August 15, 2018

Via electronic submission to https://oehha.ca.gov/comments
Monet Vela
Office of Environmental Health Hazard Assessment
P.O. Box 4010
Sacramento, California 95812-4010

Re: Proposed Adoption of New Section Under Article 7: No Significant Risk Levels
Section 25704: Exposures to Listed Chemicals in Coffee Posing No Significant Risk

CERT'S SUBMISSION NO. 9

Dear Ms. Vela:

Enclosed herewith are the following documents that are being submitted on behalf of our client, the Council for Education and Research on Toxics (CERT) regarding the Opinions of Dr. Laura M. Juliano Regarding Adverse Physiological and Psychological Effects of Consumption of Coffee.

1. Exhibit A - Opinions of Laura M. Juliano, Ph.D.

2. Exhibit B - Testimony of Laura M. Juliano in CERT v. Starbucks trial, September 9, 2017 p.m.

3. Exhibit C - Curriculum Vitae of Laura M. Juliano, Ph.D.

Kindly include these materials of Dr. Laura M. Juliano in the record for this rulemaking proceeding.

Very truly yours,

Raphael Metzger

RM:ip
encls: as specified
Problematic Caffeine Use

Caffeine use can result in a cluster of problematic symptoms that characterize a substance use disorder (Addicott, 2014; Bernstein et al., 2002; Budney et al., 2015; Jones & Lejuez, 2005; Juliano et al., 2012a; Meredith et al., 2013; Oberstar et al. 2002; Ogawa & Ukei, 2007; Strain et al. 1994, Striley et al., 2011; Svikis et al., 2005).

Problematic caffeine use is characterized by symptoms including but not limited to unsuccessful attempts to quit or cut down, withdrawal symptoms upon acute abstinence, and continued use despite physical or psychological harm (APA, 2013; Budney et al., 2015).

A wide range of daily doses of caffeine have been found to be associated with problematic caffeine use (Bernstein et al., 2002; Juliano et al., 2012a; Strain et al., 1994)

A population of individuals who are interested in or who are seeking professional treatment for problematic caffeine use have been identified (Evatt et al., 2016; Juliano et al., 2012a).

The DSM-5 includes caffeine use disorder as a condition for further study (APA, 2013)

The ICD-10 includes a diagnosis of caffeine dependence syndrome (WHO, 1992).

Caffeine Intoxication

Caffeine can cause a caffeine intoxication syndrome that consists of symptoms including restlessness, nervousness, excitement, insomnia, flushed face, diuresis, gastrointestinal disturbance, muscle twitching, rambling flow of thought and speech, tachycardia or cardiac arrhythmia, inexpressibility, and psychomotor agitation (APA, 2013).

The DSM-5 includes a diagnosis of caffeine intoxication syndrome (APA, 2013)

The ICD-10 includes a diagnosis of acute caffeine intoxication (WHO, 1992)

Caffeine Withdrawal

Caffeine produces physical dependence in habitual consumers, which manifests as a characteristic withdrawal syndrome upon acute abstinence (Juliano & Griffiths, 2004)

Caffeine withdrawal is characterized by symptoms including but not limited to headache, fatigue or drowsiness, difficulty concentrating, dysphoric mood, depressed mood or irritability, flu-like symptoms, nausea, vomiting, muscle pain or stiffness (Juliano & Griffiths, 2004; Juliano et al., 2012b; APA, 2013)

Daily doses of caffeine as low as 100mg have been shown to produce physical dependence in humans (Evans et al, 1999; Griffiths et al., 1990)
Caffeine withdrawal syndrome can persist for 2 to 9 days (Griffiths et al. 1990; Juliano & Griffiths, 2004; van Dusseldorp and Katan 1990; Höfer and Bättig 1994)

Caffeine withdrawal syndrome is a clinically important phenomenon that can cause significant distress and impairment in completing one’s normal daily activities (Juliano et al., 2012a; Strain et al., 1994)

Caffeine withdrawal headache has been described as diffuse, throbbing, severe, and sensitive to movement (Juliano & Griffiths, 2004)

Caffeine consumers who abstain from caffeine for medical procedures are at high risk of experiencing caffeine withdrawal including post-operative headache (Fennelly et al., 1991; Hampl et al., 1995; Weber et al., 1993)

The DSM-5 includes a diagnosis of caffeine withdrawal syndrome (APA, 2013)

The IDC-10 includes a diagnosis of caffeine withdrawal syndrome (WHO, 1992)

**Anxiety**

Caffeine increases anxiety in humans (Alsene et al., 2003; Boulenger et al., 1986; Charney et al., 1984; Orlikov & Ryzov, 1991; Shanahan & Hughes, 1986; Veleber & Templer, 1984)

Caffeine can trigger panic attacks, especially among individuals prone to anxiety (Klein et al., 1991; Masdrakis et al., 2008; Nardi et al., 2007; Nardi et al., 2009; Vilarim et al., 2011)

The DSM-5 includes a diagnosis of caffeine induced anxiety disorder (APA, 2013)

**Sleep**

Caffeine disrupts planned sleep (Clark & Landolt, 2017; Cousins et al., 2015; Roehrs & Roth, 2008)

Caffeine increases the latency to sleep, decreases total sleep time, and increases nighttime awakenings, and decreases the perceived quality of sleep (Březinová, 1974; Clark & Landolt, 2017; Cousins et al., 2015; Drapeau et al., 2006; Hindmarch et al., 2000; LaJambe et al., 2005; Shilo et al., 2002; Smith et al., 1994)

Coffee consumption and caffeine use is associated with higher risk of insomnia and sleep problems (Chaudhary et al., 2016; Cousins et al., 2015; Fabsitz et al., 1997; Shirlow & Mathers, 1985; Singareddy et al., 2012).

Caffeine abstinence increases sleep time and improves sleep quality (Juliano & Griffiths, 2004; Sin et al., 2008)

The DSM-5 includes a diagnosis of caffeine induced sleep disorder (APA, 2013)
References


EXHIBIT “B”
SUPERIOR COURT OF THE STATE OF CALIFORNIA
FOR THE COUNTY OF LOS ANGELES
DEPARTMENT 323                HON. ELIHU M. BERLE, JUDGE

CERT, )
) CASE NO. BC 435759
) BC 461182
PLAINTIFF, )
)                      
VS. )
)                      
STARBUCKS CORP, ET AL., )
)                      
DEFENDANTS. )

REPORTER'S TRANSCRIPT OF PROCEEDINGS
TUESDAY, SEPTEMBER 19, 2017
P.M. SESSION

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September 19, 2017, P.M. Session

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THE COURT: All right. Back on the record in CERT versus Starbucks.

Counsel?

MR. METZGER: Your Honor, one quick housekeeping matter. My staff has brought the joint statements of deposition testimony of PMKs to be lodged, and I think your staff is looking for direction that they may stamp those received.

THE COURT: Yes.

MR. METZGER: So that we can proceed with this and --

THE COURT: Okay.

Mr. Schurz?

MR. SCHURZ: I think it's premature. We received many of these on Sunday. We have provided them with some objections, some errors in the joint statements. So they can lodge them, but we're going to be -- they are going to have to resubmit.

THE COURT: All right. Well, that will be determined later, but if they want to lodge them, they can lodge them. And if not appropriate, they will be withdrawn or
I'll return them, but in the meantime, let's clean up everything and get them lodged.

MR. METZGER: Thank you, your Honor.

THE COURT: Okay. Please hand them to the clerk. All right. Dr. Scrafford has resumed the stand. And, Dr. Scrafford, do you understand you are still under oath?

THE WITNESS: I do.

CAROLYN SCRAFFORD, PREVIOUSLY SWORN.

THE COURT: Mr. Schurz was inquiring on redirect examination.

MR. SCHURZ: Thank you, your Honor.

REDIRECT EXAMINATION

BY MR. SCHURZ:

Q. If I could direct you to DX 73540, Slide No. 2. And I would like to bring the following questions in the context of the discussion you had with the Court and Mr. Metzger relating to the food codes that you chose to include in your exposure calculation.

With that orientation, can you remind us what value you used for the amount of the average amount of coffee consumed or the amount of coffee people drink each time they drink coffee for purposes of your exposure assessment?

MR. METZGER: Objection. Cumulative, beyond the scope.
THE COURT: Overruled.

THE WITNESS: So that was the 344 grams. And that's equivalent to approximately 12 ounces.

Q. BY MR. SCHURZ: All right. There was some discussion that with respect to that 12-ounce value that you're including as the average amount of coffee that people drink on the occasions when they drink coffee, that that would be inconsistent with the amount of coffee that is present in espresso-based drinks, whether an espresso, a cappuccino, or a latte.

Do you recall that discussion?

A. I do.

Q. And the discussion was that there is something less than that value, less than 12 ounces would be present in an espresso, cappuccino, or caffe latte.

Do you recall that discussion?

A. Yes.

Q. So what impact, if any, does that have, Dr. Scrafford, in terms of your ultimate calculations of the average daily exposure to acrylamide?

A. So if we were to include those, it would actually bring the level down.

Q. Instead of 12 ounces, you'd have something less because in these espresso-based coffee drinks, presumably cappuccino, unless it's enormous, does not have 12 ounces of espresso, correct?

A. That's correct.

Q. Okay. And then at the same time, when you were
calculating the frequency with which people drink coffee,
those espresso-based drinks would be included, correct?

A. Yes, and any type of coffee would be included there.

Q. Okay. So whatever the type of coffee, it would be given a value of 12 ounces?

A. Correct.

Q. Thank you. All right. Now let's turn, then, to the discussion you were having with respect to the NHANES data set that you used for your consumption data referenced here, DX 73540.

Now, Dr. Scrafford, is it your opinion that the NHANES data that you have relied on in this case is universally accepted within the exposure assessment community for purposes of preparing exposure calculations?

MR. METZGER: Objection. Beyond the scope of cross, and this is cumulative and calling for speculation.

THE COURT: Overruled. But let's not dwell on it and repeat testimony that's been had, Mr. Schurz. Ask any further questions in response to cross-examination. And Dr. Scrafford may answer this question.

THE WITNESS: So the NHANES data is universally accepted. It is designed exactly for that purpose. The data it collects is designed for that purpose.

Q. BY MR. SCHURZ: Now, in your discussion with Mr. Metzger, he raised the National Coffee Association's Coffee Drinking Trends report.

Do you recall that discussion?
A. I do.

Q. Are you aware, Dr. Scrafford, of any federal public agency ever using the NCA's coffee drinking trends for purposes of preparing an exposure assessment?

A. No, not to my knowledge.

Q. Are you aware of any state agency, public health agency or otherwise, ever using the NCA's national coffee drinking trends as the basis of performing exposure assessment?

A. Not to my knowledge.

Q. All right. Now, there was some further discussion with Mr. Metzger in which there was discussion between the difference between a survey that seeks to capture those who consume coffee yesterday and their average consumption versus the broader population of coffee consumers who may drink coffee but drink it less frequently. Drank it two days ago or a week ago or even a month ago.

Do you recall that discussion?

A. I do.

Q. And you indicated that we were not comparing apples to apples.

Do you recall that?

A. I do.

Q. Could you expand upon that explanation with respect to the different data sets that you were addressing?

A. Right. So the NHANES data where we see, for example, where we're looking at the frequency of consumption, that data set is designed to capture all coffee consumers, and
it's framed over the past year. So you're getting those
customers who consumed it yesterday, the day of the survey,
the last week, the last month, the last year. And that is the
data set we use. The NCA trends, while it certainly looks at
trends, the way they collect that frequency data and the
estimate that was referenced in my cross-examination, the
three cups per day, that is based on just looking at consumers
who consumed the coffee yesterday.

So my data shows that you are missing almost
30 percent of the consumers, you are missing them when you
just ask that question.

MR. SCHURZ: Thank you, Dr. Scrafford. I have
nothing further.

THE COURT: All right. Thank you.

Mr. Metzger, any recross?

MR. METZGER: Yes.

RECROSS-EXAMINATION

BY MR. METZGER:

Q. Dr. Scrafford, do you consider a person who
comes one cup of coffee within the last year to be an
average coffee drinker?

A. No. So the average coffee consumer in my
assessment is somebody who drinks 0.68 cups per day, or that
would be the five cups per week.

Q. Do you consider a person who drank one cup of
coffee in the past year to be a consumer to be included in an
exposure assessment?
A. We included all people who responded consuming coffee within the NHANES survey.

MR. METZGER: All right. Thank you.

THE COURT: Thank you. May Dr. Scrafford be excused?

MR. SCHURZ: Yes, your Honor.

Thank you, Dr. Scrafford.

THE COURT: Dr. Scrafford, you may step down. Thank you.

Next witness.

MR. SCHURZ: Your Honor, that concludes the witnesses that defendants have for the ASRL portion of this proceeding.

We do have some additional matters to take up with the Court relating to the presentation of evidence for this, but you've now heard our sixth and final witness as it relates to the ASRL.

THE COURT: All right. Thank you.

