum safe dose has been defined...”)

Overall, Dr. Boyer does not articulate a reliable methodology for general causation or specific causation. Dr. Boyer’s unreliable opinions must be excluded.

1) Sudden cardiovascular collapse caused by Harmony’s underlying cardiac condition alone with no contribution from OPMS Kratom is unsupported by the evidence and the opinions of Defendant’s other experts, and is based upon unreliable methodology.

Dr. Boyer is on an island in comparison to other defense experts who agree that kratom cannot be ruled out as a potential contributory cause of death of Harmony Moller. See, Exhibit 3, Deposition of defense medical expert, Dr. Wang at 132:24-133:7 (Stating she has listed kratom as a cause of death factor in autopsies), 133:14-24 (Agreeing that kratom can interact with other drugs to cause an adverse event), and 136:11-21 & 137:1-19 (Agreeing that “there is no indication” that kratom did not exacerbate Harmony Moller’s underlying cardiac condition); Exhibit 4, Deposition of defense medical expert, Dr. Gandy at 68:3-69:3 (Stating it is possible that kratom causes cardiac arrhythmia), 72:23-73:3 (Stating “all other drugs...including kratom, that had the potential to prolong the QT interval, in my opinion...made it easier for the arrhythmia to occur.”), and 162:21-163:4 (Stating in part, “More likely than not, I cannot say that [kratom] didn’t” contribute to the arrhythmia causing Harmony’s death); Exhibit 5, Deposition of defense medical expert, Dr. Huestis at 186:3-19 (Admitting that kratom, along with the all the other substances present in the toxicology report may have contributed to Harmony’s death); Exhibit 6, Deposition of defense medical expert, Dr. McCurdy at 107:7-108:13 (Stating that kratom cannot be ruled out as a contributing cause of death); and Exhibit 7, Deposition of defense medical expert, Dr. Dollar at

103:9-25 (Stating there is insufficient data in the medical literature to rule out kratom as a contributing factor), and 104:10-21 (Stating he cannot rule out that kratom, along with Phenergan and Benadryl, created an arrhythmia that caused Harmony's death). Dr. Boyer is on an island because he cherry picks the record and medical literature to opine, without a basis, that kratom can be entirely ruled out in this matter. It cannot, Defendant's own experts admit as much. Dr. Boyer's cherry-picking is not reliable methodology and clearly not a method recognized by his peers who arrive at opposite conclusions.

Dr. Boyer chooses to exclude kratom while arguing that other substances may have caused Harmony's death. See Exhibit 1 at ¶ 82-85 (attempting to rule out kratom as a contributing cause), compared to ¶ 79-81 (discussing caffeine as an alleged contributing cause of death). Yet he also admits that "Virtually all adverse events associated with kratom use have occurred in individuals who can be proven to have taken substances in addition to kratom, or who have an underlying medical condition predisposing them to adverse events attributed to kratom." *Id.* at ¶ 26. Despite this being a case involving an underlying cardiac condition, and polypharmacy (i.e. kratom and other substances such as Benadryl), Dr. Boyer chooses to ignore his own statement that kratom adverse events are associated to underlying conditions and polypharmacy to instead rule out kratom and rule in caffeine through unreliable methods.

Dr. Boyer's cherry picking of facts and medical literature continues as he unequivocally makes the false claim that kratom has a threefold postmortem distribution. *Id.* at ¶ 71 (Stating "The peripheral blood concentration of mitragynine approximately triples in the period between death and measurement at autopsy."); see also ¶ 75 & 99. Dr. Boyer's claim is based upon one finding from one of fifty-one (1 of 51) patients in one study, which Dr. Boyer admits was limited in numerous ways. Exhibit 8, Deposition of Dr. Boyer at 114:13-115:25; 116:6-10; and 123:16-

124:9. One patient of fifty-one from one study is not the sort of data rigorous scientists or clinicians use to extrapolate to the general population or to unequivocally assert that postmortem redistribution is three-fold. Indeed, Defendant's expert, Marilyn Huestis, states that Dr. Boyer's understanding of the Osawa study is simply wrong. Exhibit 5, Deposition of Dr. Huestis at 219:5-12 (Stating the postmortem redistribution for kratom may be 37%, not 300%); 221:12-24 (discussing same), and 230:21-231:3 (Stating that she would not interpret the Osawa study relied on by Dr. Boyer as evidence that post mortem redistribution for kratom is threefold).