Plaintiffs?

MR. METZGER: I need clarification, your Honor. I understand that this is the last expert that the defense is calling in support of their ASRL defense. I'd like clarification as to whether this is their last witness that they are calling for the ASRL defense and whether they are resting their case on the ASRL defense or not so I can bring my motion for judgment.

THE COURT: Mr. Schurz?

MR. SCHURZ: We have no more witnesses, your Honor.
We have filed with the Court a request for judicial notice that identifies a range of documents that we would ask to be considered and taken judicial notice of in the context of the ASRL. There were some objections that were filed by Mr. Metzger. We have responded and filed further responses to that.

So your Honor has before you a set of briefs with respect to the individual requests for judicial notice. In the final analysis, we're really focusing on a group of six documents that are disputed. We would note there are another six that are undisputed. And we are prepared to submit those on the papers, or we are prepared to have discussion with the Court with respect to those at this time if it would be helpful.

THE COURT: All right. Thank you.

Plaintiff.

MR. KENNEDY: Your Honor, Keurig at least is resting, subject to resolution of the proceedings before Judge Highberger next door. And I think that's true of the other defendants as well.

MR. SCHURZ: It is, and I was getting there next.

THE COURT: Well, is anything happening in front of Judge Highberger that anyone thinks would affect the proceedings here?

MR. SCHURZ: Since we don't know the content of the letter, we don't know.

MR. METZGER: Your Honor, this is their ASRL defense. I don't see how they could be relying on an expert
that I have withdrawn for their ASRL defense.

THE COURT: All right. So as I hear, the defendants have rested subject to the Court ruling on judicial notice issues, and plaintiff wishes to make a motion for judgment?

MR. METZGER: Yes. I have the motion for judgment. We can file it and serve it, but I do have an expert who has flown out from the East Coast who I'd like to get started with.

THE COURT: Well, you can file it, and we'll proceed with the testimony subject to your motion.

MR. METZGER: Thank you, your Honor.

MR. SCHURZ: Your Honor, while we are on the subject of the motion that is in the process of being filed, we have not discussed a briefing schedule for that, and having not seen the motion, I'm reluctant to commit to a date. But we are prepared to have a discussion with respect to that.

THE COURT: Well, well, we'll do that at the end of the day. Let's go forward with the testimony. Let's have an opportunity to look at it for a few minutes, I guess. You're going to serve the papers, right?

MR. METZGER: They are being -- have they been served now? Let's get them served, please, and move it along.

THE COURT: All right. Look at it and weigh it and decide how much per pound, how many hours per pound you need for response. And we'll discuss it later at the end of the day.

MR. SCHURZ: Thank you, your Honor. And the final piece of business, I will introduce Mr. Alejandro Bras, who
will be handling the cross-examination of Dr. Juliano, and I will give him my seat.

THE COURT: All right. Good afternoon, Mr. Bras.

All right. The defendant has rested, and the plaintiff has filed their motion for judgment. It will be deferred, and the plaintiff will now start presenting witnesses subject to its motion.

MR. METZGER: Thank you, your Honor.

THE COURT: Counsel may proceed.

MR. METZGER: Yes, the plaintiff will call Dr. Laura Juliano.

THE CLERK: Please raise your right hand.

LAURA JULIANO, SWORN.

THE CLERK: Can you please state and spell your name for the record.


THE COURT: Good afternoon, Dr. Juliano.

THE WITNESS: Good afternoon.

THE COURT: Counsel may proceed.

MR. METZGER: Thank you, your Honor.

DIRECT EXAMINATION

BY MR. METZGER:

Q. Good afternoon, Dr. Juliano.

A. Good afternoon.
Q. Is this your first time testifying in court?
A. Yes, it is.

Q. Well, welcome. Let me first provide you, Dr. Juliano, a copy of Trial Exhibit 60074 and ask you is this your current Curriculum Vitae?
A. Yes, it is.

Q. And does it contain a summary of your education and professional experience and publications?
A. Yes.

MR. METZGER: Thank you.
Your Honor, we would offer into evidence Exhibit 60074.

THE COURT: Any objection?
MR. BRAS: No objection, your Honor.
THE COURT: Admitted.

(Joint Exhibit 60074 received.)

Q. BY MR. METZGER: Dr. Juliano, what do you consider to be your field of expertise?
A. I'm an expert in drug addiction.

Q. How did you first become interested in drug addiction?
A. In graduate school I studied specifically tobacco dependence, and then throughout my career, I've studied just about every drug of dependence, including caffeine.

Q. Before you went to graduate school, earlier than that, did you have any experience in the tobacco industry or the coffee industry?
A. My first job, actually, as a teenager, when I was 16, I worked selling tobacco for a wholesale tobacco company. And also, interestingly enough, I worked at a coffee house and sold coffee. So those were my jobs prior to engaging in research.

Q. Okay. And how did you first become interested in drug addiction as a field?

A. I was specifically interested in health, health behaviors, and behavior change. Someone interested in clinical psychology and the modification of behavior. I worked in the mental health field for a number of years prior to going to graduate school, and when I was looking for graduate programs, I specifically was interested in studying health behaviors, health-related behaviors, and began doing research in the fields of HIV prevention, breast cancer prevention, and tobacco dependence.

Q. Okay. When did you begin doing that type of research?


Q. And could you explain what type of research you were doing at that time in a little more detail?

A. Well, as an undergraduate, I did research in laboratories looking at the effects of cocaine use, and I began working also with human populations, and then in graduate school, I began studying various questions relating to health behaviors and working and doing tobacco cessation programs and clinical trials and so forth.

Q. You mentioned clinical trials. Tell us about
your experience in running -- well, first of all, what is a clinical trial?

A. Okay. Well, it's a controlled trial to look at the effect of, in my case, different treatments to treat drug dependence. So testing the efficacy of various types of treatments.

Q. And how do clinical trials differ from observational epidemiology?

A. Well, a controlled clinical trial has no treatment control groups, and a lot of effort is put into controlling the study in a way to look at the direct effects of treatment on the outcomes.

Q. What is your experience in running clinical trials?

A. In terms of the trials that I've been involved in?

Q. Yeah, over the years.

A. So a number of studies, first with tobacco dependence, looking at the effects of different types of treatments, either cognitive behavioral treatments in some trials. In other trials, medication trials with placebo controls. And then I've also done clinical outcome studies relating to caffeine dependence as well.

Q. What type of studies regarding caffeine dependence?

A. Randomized clinical trials where people are randomly signed to receive treatment and so forth and looking at the outcomes.
Q. Okay. Did you write a Master's thesis?
A. I did.

Q. And what was that about?
A. My Master's thesis was specifically looking at the effects of a drug being available in the environment or available to a person and how that knowledge influences their craving and motivation to use the drug. And the drug I used in that case was tobacco.

Q. And in doing your Master's thesis, that research, did that end up as a publication in a peer-reviewed journal?
A. Yes, it did.

Q. And can you look at your Curriculum Vitae and tell us when that was?
A. That would have been in, I believe, 1998. Yes.

So reactivity to instructed smoking availability environmental cues with evidence with urge and reaction time.

Q. After you completed your -- let's see, your Bachelor's degree was in psychology, correct?
A. Yes.

Q. In 1990, from SUNY at Binghamton?
A. The State University of New York at Binghamton, correct.

Q. And your Master's degree was in clinical psychology at the same university?
A. Correct.

Q. And after you obtained your Master's degree, did you do an internship?
A. Well, first I did my dissertation.

Q. Okay. And tell us what your dissertation was about.

A. My dissertation was evaluating the role of stress and stress reduction in motivating people to smoke.

Q. And regarding your dissertation, did that win an award?

A. Yeah, it won a dissertation of the year award from the American Psychological Association's division of substance abuse and pharmacology.

Q. And did the research that you did for your dissertation also end up in a peer-reviewed article in the literature?

A. Yes, it did.

Q. And would you identify that for us, please.

A. That would be Juliano and Brandon, Effects of Nicotine Dose, Instructional Set and Outcome Expectancies on the Subjective Effects of Smoking in the Presence of a Stressor. And that is the Journal of Abnormal Psychology.

Q. Okay. And then you did your internship; is that correct?

A. Correct.

Q. And what type of internship was that?

A. My internship was at the Medical University of South Carolina in Charleston, South Carolina, and I went there specifically to do research on an in-patient drug substance abuse ward. And I also did outpatient work and treatment there as well.
Q. And from the research and work that you did for your internship, post doctoral, did that end up as a publication in the peer-reviewed literature?

A. I presented some of my work at conferences from my time there.

Q. Okay. Are any of those listed on your Curriculum Vitae?

A. They would be in the section on conference presentations.

Q. Is that on Page 11, Juliano, Santa Ana, and Roitzsch?

A. Yes.

Q. Could you tell the Court what the title is of that?

A. Developing Treatment Strategies for Nicotine Dependent Substance Abusers in Recovery.

Q. All right. Did you also do post-doctoral research at Johns Hopkins?

A. Yes.

Q. Could you tell us what that was about?

A. I did two lines of research at Johns Hopkins for my post doc. I did tobacco research, where I ran clinical trials to test new treatments for tobacco dependence, and I also did caffeine research while I was there, including a randomized clinical trial of a treatment for caffeine dependence that I developed.

Q. Okay. So what types of substances have you studied for addictive or dependent effects?
A. Caffeine and nicotine primarily. I've done treatment for individuals with various substance dependence problems, but my research is focused on tobacco and caffeine.

Q. Okay. And why those two?
A. Well, they have a lot of similarities. They are both legal, widely available drugs, integrated into our society and our culture, and they are used by much larger numbers of individuals than other -- many other drugs of dependence.

Q. Do those two drugs have any effects in common?
A. They are both stimulant drugs, yes. And they both would affect brain areas that would influence reward and motivation to use those drugs again.

Q. What is your -- are you currently in academia?
A. Yes.

Q. And what is your current position?
A. I'm a professor in the psychology department at American University.

Q. And are you a full professor?
A. Yes, I'm a full professor.

Q. And at American University, what does that mean to be a full professor?
A. Well, if you're asking what the requirements to get that type of promotion are, it would be for your research to be internationally recognized, for it to have a high impact, and to have received a large amount of grant funding.

Q. Okay. And could you tell his Honor generally what you do in your current research?
A. My current research is a laboratory-based research. So I design studies concerning tobacco and caffeine where we can isolate the effects of the drug and control experimental designs. So I'm particularly interested in the behavioral pharmacology of drugs, meaning exactly what they do to one's -- the effects that they have on individuals.

Q. Okay.

THE COURT: Mr. Metzger, what is the relevance of Dr. Juliano's testimony to this case?

MR. METZGER: Oh, well, let me ask.

Q. Dr. Juliano, what is the major source of caffeine in the adult population?

A. The major source of caffeine is coffee.

Q. Okay. And is caffeine a drug?

A. Yes.

Q. Okay.

THE COURT: You still haven't answered the question.

MR. METZGER: The relevance? Okay. So the relevance is Dr. Juliano will be testifying about medical adverse effects of coffee which, at least in the plaintiff's view, need to be considered as part of the calculus as to whether sound considerations of public health support a high level of acrylamide in coffee, namely, that one has to take into account not just the supposed benefits of coffee consumption, but also the documented well-known and established adverse effects of coffee consumption.

THE COURT: All right. So it's not directly related to the issue of acrylamide and whether acrylamide presents a
risk of cancer. But what I hear you saying is that the
evidence is supposed to counter defendants' evidence that
there's supposed to be some health benefit in drinking coffee.

MR. METZGER: There is that, and it goes directly to
their defense, their ASRL defense exactly.

THE COURT: Okay.

Counsel?

MR. BRAS: Just a point of clarification, your
Honor. Dr. Juliano has no testimony about coffee. She's
testifying only about caffeine.

THE COURT: All right.

Mr. Metzger, you may proceed.

MR. METZGER: All right. Thank you, your Honor.

Q. Dr. Juliano, do you also teach?

A. Yes, I do.

Q. Can you tell us a little about your teaching
activities?

A. I teach a wide variety of courses. I teach
drugs and behavior. I teach psychology of addictive
behaviors. Instruction to psychology, abnormal psychology,
various courses related to psychology.

Q. Are you a journal reviewer?

A. Yes.

Q. And tell us about that, please.

A. I review articles, peer-review articles for
peer-reviewed journals when they are seeking expert opinion on
whether those articles should be published or not.

Q. And have you served as an associate editor of
any journals?

A. Yes, I'm associate editor of the Journal of Caffeine Research.

Q. Okay. And the journals for which you have reviewed articles and have been an associate editor, are those all peer-reviewed journals?

A. Yes.

Q. Are they highly regarded journals?

A. Yes.

Q. How do you determine whether -- how do you conclude that these journals are highly regarded journals?

A. There are various metrics, but in general, they have high rejection rates and high submission rates, and they make a large impact on the field in that the articles in them are well cited and stimulate further research in a field.

Q. Does that relate to impact factor?

A. Yes.

Q. And what is an impact factor?

A. The impact factor is a calculation of how many times an article is cited, a measure of its importance.

Q. Okay. And have you provided professional services?

MR. BRAS: Objection. Vague.

THE WITNESS: Can you clarify the question?

Q. BY MR. METZGER: Well, are you a member of professional associations?

A. Yes, I'm a member of the Society of Research on Nicotine and Tobacco and the American Psychological
Q. All right. Dr. Juliano, would you tell the Court what you did to pursue your interest in caffeine?

A. I sought out a post-doctoral fellowship at Johns Hopkins University to work with Dr. Roman Griffiths, one of the leaders in the field who did most of the basic control laboratory research looking at caffeine and its parameters and its effects on individuals.

Q. And did you expand that into the clinical realm?

A. Yes. Dr. Griffiths is not a clinical psychologist. So he was also interested in having me work with him so that I could develop treatment programs to assist individuals with problematic caffeine use.

Q. Can you think of an example as to a treatment program that you developed to treat people with problematic caffeine use?

A. Yes, I was also at the same time developing programs for tobacco dependence. I had done that for many years prior to my post doc. I've done a lot of treatment on tobacco dependence. So I utilized the effective treatment strategies for tobacco dependence and modified it for caffeine.

Q. And what kind of problems did you address in this research?

A. Can you be more specific?

Q. I could try. What kinds of problems that patients were having did you address in this research?
A. Oh, I see. Yes, we had people contacting us who self-identified as having problematic caffeine use. We also did thorough assessments and clinical interviews to identify those with the most serious issues. They came in with a variety of complaints, but most were interested in giving up caffeine for a health-related issue and had been advised by a physician to give up caffeine but were unable to do so repeatedly when they tried on their own.

Q. Okay. And did these patients who self-reported to you with problematic caffeine use, did that include people who were coffee drinkers?

A. Yes. 50 percent of the individuals we treated, they were primarily coffee drinkers. A larger percentage drank coffee, but 50 percent drank only coffee.

Q. For their source of caffeine?

A. Yes.

THE COURT: Are these individuals who voluntarily came in to see you, or were they -- all voluntary, I assume. But were they self-initiated visits, or were they referred from other physicians or scientists?

THE WITNESS: The way they were recruited was through a notification that a treatment was available, and people called to find out about the treatment. We purposely kept any sort of incentives or payment low so as to only attract people who were interested in receiving treatment.

THE COURT: Was this a notice to the general population, or were they university students?

THE WITNESS: No, the general population.
THE COURT: All right. Thank you.

THE WITNESS: There were no students in the study.

Q. BY MR. METZGER: All right. So what kinds of problems regarding caffeine use did you address in these studies?

A. Well, the goal is when individuals stop using caffeine, then the associated problems would cease. So some were coming in because of anxiety issues. Some were coming in because of sleep issues. Some were coming in because of health-related issues and physicians' advice.

But we encountered difficulties in assisting people in that they are physically dependent on the drug and they had difficulty giving it up. So we used a fading program to try to help with that issue of dependence.

Q. Can you give us an example of a patient who you assisted with a caffeine-use problem?

A. Sure. They were very diverse in terms of the patients, but we had individuals who came in because they were advised -- for example, one woman was advised by her physician to give up coffee for heart-related issues, and she was having difficulty. She was arguing with her spouse over it. So we attempted to help her get off coffee so that she could stop having these interpersonal problems as well as to follow the advice of the physician. Unfortunately, she was one of the people who did not quit.

Q. Okay. Did you design studies to determine how best to treat people with caffeine dependence?

A. Yes.
Q. And tell us about that, please.

A. So the study we tested was a study where individuals tapered their caffeine use over a period of weeks because one of the biggest issues in stopping caffeine is withdrawal. So we tried to minimize the distress and sort of suffering for many that comes from withdrawal. So we had them in a structured fading program.

But that alone we expected wouldn't work because prior studies, case reports had tried that. So we also incorporated it with a treatment-based manual that had a lot of strategies that have been known to help other people stop using drugs, including cognitive behavioral coping skills and information about caffeine, information about withdrawal, and ways to reward yourself and so forth for quitting, reducing.

Q. All right. And what type of studies were these that you designed?

MR. BRAS: Objection, your Honor. The scope of this testimony has gone beyond what was discussed in deposition. There was no discussion of the development of the treatment program, treating individuals, et cetera.

THE COURT: Overruled.

Q. BY MR. METZGER: You can go ahead and answer when the judge overrules the objection.

A. Yes, I just don't remember the question.

Q. I'm sorry. What were the types of studies that you designed and conducted to assist these patients?

A. In this case we did a wait list control design because we wanted a control. We wanted to know that
individuals didn't just stop using caffeine because we had called them, you know, that we had allowed them to be interviewed. They came in. So we treated half of the patients immediately and half of the patients six weeks later. And we found that those who were treated six weeks later did not spontaneously stop using caffeine. And then they were given the treatment as well.

Q. Is this a randomized control --
A. Yes, with a wait list control condition as opposed to a no control condition. We didn't want to do that. We didn't want to have half of our participants not receive any treatment.

Q. Understood. All right. And did that study that you are referring to, that randomized control trial, result in a publication?
A. Yes, it did.

Q. And could you identify that on your Curriculum Vitae?
A. It resulted in two publications. The first would be Evadt, Juliano, and Griffiths, 2016, a Brief Manualized Intervention for Problematic Caffeine Use, a Randomized Control Trial in the Journal of Consulting and Clinical Psychology.

Q. And the other publication?
A. Juliano, Evadt, Richards, and Griffiths, Characterization of Individuals Seeking Treatment for Caffeine Dependence in Psychology of Addictive Behaviors.

Q. Is there a study that you currently or recently
submitted?

A. I have a number of studies that I completed recently and some under review regarding caffeine and its effects on individuals.

Q. Could you tell us about those.

A. Sure. I just completed a study where we give people either caffeine or a placebo, and it's called an ABA design. So they received placebo for a week, caffeine for three weeks, and then placebo for another week. And this way we can causally test the effects of caffeine on the outcomes.

We were particularly interested in sleep and negative subjective effects. Subjective effects in general. So that's one study recently completed that we're writing now for publication.

I have another study under review at a journal right now where we were looking at caffeine withdrawal. Some had suggested caffeine withdrawal perhaps is an expectancy effect, meaning it's caused by one's beliefs that it may happen. So we -- in that study, I tested whether somebody's expectations or their beliefs influenced withdrawal symptomatology and found that expectation made no difference. By the second day, if someone didn't receive caffeine, they reported headache and other withdrawal symptoms.

Q. All right. Among your research, did you conduct a comprehensive review of all published studies regarding caffeine withdrawal?

A. Yes.

Q. Could you tell us what that involved?
A. Yes. So I did that in collaboration with Roman
Griffiths at Johns Hopkins University, and we evaluated all
research that had tested or potentially could answer questions
about caffeine withdrawal in order to validate the phenomenon
in that what exactly is it when someone abstains from
caffeine. What happens to them.

Q. Right. About approximately how many studies in
the literature did you review critically in preparing that
work?

A. Most studies in that review were double-blind
placebo control studies. I believe there were about 47. We
also included single-blind studies, 9 of those, I believe.
And then a few survey studies. So I would say -- I don't
remember the exact number. About 60 studies or so.

Q. And these were all controlled studies?

A. Most of them were controlled studies. But
actually, those controlled studies may actually underestimate
the phenomenon in the real world. So this was a very
conservative evaluation of caffeine withdrawal. We wanted to
know what the pharmacological effects of abstinence from
caffeine were to empirically evaluate a potential diagnosis,
but it could be different when people actually know they are
not getting their coffee. Research shows they may actually
develop symptoms sooner and more intensely.

Q. And could you identify that comprehensive
review of caffeine withdrawal on your Curriculum Vitae?

Review of Caffeine Withdrawal, Empirical Validation of
Symptoms and Signs, Incidents, Severity, and Associated Features. And that was in Psychopharmacology.

Q. And what was your conclusion regarding caffeine withdrawal regarding -- based upon that critical review that you prepared?

A. We were very careful to look at the methodologies in those studies. Other drug withdrawal syndromes have not done this sort of analysis. But anytime you're comparing a drug to placebo, you have to be able to know whether the effect you're looking at is a drug effect or a withdrawal effect.

So we were careful to look at methodologies that would isolate it as a withdrawal effect and not simply that people do better on the drug and then worse off the drug and worse, but that actually is a dysfunction or is a decrement in performance.

So we concluded that the evidence was overwhelming for a withdrawal syndrome, and at the end of the review, we made recommendations for what that syndrome would look like if it was based on science and empirically validated.

Q. Have any of your papers in your view made a major impact in your field?

A. Well, if you look at the citation rates, a number of my papers have been well cited. This paper, the withdrawal review, is the most cited paper of mine. It has hundreds of citations. But I believe this paper had the largest impact because the empirical analysis that we did resulted in the actual diagnosis in the DSM-5 that is
Q. Is that this book?
A. Yes.
Q. All right. And its title is Diagnostic and Statistical Manual of Mental Disorders, 5th Edition, correct?
A. Correct.
Q. Is that the current edition?
A. The current edition.
Q. And this is published by the American Psychiatric Association?
A. Correct.
Q. Are there any mental health diagnoses in the DSM for caffeine-related problems?
A. Yes.
Q. Could you tell us about those? What are they?
A. The official diagnoses are caffeine intoxication, caffeine withdrawal. Then there's substance-induced anxiety disorder due to caffeine, substance induced sleep disorder due to caffeine. And then, as I -- research, working diagnosis, there's caffeine use disorder.
Q. What was your role in those diagnoses and their diagnostic criteria for them in the DSM-5?
A. I was an official advisor to the DSM-5 substance use disorders work group. I was asked to advise on matters related to caffeine; so I was involved in the writing and the scientific review of all the caffeine-related diagnoses in the DSM.
Q. And what was your role in the writing of that?
A. I was a primary lead author on some of the diagnoses, and others I collaborated on the writing. Usually the ones that we're rewriting from DSM-4-TR.

Q. Okay. So for which of the caffeine-related disorders were you the primary for?
   A. Caffeine withdrawal and caffeine use disorder.

Q. Has your research been funded by the National Institutes of Health?
   A. Yes.

Q. And are you the recipient of an R01 grant?
   A. Yes.

Q. And will you explain to the Court what that is.
   A. It's a grant given that supports original laboratory -- well, in my case, original laboratory research. And this was in the area of tobacco dependence.

Q. Okay.

A. But they are highly competitive grants. They are very difficult to get.

Q. Okay. Dr. Juliano, have you also received a humanitarian award?
   A. Yes, I received a humanitarian award during my clinical internship.

Q. Tell us about that, please.
   A. That was an award given to an intern who was believed to be a good colleague, collegial, helpful.

Q. Okay.

A. It wasn't a science award.

Q. All right. So, Dr. Juliano, when was it that I
contacted you regarding this case?

A. Summer of 2013, I believe.

Q. That's already four years ago. More than four years ago.

A. Yes.

Q. Do you happen to recall what I asked you to do?

A. I do.

Q. What was that?

A. So you called me and asked if I would be willing to discuss my expertise and my research on caffeine.

Q. And what was your response?

A. Well, I was interested because I was attracted to that idea of discussing my research and talking about caffeine. I enjoy educating the public and speaking with the media about caffeine. So I found the invitation appealing.

Q. And were you surprised that I was not asking you to testify on behalf of someone who had a caffeine-related problem?

A. Yeah. That's actually the only reason I said yes, because I have been asked before to testify in cases, and I've always said no.

Q. All right. Would you tell the Court the different topics --

Well, at this point, your Honor, I would offer Dr. Juliano as an expert in drug addiction and caffeine and the effects of caffeine and coffee.

THE COURT: Any objection?

MR. BRAS: No objections other than the coffee
piece. She's an expert on caffeine.

THE COURT: All right. Thank you. The Court accepts Dr. Juliano as an expert. Counsel may proceed.

MR. METZGER: Thank you, your Honor.

Q. Dr. Juliano, did I ask you what topics regarding coffee and caffeine you would like to address in this case?

A. I just picked the topics that I felt I was an expert in and wanted to discuss, yes.

Q. And did I agree with what you chose?

A. Absolutely. I sent you my list of opinions, and you said they looked great, and that was it. I was happily surprised by the process.

Q. Okay. Would you just identify those five topics for Judge Berle, please.

A. Problematic caffeine use, caffeine intoxication, caffeine withdrawal, anxiety, and sleep.

Q. Okay. I'd like to start, with your permission, on caffeine withdrawal. First, could you give us a definition of what caffeine withdrawal is?

A. Caffeine withdrawal is psychological behavioral and cognitive disruptions that occur as a direct result of abstinence from caffeine among habitual users.

Q. And does caffeine produce a physical dependence in habitual users?

A. Yes. So by definition, physical dependence is the observation that someone experiences these disruptions upon acute abstinence from caffeine.
Q. And is there a particular syndrome that these people who are habitual caffeine users -- well, let me ask you about that.