2) Sudden cardiovascular collapse caused by caffeine overdose (methylxanthine toxidrome) is unsupported by the evidence and the opinions of Defendant's other experts, and is based upon unreliable methodology.

Dr. Boyer's proposed alternative cause associated to caffeine toxidrome is unreliable and directly contradicted by Plaintiff's medical records.

Dr. Boyer claims that caffeine may be the primary alternative cause of Harmony's death. Exhibit 1, Expert report of Dr. Boyer at ¶ 79-81. However, other defense experts state that caffeine played no role in Harmony's death and was of no significance to their analysis regarding cause of death. Exhibit 4, Deposition of defense medical expert, Dr. Gandy at 134:9-20 (Stating he did not consider the presumptive positive of caffeine significant), Exhibit 5, Deposition of defense medical expert, Dr. Huestis at 190:3-5 (Stating caffeine related deaths are uncommon) and 190:10-20 (Stating "we do not know" whether Harmony Moller was suffering of Caffeine toxidrome preceding her death); and Exhibit 6, Deposition of dr. McCurdy at 50:9-11 (noting that dehydration was not considered as a contributing factor in any of his conclusions). Nonetheless. Dr. Boyer speculates as to the involvement of caffeine in this case, while there is no known level of caffeine in Harmony Moller's system at time of her passing. Exhibit 2 at p. 5 & 10 (toxicology results).

Dr. Boyer also provides a description of caffeine toxidrome that is self-serving and overly narrow to support his faulty and misleading opinions. Dr. Boyer claims the core features of caffeine toxidrome are vomiting unresponsive to antiemetics, death in the presence of a known source, and a measure analyte in postmortem blood. Exhibit 8, Deposition of Dr. Boyer at 186:8-14 (Stating the core features of caffeine toxidrome are vomiting unresponsive to antiemetics, death in the presence of a known source, and a measure analyte in post mortem blood) and 186:15-24 (Denying that anxiety and other symptoms of caffeine toxidrome are in fact part of said toxidrome). However, Defendant's own expert, Dr. Huestis notes that caffeine toxidrome also involves anxiety and jitteriness. Exhibit 5, deposition of Dr. Heustis at 189:9-190:2 (Describing caffeine toxidrome including jitteriness and anxiety) and 190:10-20 (Stating aspects of caffeine toxidrome, like jitteriness were not observed before her death). Further, reliable FDA and clinical resources state that caffeine overdose symptoms include increased heart rate, heart palpitations, high blood pressure, insomnia or sleep disruptions, anxiety, jitters, upset stomach, nausea, headache, vomiting, muscle twitching, increased urination, increased thirst, fever, dizziness, diarrhea, convulsions (seizures), agitation, confusion, hallucinations, changes in alertness, and breathing trouble or shortness of breath. Exhibit 9 (FDA webpage, *Spilling the Beans: How Much Caffeine is Too Much*, available at: <https://www.fda.gov/consumers/consumer-updates/spilling-beans-how-much-caffeine-too-much>, last accessed February 24, 2026), Exhibit 10 (Medline Plus, An official website of the United States government, *Caffeine Overdose*, available at: <https://medlineplus.gov/ency/article/002579.htm>, last accessed, February 24, 2026), and Exhibit 11 (Cleveland Clinic webpage, *Caffeine Overdose: Symptoms, Treatment, & Side Effects*, available at: <https://my.clevelandclinic.org/health/diseases/caffeine-overdose>, last accessed February 24, 2026). Though nausea was reported, no other caffeine overdose symptoms were observed in

Harmony Moller preceding her death. Dr. Boyer self-servingly misrepresents the scope of caffeine overdose symptoms, which is evidence of his faulty methodology.