Habitual caffeine user. Does that include people who drink coffee daily?

A. Yes.

Q. Okay.

A. And the withdrawal syndrome is dose dependent. So the more someone uses, the more likely they will have withdrawal, and the more severely they will have withdrawal. And the largest users of caffeine are coffee drinkers. So when we're studying withdrawal, we are studying coffee drinkers primarily.

Q. All right. And could you describe for us the symptoms, if that's the right term, of the physical dependence that people who are habitual coffee drinkers experience?

A. The primary characteristic symptom of caffeine withdrawal is a headache. The headache has been described as throbbing, diffuse, sensitive to movement. And often we hear it's the worst headache anybody as ever experienced. So that was the primary symptom.

Also, very commonly we see fatigue, sleepiness, difficulty concentrating, mood disturbances. So people report irritability, depression. And we also see in some cases flu-like symptoms. So people will report muscle stiffness, nausea, and in some cases even vomiting. And sometimes people think they have the flu when they are experiencing caffeine withdrawal.
Q. All right. And these various symptoms which you've just described, are those all symptoms that you have reported on in your publications, including your 2004 review?

A. Yeah. The 2004 review, we were very conservative. So we only identified for the diagnosis symptoms that were reliably seen over and over and over in many studies, that they were valid and that the right methodologies were used to identify them.

But other symptoms were noted as well. But those were the ones we felt were truly likely to occur over and over when individuals give up caffeine.

Q. And what were those?

A. The ones that I listed: Headache, fatigue, difficulty concentrating, mood disturbances, and flu-like symptoms. And that comprises the diagnosis for caffeine withdrawal.

Q. When you say that comprises the diagnosis --

A. Along with functional impairment. So you can't just have those. There has to be also some sort of dysfunction or impairment in one's normal daily functioning.

Q. Okay. Says who?

A. All diagnoses in the DSM require dysfunction. Otherwise, it would be very easy to meet a lot of the mental health diagnoses. And I think people forget that sometimes. They say oh, you know, I can't believe you would diagnose this, let say, because of the symptoms. And it's never just the symptoms. It's the symptoms along with some sort of impairment in daily normal functioning.
Q. So DSM says that with respect to caffeine, what's the terminology that they give for caffeine withdrawal in DSM?

A. Caffeine withdrawal.

Q. Okay.

A. Syndrome.

Q. All right. And the diagnostic criteria that you just mentioned are in the DSM?

A. Yes. In order to meet the diagnosis, one has to show symptoms in at least three of those categories. Again, it is the most conservative diagnosis for drug withdrawal in the DSM. Sometimes you just have to meet 2 of 11 symptoms, let's say. And also there has to be dysfunction.

Q. And that categorization of the minimum of these three plus dysfunction, is that what you have proposed?

A. Yes.

Q. Okay. And you've indicated that that's more criteria than for any other drug withdrawal symptom?

A. Yes, it's the most conservative. And we do that on purpose because caffeine is used by 85 to 90 percent of the population. And we want to make sure we restrict any sort of mental health diagnosis to the most severe cases because of the large numbers of people who are exposed to caffeine. We don't want to trivialize the diagnosis. I guess that's one way to put it.

Q. All right. Now, you've mentioned doses. Let me ask you about that in your research. Have you ascertained the range of doses of caffeine that people experience or
consume that can result in withdrawal?

A. Yes. That parametric research has been done. Very well controlled. So we know that there is a
dose-response relationship. So as the dose goes up, the
probability of withdrawal goes up, and the severity of
withdrawal goes up. But we also know that a daily dose of
about 100 milligrams per day is sufficient to cause withdrawal
upon abstinence from that dose.

Q. And how many cups of coffee is a hundred
milligrams of caffeine per day?

A. The amount of caffeine in coffee is quite
variable. But that would be less than one standard cup of
coffee.

Q. Okay. All right. And can you inform the Court
of some articles either by you or by others that have reported
that low dose of caffeine as being sufficient to trigger
withdrawal syndrome upon abstinence.

A. Yeah. The Evans, et al., 1999, and Griffiths,
et al., 1990, papers have shown that a hundred milligrams of
caffeine is sufficient.

The study we just completed showed that three weeks
of 200 milligrams daily was sufficient to cause withdrawal in
the fourth week, and that was among individuals who don't
normally use caffeine.

Q. And which study is that?

A. That's a study that we are currently writing
for publication.

Q. All right. And have studies shown or reported
how long withdrawal symptoms for caffeine withdrawal, how long
they last?

A. Yes. That information is well established. So
caffeine withdrawal generally begins within 12 to 24 hours of
the last dose of caffeine. It usually peaks in the second or
third day, and it lasts for up to nine days.

Q. And could you inform the Court of some studies
that actually show that? Any of yours?

A. Yeah, the studies listed here on my list of
opinions. Griffiths, et al., the review, Juliano and
Griffiths, we summarize that data. Van Dusseldorf and Katen
and Hofer and Battig.

Q. Okay. Dr. Juliano, is caffeine withdrawal
syndrome in your opinion a clinically important phenomenon?

A. Yes.

Q. How so?

A. When we were doing the review, we were
particularly interested in would there be distress or
dysfunction, not just a change on a scale, let's say, but did
it actually interfere with someone's life. And we identified
that about 13 percent of the time, the symptoms were severe
enough to cause some sort of dysfunction in someone's day.
So -- and we've also received provo reports of the sort of
activities and sort of ways in which caffeine withdrawal has
disrupted peoples' lives.

Q. Can you give us some examples of those reports?

A. I have many, many examples. And some of the
examples I can give you are actually published reports.
So people unable to care for children, canceling a son's birthday party, leaving a camping trip with the whole family after the first day, not being able to attend religious services, not being able to work. Many people just describing being home with the covers over their head, feeling as though they had the flu.

Q. Okay. All right. Okay. Let's see, you mentioned, I think, either the strongest or most common symptom, I don't recall exactly, as being headache.

A. It's a hallmark feature. So there is a caffeine withdrawal headache that has a specific sort of feel, let's say, to it. But fatigue is also a very common symptom. And sleepiness.

Q. And can you describe that headache?

A. Yes. It's a diffuse, throbbing, all over the head, sensitive to movement. People don't like to move their head because of the cerebral dilation that's going on. The vascular system is dilated. And, like I said, some people describe it as the worst headache they have ever experienced. And there are case reports of people going to the emergency room thinking that they had a brain aneurism.

Q. And have you published about the caffeine withdrawal headache?

A. In terms of the clinical -- the reports, yes.

Q. Are there any types of caffeine consumers who most abstain in certain circumstances from caffeine and experience withdrawal?

MR. BRAS: Objection. Vague.
THE COURT: Well, it is somewhat ambiguous. I don't know what you mean by most.

MR. METZGER: I'll try to rephrase it.

Q. Are there circumstances that arise for various reasons for various people where they have to stop drinking coffee or otherwise ingesting caffeine?

A. Yeah, there are a number of different reasons.

Q. Could you tell the Court some of those.

A. So some people choose to give up caffeine for religious observances. You see a lot of cases of withdrawal around Lent and other religious holidays. Pregnancy. Women will attempt to not use caffeine. And also medical tests and procedures, surgeries.

So there's actually something called post-operative headache that, when tested, turned out to be primarily caffeine withdrawal headache. And often we hear people canceling medical tests because they had not been able to abstain for the amount of time required prior to the test.

Q. Okay.

A. Now, not everybody knows they are dependent on caffeine, and that's a problem because sometimes people don't know why they are sick.

Q. All right. Now, regarding this caffeine withdrawal diagnosis or syndrome, we've talked about that being within DSM-5, correct?

A. Correct.

Q. Is it in any other generally accepted publications regarding medical diagnoses?

Q. Okay. And what is that, and what's it used for?

A. It's used for the same purposes of DSM, and that is to have a common language to describe disorders and diseases. It's used for treatment, research, and in some cases billing.

Q. Billing, for insurance purposes?

A. Yes.

Q. So in your opinion, is caffeine withdrawal symptom a recognized and well-accepted medical diagnosis in the medical community?

A. Yes.

Q. Okay. I realize this has been a large area of your research. Have we covered this, or is there something else that you feel you consider important that you would like to share with us?

MR. BRAS: Objection. Overbroad, relevance.

THE COURT: First of all, is there any questions you'd like to be asked? Or any questions you would like to ask Mr. Metzger?

Q. BY MR. METZGER: Well, Ms. Juliano, what have I forgotten to ask you?

THE COURT: All right. I take it you have completed your examination.

MR. METZGER: All right.
THE COURT: Like Jeopardy. Just give the answer, and we'll figure out a question.

MR. METZGER: I think his Honor is telling me that -- I think we'll move on from caffeine withdrawal right now.

Q. Why don't we talk about another caffeine-related disorder that you have mentioned, which is caffeine intoxication. Okay? What is that?

A. Caffeine intoxication is symptoms that result from consuming too much caffeine. So they include symptoms like restlessness, nervousness, anxiety, GI disturbances. It's a very uncomfortable feeling for individuals.

Q. Is there a long list of symptoms of caffeine intoxication?

A. Yes. There are a number of symptoms, and in order to meet the diagnosis, one has to be experiencing at least five of those symptoms.

Q. Okay. And when you say to meet that diagnosis, what diagnosis are you referring to by what organization?

A. Caffeine intoxication is included both in the DSM-5 and in the ICD-10.

Q. Incidentally, you've mentioned the ICD, and the 10th is the 10th version of that?

A. Yes.

Q. When was that published?


Q. Okay. So whatever you're referring to caffeine-related diagnosis being in the ICD, you're
indicating, am I correct, that those diagnoses have been accepted and included in the International Classification of Diseases for at least 25 years; is that right?

A. Yes.

Q. All right. So do people who -- do coffee drinkers sometimes experience caffeine intoxication?

A. Yes.

Q. What is your assessment of caffeine intoxication as a disorder?

MR. BRAS: Objection. Vague.

THE COURT: Please rephrase the question.

Q. BY MR. METZGER: In your view, what is the public health impact of caffeine intoxication?

A. I think it's an important public health issue. We hear a number of reports of caffeine overdose, caffeine intoxication. And we see a tremendous amount of variability in individuals' response to caffeine. So that's where people need to be educated about the caffeine's stimulant properties as a drug.

THE COURT: What effect in your opinion does caffeine have in the workplace?

MR. METZGER: Caffeine intoxication or caffeine?

THE COURT: Both.

MR. METZGER: Okay.

THE WITNESS: Well, caffeine in terms of -- you know, my research is on withdrawal. So, of course, I've been interested in the effects of caffeine withdrawal and work productivity. But people also use caffeine to perform, but
research has shown that when people who commonly use caffeine to perform, to enhance the cognitive performance or to alleviate sleepiness, that actually they are just restoring the decrements caused by the dependence on caffeine. It's not a net benefit. So it's sort of a vicious cycle.

We believe we're using caffeine to enhance our performance at work. You know, we go to get that cup of coffee so we can get through the day. But it only sort of helps for people who have become dependent and who are then just trying to get themselves back to normal.

People who don't consume caffeine are no less productive than individuals who consume caffeine. In fact, one could argue there are probably more because they are not going through these phases of withdrawal and use.

THE COURT: Well, that's what I was getting at in terms of caffeine withdrawal. Assume from what you described, there are occasions where individuals miss work because of the symptoms of caffeine withdrawal. So there's a loss of productivity.

On the other hand, there's been a suggestion that caffeine helps alertness in job performance. So how do you balance those two?

THE WITNESS: That's what I was getting at. So the alertness -- so you only see alertness effects in caffeine users at work substantial when someone doesn't chronically use caffeine. So caffeine, if used -- for someone who doesn't normally use it, it can be an effective performance enhancer. It may make you less tired. It may improve your
concentration, especially on vigilance-like tasks. Not so much memory or complicated tasks, but kind of boring tasks that you have to do over and over.

But the problem is most people don't use caffeine that way. They use it daily or regularly. So once their bodies become tolerant, then without the drug, they perform worse. So what people are doing is they are using the drug to increase alertness, but it's just to get them back to where they would have been had they never been dependent on caffeine.

Q. BY MR. METZGER: To baseline.
A. To baseline. There's no evidence that caffeine enhances performance above and beyond baseline when used in a chronic manner like that. And people tend to use it in a chronic manner. So people every day at 4:00 o'clock will go and get that second cup of coffee or third cup of coffee. There's no evidence that that is actually helpful.

Q. Speaking of people who use it, I'll confess. What about you?
A. I do consume coffee, yes, every day.
Q. Why?
A. Likely to get myself back to baseline and not experiencing caffeine withdrawal.
Q. All right.

THE COURT: Well, I think that's a good place to pause and have an afternoon recess. I'm not commenting on what beverages people are going to take during the recess. We'll be in recess for 15 minutes. And then we'll resume the
trial.

(Recess taken.)

THE COURT: Back on the record.

Dr. Juliano, let me ask you this question. Your testimony about caffeine and the effects of caffeine, was your study limited to caffeine in coffee beverages, or does it extend to caffeine's presence in other beverages such as soft drinks, Coke or Mountain Dew or exposure to energy drinks recently?

THE WITNESS: Can I ask what you're referring to in terms of the research? Are you asking if we only use coffee consumers in the research, or when we manipulate caffeine, do we do it using a vehicle of coffee or energy drinks?

THE COURT: Both.

THE WITNESS: Okay. So in our research, we recruit individuals who consume all sources of caffeine for some studies. Other studies we limit to only coffee drinkers.

In terms of the manipulation of caffeine, often we administered decaffeinated coffee, and then we add caffeine to it so we can control for the dose of caffeine in the coffee.

In other studies I've done, I have used -- in two other studies, I've used energy drinks as a vehicle. But again, we're formulating those, and we're adding caffeine in specific dosages.

THE COURT: And for the work you've done in this case, is it limited to coffee? Have you focused only on coffee? Because most of your testimony has been on caffeine. We've been in general listening to testimony about the effects
of caffeine. So for the work you've done on this case, is it limited to caffeine present in coffee or in other beverages as well.

THE WITNESS: It's not limited to coffee, but because coffee is the largest source of caffeine, in order to understand caffeine exposure, one needs to understand coffee consumption. And also being that caffeine is a primary reinforcing ingredient in coffee, people consume coffee because of the caffeine. It's a reinforcer.

Most people consume caffeinated coffee. So to fully understand coffee consumption, one needs to understand the primary reinforcing ingredient in coffee, which is caffeine.

THE COURT: Okay. Thank you.

Mr. Metzger.

MR. METZGER: Thank you, your Honor.

Q. Dr. Juliano, I think we've covered caffeine intoxication. So let's now talk about anxiety. That's been another area of your research, correct?

A. Yes.

Q. And by the way, regarding Judge Berle's questions about your work in this case, is it correct that you have not done any experiments or specific work for this case other than developing your opinions in this case based upon your own research?

A. Yeah, I have not done any specific sort of analysis separating any type of caffeinated vehicle for this case, no. I'm just speaking about my research in caffeine and
coffee.

Q. Okay. All right. So now anxiety. I guess definitionally, what is anxiety?

A. Anxiety is a negative subjective state. It can also be measured physiologically because it has physiological correlations. Increased heart rate, skin sweating, blood pressure, general feelings of uneasiness.

Q. And is anxiety a recognized diagnosis?

A. There are a number of different anxiety-related disorders in the DSM.

Q. Okay. And what has your own research been regarding the consumption of coffee, caffeine, on anxiety?

A. Caffeine is a known anxiogenic agent.

Q. What does that mean?

A. It means it causes anxiety. So there's clearly pharmacological evidence that caffeine causes anxiety. This relationship is dose dependent again. So larger doses of caffeine are more likely to cause anxiety and cause for severe anxiety; however, there's a tremendous amount of variability among individuals and effects of caffeine.

So some people experience anxiety even at normal dietary doses of caffeine, while others experience anxiety from caffeine from larger doses.

Q. When you say normal dietary doses of caffeine that some people experience anxiety from, can you quantify that for us?

A. Yeah, a normal dietary dose could be something like 200 milligrams of caffeine.
Q. Which would be how many cups of coffee?
A. It could be less than a 12-ounce cup of coffee.
Q. Okay. And could you inform the Court of some of the studies that inform your opinion that caffeine causes anxiety in humans?
A. Yes, there's been a number of controlled research studies that have administered caffeine to participants and then evaluated their anxiety. Sometimes it's general anxiety, ratings of anxiety. Sometimes -- some studies have actually induced panic attacks with caffeine.
Q. And what exactly is a panic attack?
A. A panic attack is a specific diagnosis, and it involves somatic symptoms, sweating, heart rate increases. People report feeling that the world is closing in on them. Feelings of doom. And this is an isolated event where people are panicking. They often think they are having a stroke or a heart attack.
Q. I want to go back to something you said. You said that caffeine is an anxiogenic drug; is that right?
A. Correct.
Q. And you explained that anxiogenic means that caffeine causes anxiety. What are the types of studies that you are relying on that enable you to make a causal conclusion, as you have, for caffeine causing anxiety?
A. Well, the causal effects can be demonstrated through controlled studies, experimental studies, where caffeine or a control, in most cases a placebo, is administered to individuals double-blind, and then the effects
of the -- what we call the independent variable are evaluated on the measures.

So there are a number of controlled studies where caffeine is administered to individuals in a double-blind fashion.

Q. Okay. So regarding these caffeine-related disorders that you have been testifying about, in your opinion are these disorders recognized as being caused by caffeine based upon controlled studies?

A. Yeah, absolutely. The goal of the DSM, any diagnostic system is for those diagnosed to be empirically validated. So it's not anecdotal or based on clinical observations necessarily. It's also based on controlled research demonstrating the relationship between the drug and the outcome.

Q. And these types of what you've referred to as controlled and experimental studies, are those different types of studies than observational epidemiologic disease?

A. They are very different types of studies. I teach research methodology, and I actually just taught this last week. So yes, when you control an independent variable, when you control the causal factor, and you manipulate it and you control for a host of other potential extraneous variables, then you can establish causality with the dependent outcome. In this case it would be anxiety. So great efforts are made to be able to isolate the causal factor.

Q. Okay. Thank you.

A. The issue with observational studies is the
chronic third variable issues, where --

Q. The what?

A. Third variable problem where any relationship -- one, we don't know the direction of causality in many cases. And second, we don't know if there are other variables that are truly responsible for the relationship between the variables under investigation.

Q. Confounders?

A. Yes, confounders. And other explanations.

Q. Okay. Thank you. Now, regarding anxiety, is caffeine-related anxiety a diagnosis in the DSM-5?

A. Yes. A substance-induced anxiety disorder due to caffeine. They changed the name, actually. In the last edition it was called caffeine-induced anxiety disorder. To be consistent with ICD-10, they were all changed. All drugs were changed to substance-induced anxiety disorder, and then the qualifier is the drug caffeine.

Q. Okay. So I'm gathering, from what you just said, that this caffeine-induced anxiety disorder is also a diagnosis in the International Classification of Diseases?

A. Yes, that is correct.

Q. Since at least 1992?

A. Correct.

Q. All right. Sleep?

A. Yes, I like it.

Q. So how would you characterize the relationship between caffeine and sleep?

A. Well, caffeine is a known substance that has
effects on sleep. It disrupts sleep. It's a sleep inhibitor.

Q. And how is that known?

A. Well, it's known in a number of ways. The ways in which I investigated have to do with behavioral observations. So through controlled studies that have shown that when caffeine is administered, it disrupts the -- it increases the amount of time that it takes to fall asleep. It reduces the total amount of time that one sleeps. It reduces the perceived quality of sleep. It increases the number of nighttime awakenings. So generally, people sleep more poorly after they have consumed caffeine.

Q. And this has been shown by your own research and other researchers in the field?

A. Yes, there are many research studies showing this effect, and my own research has also shown when we give people caffeine, they sleep more poorly, and they sleep for less amount of time than the weeks that they are given placebo or baseline.

Q. So what you're again describing is controlled studies that you've done regarding caffeine and sleep?

A. Controlled double-blind studies.

Q. You've mentioned double-blind before. I don't know that I asked you to define that. Can you tell us what a double-blind study is?

A. A double-blind study is when neither the participant nor the experimenter know which drug is being administered, and that is to control for potential confounds or placebo effects.
Q. And what is a placebo effect, very briefly?
A. Well, it's a non-drug effect. So it can be a host of other factors, but it's something that we attribute not to the active component of a drug.

Q. So in doing these controlled studies, is the gold standard that they be double-blinded to minimize or eliminate any possibility of other confounding?
A. Yes. A double-blind study is the gold standard, but as I said before, double-blind studies may actually underestimate the clinical outcomes in a naturalistic environment.

Q. Why is that?
A. Because when people take a drug in the real world, it's not only the drug they are getting, but it's the full context of what they expect, and that could exacerbate or change what they experience.

Q. And in the double-blind studies, you don't have that?
A. You subtract out expectation. So you are looking only at drug effects.

Q. Okay. All right. Now, let's get back to specifically coffee. What does your research indicate specifically regarding coffee consumption and sleeping effects?
A. Because coffee is the largest source of caffeine, coffee tends to cause the most disruption to sleep. And that's a product of having more caffeine exposure.

Q. In the population, you mean?
A. More caffeine exposure in the population. So people consume coffee, and then they -- it contains caffeine, and then they have trouble sleeping.

Q. And has your research specifically addressed coffee and anxiety?

A. I'm sorry. Sleep?

Q. I'm sorry. Coffee and sleep, yes.

A. Yes. We manipulated the caffeine dose in coffee.

Q. In coffee as the vehicle.

A. Both coffee and energy drinks, yes.

Q. And does DSM-5 have a diagnosis related to caffeine and sleep?

A. Yes, it has a substance-induced sleep disorder diagnosis. The most common sleep disorder one sees with caffeine is insomnia due to caffeine. It used to be called caffeine-induced sleep disorder.

Q. And did you have a hand in writing that diagnosis?

A. I had a hand in co-writing, yes, and editing the prior diagnosis that was in the DSM-4, but that was an established diagnosis since 1994 with DSM-4s.

Q. And did you also have a hand in writing the diagnosis in -- or the diagnostic criteria in the DSM-5 for the caffeine-induced anxiety disorder?

A. I co-wrote, edited mostly.

Q. Okay. And going back to sleep, is there a disorder regarding caffeine and sleep in the ICD?
A. Yes.

Q. And what can you tell us about that?

A. For consistency purposes, DSM-5 made attempts to be more consistent; so you'll see the ICD-related diagnoses listed in the DSM-5 with similar terminology, substance-induced sleep disorder.

Q. So is it correct that within the international classification of diseases, there has been a caffeine-related sleep disorder since at least 1992?

A. Correct.

Q. Okay. So I think that leaves one more topic that you selected to talk about. And that is problematic caffeine use. Can you tell us what that is?

A. So problematic caffeine use is similar in terms of -- or the same, really, in nature as problematic use of any drug. So when one consumes a drug, at times there are effects of that drug consumption that are problematic for an individual. So individuals -- some individuals have been identified who caffeine is causing these host of symptoms associated with drug addiction or drug dependence, and also it's interfering with their lives. And that's what I refer to as problematic caffeine use.

So not just being physically dependent, not just having to have it every day to avoid withdrawal or to be able to function at work. That's a separate issue. Sometimes people confuse the two. The physical dependence on the drug and the problematic use of a drug.

Being physically dependent on a drug in and of
itself is not deemed to be problematic. Because someone can simply obtain the drug every day and use it every day. It's their choice to be addicted and their choice to have to procure it on a regular basis.

Problematic caffeine use is more than that. It's having problems in one's life because of the consumption of the drug.

Q. Okay. And does problematic caffeine use -- are there symptoms associated with that?

A. Yes.

Q. Can you tell us about those?

A. So there are a number of symptoms that have been identified along with the general feature of problematic caffeine use. There are nine symptoms recognized by DSM at this time. In order to meet the working diagnosis or the research diagnosis for caffeine use disorder, which is the name of problematic caffeine use in the DSM, one needs to meet all three of the following criteria: They have to be using the drug despite some sort of physical or psychological negative effects or harm. They have to have tried to quit using the drug unsuccessfully or taper their use unsuccessfully. And they must be physically dependent on the drug. Meaning that they will experience withdrawal if they attempt to cease using the drug.

So right now that is the operational definition of caffeine use disorder in the DSM.

One also has to have dysfunction along with those symptoms in their life in some way. But there are also six
other features that we tend to observe more or less to
different degrees when people have these clusters of symptoms.

Q. All right. And is there a range of caffeine
doses that have been associated with problematic caffeine use?

A. Yes. So there's wide variability. For no drug
of addiction is the amount someone uses a criteria for
diagnosis drug addiction. And that's for all drugs, including
caffeine.

Heavy use, of course, of any drug may be associated
with negative health problems and so forth. But what we see
with caffeine is a large, a wide range of use. So we've
identified problematic caffeine use among individuals using as
little as 200 milligrams a day upwards of 2,200 milligrams a
day.

Q. And tell us about your research, if you would,
regarding problematic caffeine use?

A. So my research has focused on identifying the
characteristics of individuals who feel that their caffeine
use is problematic and who are seeking treatment for caffeine,
problematic caffeine use.

Q. And what publications have you authored
regarding that?

A. So there are two publications. One is a study
of the characteristics, and that is a larger sample of
individual, I believe. 275 people called in response to
advertisements seeking people who felt that they were having
problems with caffeine use, and we collected information from
those 275 individuals. The other publication is the
randomized clinical trial we talked about, testing the
efficacy of a brief manualized treatment for caffeine use
disorder.