B) Dr. Boyer is not qualified to testify about the safety of OPMS Kratom.

Dr. Boyer is not qualified and should not be permitted to testify about the alleged safety of OPMS Kratom. Dr. Boyer knows essentially nothing of the product at issue. Dr. Boyer testified that he has never visited or inspected the facilities where OPMS products are manufactured. Exhibit 8, deposition of Dr. Boyer at 104:2-9. When asked what he knew about the product at issue, Dr. Boyer answered, “virtually nothing.” *Id.* at 104:10-11. Dr. Boyer admits he does not know OPMS Silver’s ingredients and does not know the serving size for OPMS Silver. *Id.* at 102:19-25. He thinks he may have received testing documents for the product at issue in this case but never reviewed them. *Id.* at 102:19-25. He does not know the amount of any specific alkaloid, including mitragynine and 7-hydroxymitragynine in OPMS Silver. *Id.* at 99:14-18. Yet he acknowledges that 7-hydroxymitragynine is up to 40 times more powerful than morphine. *Id.* at 69:5-17. Finally, he has no knowledge of the source of the raw kratom used to make OPMS Silver. *Id.* at 99:4-6.

Dr. Boyer’s lack of product-specific knowledge renders him unqualified to offer opinions about the alleged safety of the OPMS Silver kratom products at issue in this case. Federal courts applying Fifth Circuit law have similarly excluded experts lacking adequate product knowledge. In *Watkins v. Telsmith, Inc.*, 121 F.3d 984 (N.D. Tex. 1997), the Fifth Circuit affirmed exclusion of a civil engineer who lacked mechanical engineering expertise required for conveyor design analysis. The trial court found the expert’s civil engineering background inadequate because “his training is in civil engineering, while the expertise required by this case, of which Williams possesses little, lies in mechanical engineering.” *Id.* at 988. The proposed expert made “no

investigation of other designs, analysis, or testing of alternatives.” *Id.* Similarly, Dr. Boyer has never reviewed a single testing document related to the alkaloid content for the kratom at issue, he simply states he knows “virtually nothing” about it. Exhibit 8 at 104:10-11.

In *Harris v. Stryker Spine*, 39 F.Supp.3d 846 (S.D. Miss. 2014), a Southern District of Mississippi court excluded a neurosurgeon's testimony about manufacturing defects in a cervical plate device. Despite the expert's extensive surgical experience with spinal products, the court found he lacked necessary knowledge because he had “no training or education in metallurgy, material sciences or bioengineering,” “his testimony established that he had not reviewed the written materials/design specifications for the product; he did not know the exact model or size of plate used; he was unaware of the materials used to make the plate,” and was “not familiar with the manufacturing process.” *Id.* at 851.

The court reasoned that his use of similar products and involvement in design of similar products did not qualify him “to analyze and explain how the device implanted in plaintiff's spine was manufactured improperly.” *Id.* The court found the expert's opinions inadmissible because he “failed to employ a reliable scientific methodology to reach his conclusions,” never examined the subject plate, was unfamiliar with its specifications, and could not explain how the plate failed to perform as intended. *Id.* at 852. Dr. Boyer is similar to the excluded expert in *Harris*, insofar as he attempts to provide opinions about a specific products safety while admittedly knowing “virtually nothing” about that product, OPMS Silver Kratom. Exhibit 8 at 104:10-11.

Dr. Boyer seeks to opine that OPMS Kratom is safe and could not have caused Harmony’s death, but he does so with no specific knowledge of the product at issue. Such an opinion is based on poor and unreliable methodology and should be excluded.

V. CONCLUSION

Dr. Boyer's opinions do not comport with the requirements of rule 702 and Daubert because his opinions are unreliable, speculative, and unhelpful to the jury. The Court should therefore exclude Dr. Boyer.

Respectfully submitted:

/s/ Michael Cowgill

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