Q. The Evadt study 2016, of which you are a
co-author?
A. I was the corresponding author. I was the lead
author. I mean, I'm not the lead author, but I designed the
study, and yeah, that was a study that I designed as a post
doc when I was at Johns Hopkins. Evadt is my student.

Q. Okay. So you were -- I guess they call it the
senior author?
A. I was the corresponding author. And yeah, it's
Griffiths was the senior author I will defer to.

Q. Got it. Okay. All right.
A. There is hierarchy.

Q. And regarding the disorder known as problematic
caffeine use or caffeine use disorder, I guess you said --
A. In the DSM, yes, it's caffeine use disorder.

Q. Is that characterized in the DSM-5 in a
particular way?
A. It is a diagnosis worthy of further study. We
refer to it as a research diagnosis.

Q. And what does that mean exactly?
A. It means that there was enough evidence and
enough studies that had demonstrated these clusters of
symptoms in individuals deemed it to be clinically
significant. But not enough information at this time to
warrant inclusion as a formal recognized diagnosis.
Q. And regarding formal recognized diagnoses of caffeine-related disorders, would that include the caffeine intoxication, caffeine withdrawal, caffeine-induced anxiety, and caffeine-induced sleep disorders?

A. Yes, those are all fully recognized caffeine-related disorders in the DSM.

Q. All right. And is caffeine use disorder or a similarly named syndrome also recognized not just in the DSM-5 but also in the International Classification of Diseases?

A. Yes, the International Classification of Diseases has long recognized caffeine dependence syndrome.

Q. When you say long --

A. Since 1992 at least.

Q. All right. So let me ask you, then, what is your conclusion regarding the effect of caffeine from consumption of coffee in psychological health?

A. I think caffeine -- and again, the primary vehicle being coffee -- has very important psychological effects and that they need to be recognized in terms of the effects on sleep, the effects on anxiety, and the dependence syndrome that develops when one chronically uses caffeine.

Caffeine intoxication is also an important public health issue because people are exposed to caffeine in large doses and have negative effects, often present at emergency rooms, call poison control, and as well as problematic caffeine use.

There is a population of individuals who would like assistance stopping using caffeine for various reasons. In
our study 47 percent of our subjects had been directly advised by medical professionals to quit using caffeine but without any advice on how to do so.

So I think there is a need and a desire for assistance in the same way that people desired assistance getting off tobacco years ago when they were told oh, just quit. It's a habit. It's easy. And I think that's how caffeine users feel now when people say it's just caffeine. Quit. And they try over and over, and they can't. So I think that these are areas I'd like to continue to address in terms of public education, health, and treatment.

Q. Does caffeine cause coffee drinkers to feel compelled to drink coffee daily and throughout the day?

MR. BRAS: Objection. Lacks foundation.

THE COURT: Overruled. You may answer.

THE WITNESS: Yes. So a good analogy is nicotine. When you take nicotine out of cigarettes, smokers don't like them anymore. They won't smoke them for very long. In the same way, caffeine has been through controlled research, been identified as a primary reinforcing ingredient.

So when you take caffeine out of coffee, coffee users don't like it -- sorry. Consumers don't like it as much. They won't drink as much. They won't pay as much for it. And this is in double-blind testing. So most coffee that is consumed is caffeinated coffee. And caffeine, because it's a reinforcer, because it can have direct pleasurable effects, and also it's a negative reinforcer in that when one is dependent and they don't get it, they feel bad.
So that combination of positive effects and avoiding negative effects makes a drug reinforcing and is repeated. It's been demonstrated that it is responsible for chronic use, as we put it, the maintenance of drug taking.

Q. And does that, that maintenance that you've just described that compels people to continue drinking coffee for -- I think you called it the pharmacological effect -- does that cause people who are coffee drinkers to be continually exposed to the constituents of coffee and any additives in coffee?

MR. BRAS: Objection. Lacks foundation. The witness has stated she doesn't have any opinions about anything other than caffeine in coffee.

THE COURT: Objection sustained. Please rephrase the question.

MR. METZGER: Okay.

Q. In your opinion, Dr. Juliano, does the addictive or dependent effects of caffeine compel coffee drinkers to consume coffee regularly with any of the constituents and the additives that may be in the coffee?

MR. BRAS: Objection. It's the same question and the same objection.

THE COURT: The witness may answer the question.

THE WITNESS: Yes. So a reinforcer is by definition something that someone does repeatedly because of its effects, and therefore would be exposed to anything else. This issue comes up with other substances that contain caffeine as well in terms of exposure to the agents in their product.
MR. METZGER: Thank you, Dr. Juliano. I appreciate your testimony.

THE COURT: All right. Thank you.

Cross.

CROSS-EXAMINATION

BY MR. BRAS:

Q. Good afternoon, Dr. Juliano.

A. Good afternoon.

Q. You're not offering any opinions regarding any component of coffee other than caffeine, correct?

A. Correct.

Q. You're not offering any opinions regarding decaffeinated coffee, correct?

MR. METZGER: Objection. She's testified about decaffeinated coffee in her testimony so far.

THE COURT: Overruled. You may answer.

THE WITNESS: I am -- my research does investigate decaffeinated coffee as well because of the low doses of caffeine that it contains that could be pharmacologically active. And this is an important issue in my research that we try to control for. So my research does have an interest in decaffeinated coffee.

Q. BY MR. BRAS: So your research does have an interest in decaffeinated coffee, but my question was do you have any opinions offered at this stage regarding the consumption of decaffeinated coffee?

A. No.
Q. I believe you stated on direct testimony today that the normal dietary dose of caffeine is 200 milligrams; is that correct?
A. I didn't say it was the normal dietary dose. It was in the range of a normal dietary dose.
Q. I see.
A. People don't normally want to consume amounts higher than that in general. Some people, if they are highly tolerant, would. But that's the upper range of a normal acceptable dietary dose.
Q. The mean daily caffeine consumption among adult caffeine consumers in the U.S. is about 280 milligrams per day, equivalent to about two cups of coffee; is that correct?
A. I am familiar with that data. 280 milligram value. I can't speak to how much that translates in terms of coffee because of the wide variability you see in dose of coffee. But according to -- when I speak to manufacturers, you know, I'm given values that there are 300 milligrams of caffeine in a 12-ounce cup of coffee, 400 in a 16-ounce cup coffee, and 500 in a 20-ounce cup of coffee, and those values are different, let's say, than the values you're giving me. So I can only go by what the manufacturers give me or independent testing that I've done on decaffeinated coffee.
Q. I see. I'd like to show you Exhibit 60116. The title of this article is Characterization of Individuals Seeking Treatment for Caffeine Dependence, correct?
A. Correct.
Q. And you're an author of this paper?
A. Yes.

Q. If you look on the first page, you write:
"Mean daily caffeine consumption among adult caffeine consumers in the United States has been estimated to be 280 milligrams per day, the equivalent of about two cups of coffee, or seven 12-ounce cans of caffeinated soft drinks," correct?

A. Correct.

MR. METZGER: Well, with a citation.

THE WITNESS: That's Barone and Roberts, 1996. And that was a direct query by the publisher, who asked us to add that information. You know, there's so much variability, it's very hard to give equivalents other than the products that caffeine is added to. We can do that with soft drinks, but with coffee we were asked to do that.

Q. BY MR. BRAS: That's what you wrote here?

A. Yeah.

Q. You agree that the typical dietary doses of caffeine up to 300 milligrams per day are generally consumed without incident, correct?

A. Correct.

Q. When you speak of acute doses, you mean a dose consumed all at one time; is that right?

A. An acute dose is a dose consumed at one time.

Yes.

Sorry, I didn't have my glasses on, and we went through that quickly. Can you tell me what you were referring to with the 300 milligrams a day?
THE COURT: It's not your opportunity to ask questions.

Next question.

THE WITNESS: All right. Sorry. Because I don't know where that is in here. But okay.

Q. BY MR. BRAS: You would agree that individual doses of caffeine between 0 to 200 milligrams generally produce rewarding subjective effects, correct?
   A. Correct.

Q. You're a psychologist, correct, Dr. Juliano?
   A. I'm a clinical psychologist, yes.

Q. And you have no degree in epidemiology, correct?
   A. No.

Q. And you became a full professor of psychology in 2015?
   A. Yes.

Q. So you are familiar with the American Psychiatric Association?
   A. Yes.

Q. And you discussed with Mr. Metzger today DSM; is that right?
   A. Yes.

Q. And you are relying on DSM for your opinions?
   A. Well, I was asked to form opinions about diagnoses in the DSM, and I would say DSM relied on my opinions in some cases.

Q. DSM does not recognize caffeine use disorder as
a formal disorder, correct?

A. Correct.

Q. Caffeine use disorder is what's called a condition for further study, correct?

A. Correct.

Q. And you agree that more research is needed to determine the reliability, validity, and prevalence of caffeine use disorder, correct?

A. Correct.

Q. I think you stated you are a contributing author to the DSM on caffeine use disorder; is that right?

A. I was an appointed advisor to the substance use disorders work group on matters related to caffeine.

Q. I see. So you agree with the American Psychiatric Association that there's a high rate of non-problematic daily caffeine use in the general population, correct?

A. Yes. So as long as people can procure a daily dose.

Q. I'd like to show you what's been marked as Exhibit 59474. You're an author of this paper, correct?

A. Correct.

Q. And this was published in 2016?

A. Correct.

Q. Looking at the first page in the introduction, you state: "The widespread popularity of caffeine is likely due to its mild positive stimulating effects, presence in a wide variety of products, and integration into cultural
customs and routines," correct?
   A. Correct.
   Q. You also state that: "In general, when consumed at low to moderate daily doses, e.g., less than 400 milligrams, caffeine is a relatively safe drug that offers some functional, e.g., staying awake during a long drive, and perhaps health protective effects, e.g., Parkinson's disease," correct?
   A. Correct.

THE COURT: Are you asking the witness whether you read it correctly or something about the substance?
   Q. BY MR. BRAS: You wrote this article?
   A. Yes.
   Q. And you wrote that statement?
   A. Yes.
   Q. And that's your opinion?
   A. Yes.
   Q. You have a citation to another of your papers at the end of that statement, correct? To Juliano, Ferre, and Griffith, 2014?
   A. Yes.
   Q. If we could take a look at that, I believe it's Exhibit 55422. This is a chapter out of a book entitled Pharmacology of Caffeine, correct?
   A. Correct.
   Q. And you're an author of this particular chapter in the book?
   A. Correct.
Q. And the first paragraph in that first page, you write: "Caffeine is not highly associated with any life-threatening illnesses. Typical daily dietary doses can be consumed under many circumstances without incident," correct?
A. Correct.
Q. Is that's still your opinion?
A. Yes.
Q. Turning to Page 184 --
THE COURT: All right. Is there something substantive you want to ask the witness, or is it just to recite passages from her writings?
MR. BRAS: The substantive question is if that's still her opinion, that daily dietary doses have --
THE COURT: Well, she wrote it. Be I assume that's her opinion. I mean, where is it going?
MR. BRAS: It's to establish that normal daily dietary doses of caffeine have no negative --
THE COURT: Why don't you ask the witness a direct question, then.
Q. BY MR. BRAS: Caffeine is widely used to increase energy and prevent sleepiness, right?
A. Yes.
Q. And you consider that a benefit, correct?
A. I don't consider it a net benefit. I consider it a benefit in that when people consume caffeine, they feel better than when they don't. But it doesn't mean that it's a net benefit, putting someone above and beyond their normal
state, their normal quality state. There's very little
evidence that people who use caffeine have more energy than
people who don't. It's that they -- people who use caffeine
use it daily, and therefore, they need it. They come below
their baseline, and then they use caffeine to restore to a
normal baseline. That's what most of the research shows.

It's negative reinforcement. It's not positive
reinforcement over time. Initially, the drug is a stimulant
that has those effects for sure. Otherwise, you wouldn't see
tolerance and then the offset to them.

Q. So a truck driver, for instance, who may be on
a long drive, consumes coffee for the benefit of staying
awake, correct?

A. Yes. But if that truck driver did that every
day all the time, that wouldn't be the best use of the drug.
You should use it only when you feel sleepy so that the drug
can stop that sleep-promoting factor, the tendency.

Q. If we could take a look at Exhibit 59855. This
is DSM regarding caffeine intoxication, correct?

A. Yes.

Q. And one of the diagnostic criteria is that
recent consumption of caffeine, typically at a high dose well
in excess of 250 milligrams, correct?

A. Correct.

Q. So that means the typical diagnostic criteria
for caffeine intoxication is a high dose of caffeine, above
250 milligrams, correct?

A. In general, but you can see it at lower doses.
Q. You can see it at lower doses, but in general it's a much higher dose?

A. Right, in general. But caffeine has amazing variability from one person to the next.

Q. And normal caffeine consumers typically develop a tolerance to caffeine; is that right?

A. Correct.

Q. So over time, they may consume more caffeine. They develop a tolerance to the effects of caffeine.

A. Yeah, but one thing about tolerance is you don't develop tolerance to all the pharmacological effects concurrently. I call it the Murphy's Law of tolerance. Often you develop tolerance to the positive effects but not the negative effects to the drug.

Q. And we're speaking about caffeine intoxication. That's referring to acute consumption, correct? As opposed to over a day.

A. No, over a day can definitely be important because you -- you know, you don't have immediate clearance of caffeine. It's 4 to 6 hour in general half life, but that can range you up to 10 hours, 14 hours for some individuals. So there's still caffeine in the body when someone consumes additional caffeine, and caffeine toxicity can build over a day.

Q. So the half life of caffeine is generally 4 to 6 hours?

A. Generally. Again, large variability. If you add oral contraceptives to the mix, then you can double that
Q. And the symptoms of caffeine intoxication, should they occur, are temporary, correct?
A. They usually resolve within a day or two.
Q. And there are no long-lasting consequences of caffeine intoxication, correct?
A. Yes, when taken at a non-lethal dose, yes.

There's no documented long-lasting effects other than the memories of the bad experience.

Q. I'd like to turn to the topic of anxiety. You cited to a number of studies in support of your opinion that coffee increases anxiety, correct?
A. Can you state the question again?
Q. Sure. You cited in your list of opinions to some studies in support of your opinion that coffee increases anxiety; is that right?
A. Yes.
Q. All of those studies involve providing human subjects with large acute doses of caffeine in order to induce anxiety; is that right?
A. Can you define large?
Q. Well, they are varying amounts, correct?
A. Yeah, some use doses as low as 150 milligrams.
Some as high as 710 milligrams, let's say.
Q. Some as high as two grams, correct?
A. 2,000 milligrams of caffeine in an acute dose? I would have to be refamiliarized with that study. That's not -- that's not nice.
Q. Let's take a look at some of those studies. If we could go to Exhibit 51176. This is one of the studies you relied on for your opinions, correct?

A. Correct.

Q. It's titled Plasma Adenosine Levels, Measurement in Humans and Relationship to the Anxiogenic Effects of Caffeine, correct?

A. Correct.

Q. If we look at the abstract, we can see that it's a study of eight volunteers, correct?

A. Correct.

Q. Given three different doses of caffeine, correct?

A. Correct.

Q. That's 240 milligrams, 480 milligrams, and 720 milligrams of caffeine, correct?

A. Correct.

Q. If you would go to Page 253 of this document. The line is although there is a positive linear relationship between Zung anxiety and plasma caffeine levels in each subject, only the 720 milligram dose of caffeine resulted in statistically significant increases in anxiety for the group, correct?

A. Correct.

Q. So these authors are saying that only the highest dose of 720 milligrams was statistically significant to increase anxiety, correct?

A. Correct. But nowadays, statistical
significance is not given as much weight as effect size because the subject number has too much of an influence on it. So I would just offer that just because something isn't statistically significant doesn't mean that it's not having a clinically important effect. And vice versa. Very often we see statistical significance, but we don't care because the clinical significance is so weak.

Q. And in this study we only have eight subjects, right?
A. Yeah.

Q. So if we look at the next exhibit, 59487. By the way, 720 milligrams, you consider that a large dose of caffeine, correct?
A. Yes.

Q. And that's given to humans in a study, correct?
A. Yes, these were normal caffeine consumers in that study you're referring to.

Q. So in order to conduct a study on humans, you have to be sure that the dose of caffeine you're giving is not going to be dangerous, correct?
A. Correct.

Q. So 720 milligrams in this instance was considered not to be dangerous.
A. Correct.

Q. And that's above the average daily dose of caffeine that a typical consumer consumes; is that right?
A. Yes, so typically in the large body of research, anything acute above 400 milligrams tends to be
associated with negative subjective effects. So we tried to avoid that just for human protection reasons. These studies were done a long time ago. They took some more liberties that are done usually today.

Q. I think I just handed you 59487. Do you see that?

A. Yes.

Q. This is another study you relied on, correct?

A. Correct.

Q. And this study, in the abstract, investigated the effects of giving test subjects 10 milligrams of caffeine per kilogram of body weight, correct?

A. Yeah.

Q. This is going to involve a little math, but 70 kilograms is about 155 pounds; is that about right?

A. The average human is about 70 kilograms, right.

Q. So the average kilogram is about 70 kilograms?

A. Yeah.

Q. So in this study, they are providing dosing human subjects with 10 milligrams of caffeine per kilogram, correct?

A. Correct.

Q. Meaning that an average human would receive about 700 milligrams of caffeine?

A. Correct.

Q. Another high dose of caffeine, correct?

A. Yes.

Q. You also discussed a little about panic attacks
in conjunction with your opinions about anxiety; is that correct?

A. Correct.

Q. You agree the research on panic attacks is focused on people who are prone to anxiety as opposed to the general population, correct?

A. I don't understand the question.

Q. Sure. The research on panic attacks with caffeine is focused on people who are prone to anxiety; is that correct?

A. Yes. Because that is a vulnerable population when it comes to caffeine. So the resources really go towards understanding the effects of caffeine on individuals with anxiety because it takes much lower doses to trigger anxiety. These studies were done with normal healthy volunteers. So larger doses were acceptable.

But when using a panic disordered population and comparing that to healthy controls, it's much easier to trigger panic in a panic disordered or anxiety-prone population or even individuals who report higher anxiety sensitivity. But we have a very large population of people who suffer from anxiety disorders.

Q. And I think you mentioned healthy controls are part of these studies; is that right?

A. Better phrasing would be non-anxious individuals.

Q. So only two of the studies that you cited in support of your opinion actually include non-anxious people;
is that correct?

A. The other studies include non-anxious people but normally as controls. There are fewer studies with non-anxious individuals where they deliver doses of caffeine.

Q. And in your opinions, you only cited to two of those, correct?

A. Yes.

Q. Let's take a look at 51187. Dr. Juliano, do you recognize this paper as one of the papers you relied upon for your opinions?

A. Yes.

Q. This study actually involves comparing those with panic disorder and those with major depression with panic attacks as well as those with major depression without panic attacks to healthy volunteers; is that right?

A. Correct.

Q. In this study subjects were given doses of 480 milligrams of caffeine, correct?

A. Correct.

Q. Increase in anxiety amongst the healthy volunteers was not statistically significant, correct?

A. Correct.

Q. Look at the other paper you mentioned. 51188. Dr. Juliano, this was another paper that you reviewed for your opinions, correct?

A. Correct.

Q. And this is the other study that compares those with panic and social anxiety disorders to healthy individuals
who do not have those disorders, correct?
   A. Correct.
Q. And again, in this study they are providing subjects with a high acute dose of 480 milligrams of caffeine, correct?
   A. Yes, 480 milligrams of caffeine.
Q. And in this particular study, none of the controlled subjects had a panic attack after that dose of caffeine, correct?
   A. Correct.
Q. Caffeine-induced anxiety disorder has a prevalence -- a 12-month prevalence of approximately .002 percent, correct?
   A. I'm not aware of that data.
Q. Pull up 59853. This is DSM on substance-induced anxiety disorder, correct?
   A. Correct.
Q. And one of those substances, as you mentioned, is caffeine, correct?
   A. Yes, correct.
Q. If you'd turn to Page 229. There's a section on prevalence, correct?
   A. Correct.
Q. DSM states: "General population data suggests that it may be rare with a 12-month prevalence of approximately .002 percent," correct?
   A. Yes, that's what it says.

MR. METZGER: Well, complete it, please. You're
leaving out the next sentence.

THE COURT: Is there an objection?

MR. METZGER: Objection. It's incomplete.

THE COURT: All right. Overruled.

Q. BY MR. BRAS: So the .002 percent referenced here is inclusive of all the substances included in the DSM, correct?

A. As it's written, yes.

Q. So that includes alcohol, correct?

A. The prevalence of substance medication-induced anxiety disorder is not clear. Really, there's almost no good data on the prevalence. This value you're referring to, I assume the way it's written would include all the substance-induced. But this is a bona fide anxiety disorder caused by the substance, not a negative -- not just anxiety. There's a difference. But yes.

Q. So some of those other substances that this figure includes are hallucinogens, opioids, and cocaine, correct?

A. I can only assume so because I don't know the source of the data. It's possible it was based only on what they had for one of those drugs or -- I really don't know.

Q. Okay. So you --

A. The last version of the DSM, the data was not available. What happened was they combined the drugs for this version. So I don't know where this came from. In the last version of the DSM, there was a separate caffeine-induced anxiety disorder.
Q. And the prevalence was unknown?
A. Was unknown.
Q. Caffeine is used intentionally to prevent sleep, correct?
A. Yes.
Q. And you recognize that preventing unwanted sleep such as when driving long distances is a benefit of the effects of caffeine, correct?
A. Correct.
Q. You also recognize that low to moderate doses of caffeine typically produce a profile of positive subjective effects, including increased energy, arousal, alertness, and sociability, correct?
A. Yes, except for those effects are demonstrated among chronic users who have been deprived of caffeine or people who don't use caffeine.
Q. Do you also agree that caffeine reliably increases performance on task performance that has been degraded by fatigue, correct?
A. Can you repeat the question?
Q. Sure. Do you also agree that caffeine reliably increases performance on task performance that has been degraded by fatigue, correct?
A. Again, those effects are shown among chronic caffeine users who are in a state of abstinence or non-users. So the caveat is yes, you do see those effects reliably, but you have to first tell chronic users to not use caffeine for 12, 24 hours. And then they are in fatigue, or they are
decremented, and then they feel great when you give them caffeine, and they perform better.

Q. Do you observe those effects in users who are non-users of caffeine?

A. You do, but the problem is they are harder to see because sometimes you induce anxiety. So the benefits in a non-user of caffeine, which is only about 10 percent of the population, the problem is when you try to use them in research, you start seeing all these negative subjective effects at low doses; so it's hard to even show the benefits. And then you have the population issue.

But in some individuals in low dosage you can see increased talkativeness, sociability. Typical profile of stimulant effects at low doses.

Q. And you also agree that caffeine at normal dietary doses increases tapping speed, reaction time, sustained attention or vigilance, and perhaps also focused attention, correct?

A. Correct, with the same caveat in place. You need to have chronic caffeine users abstain, and you can reliably show these effects.

Q. Let's talk for a moment about caffeine withdrawal. Caffeine withdrawal results from abrupt cessation of caffeine after daily prolonged use, correct?

A. Correct.

Q. I think you mentioned earlier that the effects are temporary, correct?

A. Caffeine withdrawal usually lasts from two to
nine days. It actually lasts for a shorter amount of time because most people consume caffeine. So you don't usually see people going out nine days.

Q. Right. And that's because if you have a cup of coffee or a cup of tea that contains caffeine as well, the systems disappear, correct?

A. The symptoms, within 30 to 60 minutes.

Q. So the symptoms of caffeine withdrawal disappear within 30 to 60 minutes after having a small amount of caffeine, correct?

A. Yes. You'd have to define small, but after having a dose of caffeine, in my research, we administer, you know, a 280 milligram dose of caffeine, and withdrawal remits within about 60 minutes.

Q. It could be a cup of coffee, correct?

A. A cup of coffee.

Q. It's your recommendation that in order to avoid any potential serious withdrawal symptoms, people should limit their daily caffeine consumption to 400 milligrams of caffeine, roughly two to three eight-ounce cups of coffee, correct?

A. Can you repeat the question?

Q. Sure. It is your recommendation that in order to avoid any potentially serious withdrawal symptoms, people should limit their daily caffeine consumption to 400 milligrams of caffeine, roughly two to three eight-ounce cups of coffee, right?

A. No, absolutely not. That's much more caffeine
than is necessary to produce physical dependence and withdrawal upon abstinence. So 400 milligrams, that value comes from a different analysis of caffeine, but one thing that needs to be considered is that at lower doses, people will experience caffeine withdrawal but only if they miss a dose.

Q. Do you recall having an interview with an Eric Pfeiffer of Yahoo News?

A. No.

Q. You published peer-reviewed articles in which you state that caffeine, when consumed at less than 400 milligrams per day, is a relatively safe drug that offers some functional and perhaps health protective effects, correct?

A. I agree with that statement so long as you can procure a daily dose. That statement does not say therefore, you can use it and not be subject to caffeine withdrawal. Because, as I said before, being physically dependent on a drug is not in and of itself considered problematic unless you cannot procure a dose, and the thing about caffeine in our society is that you can get a dose of caffeine every day.

Now, you know, I talked to soldiers and so forth. They don't always have the same luxury. But for the most part, unless you are having surgery or something, you can avoid withdrawal. Now, the story would be a different one if all of a sudden we couldn't procure those doses. So that statement I agree with so long as you can maintain your addiction and daily dose.
Q. You'd agree that as long as you can maintain your coffee consumption, it's a relatively safe drug?

A. The safe refers to no long-lasting chronic health effects as we see with, let's say, tobacco. My area of research, I study psychological effects. We don't usually call anxiety dangerous. We don't call insomnia dangerous. But those are effects that disrupt people's quality of life and are unwanted, and psychologists such as myself are to help people avoid those if possible.

Q. So you're not speaking of long-term health effects?

A. No, that is not my expertise or research.

MR. BRAS: Your Honor, I think that's all I have.

THE COURT: All right. Thank you. Any redirect?

REDIRECT EXAMINATION

BY MR. METZGER:

Q. Dr. Juliano, there's a monitor in front of you. Do you see that?

A. Yes.

Q. In giving your testimony, did you need to look at or read any Power Point slides?

A. No.

MR. METZGER: Thank you.

THE COURT: All right. May Dr. Juliano be excused?

All right. Thank you, you may step down, and you'll be excused. Before you do that, just a moment to take care of some procedural matters.
Let's line up the schedule for tomorrow.

MR. METZGER: Tomorrow we have, I believe, motions and lots of rulings to be made by you on the deposition testimony excerpts of defendants' persons most knowledgeable regarding reduction of acrylamide in coffee. No live witness tomorrow. The next live witness will be -- Monday, I believe, is our next session.

THE COURT: Okay. All right. So we'll see everyone tomorrow morning at 9:00 o'clock. Thank you.

MR. MARGULIES: Your Honor, one matter briefly before we move on. With regard to what happens after this phase, we wanted to raise the issue of timing and order of proof. Given that we have so many companies, so many witnesses and trying to get a sense of timing, if the Court will recall in the briefs filed before the case, we have a very strong divergence of opinion as to what happens next.

Mr. Metzger's position is that he puts on a minimal piece of evidence. The burden shifts to the defendants. Our position is that the case should proceed according to the normal order of proof. Plaintiff puts on all of its evidence on whatever is left. We put on our response.

We've met and conferred on this at length many times. I don't think further meeting and conferring is going to be productive.

The Court's going to have to rule. I'm not suggesting it's today, but the sooner the better in terms of us and the logistics of all the lawyers and the 75 companies that have to be here.
THE COURT: All right. Well, we'll discuss that tomorrow morning since we don't have witnesses here.

MR. MARGULIES: Thank you.

THE COURT: All right. Thank you. The witness may step down. The court will be in recess.

(Proceedings concluded at 4:30 P.M.)
SUPERIOR COURT OF THE STATE OF CALIFORNIA
FOR THE COUNTY OF LOS ANGELES
DEPARTMENT 323                HON. ELIHU M. BERLE, JUDGE

CERT,                               )
        )
        ) CASE NO. BC 435759
        )
        )
        ) BC 461182

PLAINTIFF,

VS.

STARBUCKS CORP, ET AL.,

DEFENDANTS.

I, MARK SCHWEITZER, OFFICIAL COURT REPORTER PRO TEM
OF THE SUPERIOR COURT OF THE STATE OF CALIFORNIA, COUNTY OF
LOS ANGELES, DO HEREBY CERTIFY THAT THE FOREGOING TRANSCRIPT,
DATED SEPTEMBER 19, 2017, P.M. SESSION, COMPRISES A FULL,
TRUE, AND CORRECT TRANSCRIPT OF THE PROCEEDINGS HELD IN THE
ABOVE-ENTITLED CAUSE.

DATED THIS 19TH DAY OF JUNE, 2017.

MARK SCHWEITZER, RPR, CRR, CSR NO. 10514
EXHIBIT “C”
Laura M. Juliano,  
Ph.D. Curriculum Vitae  
May, 2017

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EDUCATION

National Institute on Drug Abuse Post-Doctoral Fellowship (August 2000- August 2002)  
Johns Hopkins University School of Medicine  
Department of Psychiatry and Behavioral Sciences  
Behavioral Pharmacology Research Unit

Ph.D., Clinical Psychology (August 2000)  
State University of New York at Binghamton  
Minor concentrations: Health Psychology, Drug Dependence

APA Accredited Clinical Internship (July 1999 - July 2000)  
Medical University of South Carolina

M.A., Clinical Psychology (January 1997)  
State University of New York at Binghamton

B.A., Psychology (May 1990)  
State University of New York at Binghamton  
Minor: Human Services

ACADEMIC APPOINTMENTS

2015-present  Professor, Department of Psychology, American University, Washington D.C.
2009-2015  Associate Professor, Department of Psychology, American University, Washington D.C.
2002-2009  Assistant Professor, Department of Psychology, American University, Washington D.C.
2000-2002  Adjunct Instructor, Department of Psychology, Loyola College, Baltimore, Maryland

HONORS/AWARDS

- NIDA Travel Award, American Psychological Association, August, 2004  
- Mentor/student Travel Award, American Legacy Foundation, Feb., 2003  
- Outstanding Dissertation Award for Division 28 of the American Psychological Association, 2002  
- NIDA Director’s Travel Award, College of Problems on Drug Dependence, June, 2001  
- Laura Griffin Humanitarian Award, Medical University of South Carolina, July, 2000  
- Outstanding Academic Performance in Harpur College, May, 1990  
- Psi Chi: National Honor Society in Psychology, May, 1989
EXTERNAL GRANTS

Awarded Completed


Principal Investigator (Awarded 9/2004). Disentangling Pharmacological and Expectancy Effects. National Institute on Drug Abuse. 1R03 DA18709. $50,000 (direct)

INTERNAL GRANTS

Principal Investigator (Fall, 2015). The effects of smoking availability and smoking stimuli on motivation to smoke. University Mellon Award, $3060.00.

Principal Investigator (2015-2016). Effects of energy drinks on sleep and daily functioning. Psychology Department Award. $10,000

Principal Investigator (Spring, 2015). Differences among menthol and non-menthol smokers in reward and behavior. American University Faculty Research Award. $10,000

Principal Investigator (Fall, 2013). Effects of energy drinks on young adults. American University Mellon Award, $1500.00

Principal Investigator (Fall, 2011). Predictors of smoking lapse to relapse progression. American University Mellon Award, $4000.00

Principal Investigator (Fall, 2010). Behavioral and personality traits of current smokers, former smokers, and never smokers. American University Mellon Award, $1500.00.

Principal Investigator (Spring, 2010). Disentangling the roles of conditioning and expectancy in motivation to smoke after a lapse. American University Mellon Award, $1000.00

Principal Investigator (Fall, 2008). Does sadness increase smoking motivation? American University Mellon Award, $2000.00

Principal Investigator (May, 2007). Disentangling the relationship between negative mood and smoking: An evaluation of cognitive control and gender as moderating variables. American University Faculty Research Award, $4800.00


Principal Investigator (Fall, 2002). Experimental analysis of caffeine withdrawal symptoms. American University. Mellon Award, $1982.00

PEER-REVIEWED PUBLICATIONS (in reverse chronological order)


**INVITED JOURNAL ARTICLES**


**BOOK CHAPTERS**


---

**INVITED TALKS**


Juliano, L.M. (April, 2006). *Disentangling pharmacological and non-pharmacological motives for smoking*. Department of Psychology. George Mason University, Fairfax, VA.


CONFERENCE POSTERS/PAPERS


*Anderson, B.L. & Juliano, L.M. (May, 2010). Caffeine consumption in a college population: A survey study about adolescent caffeine consumption, caffeine withdrawal, and behavior. Presented at the 22nd annual meeting of the Association for Psychological Science, Boston, MA.


Brandon, T.H., Juliano, L.M., & Lazev, A.B. (March, 1998). Negative affectivity as a matching variable for smoking interventions. Presented at the Meeting of the Fifth International Congress of Behavioral Medicine, Copenhagen, Denmark.


Juliano, L.M. & Brandon, T.H. (November, 1995). Cue reactivity to smoking availability and environmental stimuli in heavy smokers. Presented at the meeting of the Association for the Advancement of Behavior Therapy, Washington, D.C.


*denotes student author

---

**TEACHING**

**Undergraduate Courses**
- Psychology as a Natural Science/Introduction to Psychology
- Psychology as a Natural Science Laboratory
- Understanding Human Behavior/Introduction to Psychology
- Psychology Drugs and Behavior
- Abnormal Psychology and Society/Behavior Disorders
- Psychology of Drug Dependence/Psychology of Addictions
- Introduction to Clinical Psychology
- Research Methods/Statistics/Behavioral Statistics
- Health Psychology
- Various Independent Study/Independent Reading Projects

**Graduate Courses**
- Master’s Thesis Seminar
- Psychological
- Research Drug Dependence Seminar
- Greenberg Ph.D. Seminars for Effective Teaching
UNIVERSITY SERVICE

Departmental Service/Committees
Graduate Curriculum Committee (chair, member)
Clinical Advisory Committee (member)
Undergraduate Curriculum Committee (chair, member)
Merit Committee (member)
Human Subjects Committee (co-chair, member)
Career Night (organizer and presenter)
Graduate School Information Session (organizer and presenter)
Psychology Department Annual Open House Meet and Greet (organizer)
Ethics Comprehensive Exam (organizer)
Clinical Research Comp (organizer)
APA Reaccreditation Committee
Faculty Search Committee
Committee member for students’ theses, dissertations and comprehensive exams
Undergraduate Psychology Major Advisor

University Service/Committees
Ad hoc faculty search committee, Public Health (AY 2015-2016)
Committee on Faculty Actions (AY 2015-2016)
Faculty Senate: Committee on Graduate Curriculum (AY 2013-2014; 2014-2015)
The Greenberg Ph.D. Seminars for Effective Teaching, Faculty Advisor (2011-2015)
Institutional Review Board, Backup Member (Spring 2010 – July 2013)
Committee on Learning Assessment, Member (Fall 2006-Fall 2010)
Family and Medical Leave Ad Hoc Committee, Member (Fall 2006-Spring 2009)
Pre-Medical Program Advisor (2006-2011)
Faculty Senate Committee on Information Services, Member (Spring 2004-Spring 2006)

PROFESSIONAL SERVICE

Appointed Advisor, DSM-5 Substance Use Disorders Workgroup (2011-2013)
Program Committee, Annual conference of the Society for Research on Nicotine and Tobacco (2005)
Reviewer, National Cancer Institute Ad Hoc Scientific Review Committee (November, 2003)

Editorial Service

Associate Editor
Journal of Caffeine Research (forthcoming)

Editorial Board Member
Journal of Caffeine Research (2011-present)
Ad hoc Reviewer
Journal of Caffeine Research
Nicotine and Tobacco Research
Psychology of Addictive Behaviors
Psychopharmacology
Journal of Consulting and Clinical Psychology
Experimental and Clinical Psychopharmacology
Pharmacology, Biochemistry, & Behavior
Journal of Abnormal Psychology
Addiction
Physiology and Behavior
Health Psychology
Drug and Alcohol Dependence
Canadian Medical Association Journal
Journal of Psychopharmacology
Journal on Studies on Alcohol and Drugs

PROFESSIONAL ASSOCIATIONS

Society for Research on Nicotine and Tobacco
Association for Behavioral and Cognitive Therapies
American Psychological Association (Division 28)
## MENTORING

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<th>Students Former</th>
<th>Degree</th>
<th>Graduation Date</th>
<th>Current Position</th>
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<tr>
<td>Lisa M. Fucito</td>
<td>Ph.D. (Clinical)</td>
<td>2008</td>
<td>Assistant Professor, Yale University School of Medicine</td>
</tr>
<tr>
<td>Paul T. Harrell</td>
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<td>Britta L. Anderson</td>
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<tr>
<td>Edward D. Huntley</td>
<td>Ph.D. (Clinical)</td>
<td>2012</td>
<td>Post-doctoral fellow, University of Michigan</td>
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<tr>
<td>Kathryn C. Ross</td>
<td>Ph.D. (BCAN)</td>
<td>2014</td>
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<td>Babita Das</td>
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<td>2014</td>
<td>Post-doctoral fellow, University of Maryland</td>
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<td>Christine Muench</td>
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<tr>
<td>Khatidja Ali</td>
<td>M.A. (Psychology)</td>
<td>2007</td>
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<tr>
<td>Sarah Moore</td>
<td>M.A. (Psychology)</td>
<td>2007</td>
<td>Crisis Counselor, Cornerstone Montgomery, Bethesda, MD</td>
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<td>Peter G. Kardel</td>
<td>M.A. (Psychology)</td>
<td>2010</td>
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<td>Lisa D. Notes</td>
<td>M.A. (Psychology)</td>
<td>2010</td>
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<td>Ashley T. Westerman</td>
<td>M.A. (Psychology)</td>
<td>2010</td>
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<td>Rachel Burgower</td>
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<td>2014</td>
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<tr>
<td>Sadaf Lotfalian</td>
<td>M.A. (Psychology)</td>
<td>2015</td>
<td>Clinical Doctoral Student, Catholic University</td>
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## Current

| Naomi Stahl | Ph.D. (Clinical) |
| Tommy Gunawan | Ph.D. (BCAN) |
| Kristina Murani | Ph.D. (Clinical) |

BCAN = Behavior, Cognition, and Neuroscience Doctoral Program
<table>
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<tr>
<th>Student</th>
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**Doctoral Students at Other Universities**

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