IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF FLORIDA
TAMPA DIVISION

JEFFREY THELEN,

Plaintiff,

v.

SOMATICS, LLC; AND ELEKTRIKA, INC.,

Defendant.

Case No.: 8:20-CV-1724

VOLUME V OF VII (pp. 1-257)

JURY TRIAL PROCEEDINGS
BEFORE THE HONORABLE THOMAS P. BARBER

June 6, 2023
8:28 a.m. to 6:08 p.m.

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(Proceedings recorded by mechanical stenography, transcript produced by computer-aided transcription.)

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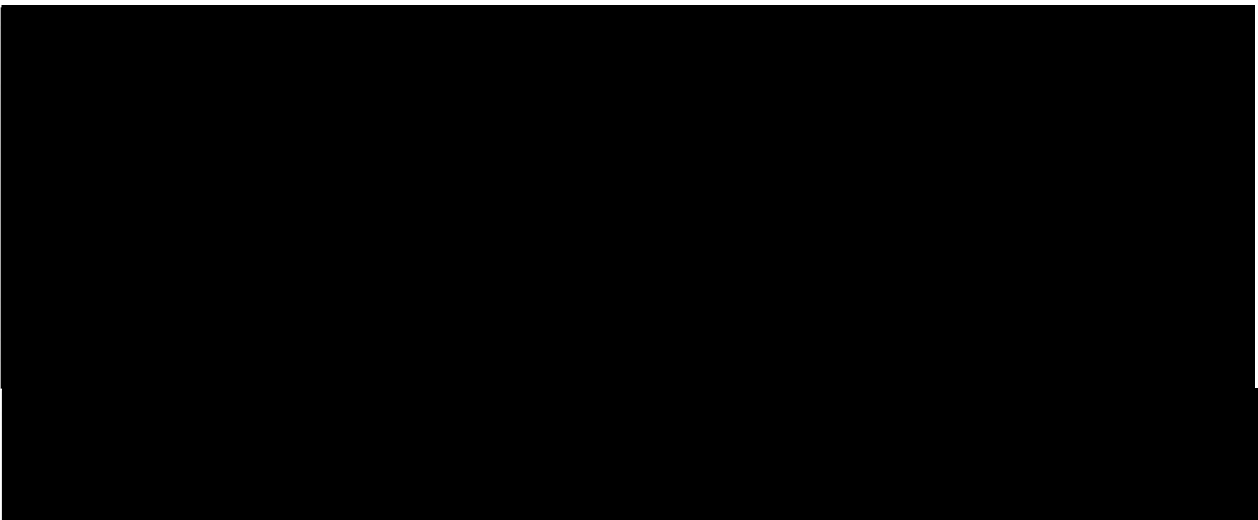

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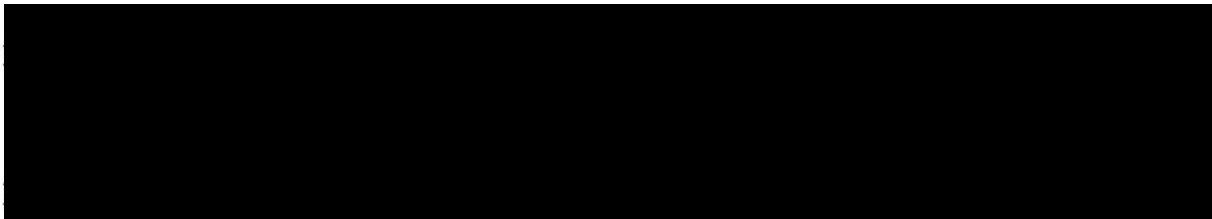

4 **THE COURT SECURITY OFFICER:** All rise for the jury.

5 (Jury in at 9:12 a.m.)

6 **THE COURT:** Morning, everybody. Welcome back.

7 You're smiling. Two people are smiling. Everyone else is just

8 happy to be here.

9 All right. We're ready to proceed with a live

10 witness, as I indicated yesterday. So let's go ahead and call

11 that witness up. Who is it?

12 **MR. BENKNER:** Defense calls Dr. Conrad Swartz.

13 **THE COURT:** Come on up, please. While he's coming

14 up, I'm going to try to give you some guidance here. Normally,

15 there's a point in the trial where we say the plaintiff rests,

16 and then it goes to the other side. If we're in a criminal

17 case, the prosecution rests.

18 Because we're calling witnesses one time only, some

19 of these witnesses would be called in the other person's case,

20 so this next witness is a witness, correct me if I'm wrong, but

21 I think he's a witness that both sides want to call. Right?

22 **MR. BENKNER:** That's correct.

23 **THE COURT:** So, therefore, the plaintiff isn't really

24 resting their case, because this witness is part of the

25 plaintiff's case, but he's also part of the defendant's case.

1 So there's not a clear demarcation, but I think you can keep
2 that straight in your minds. All right?
3 Raise your right hand, please.
4 WHEREUPON,
5 **CONRAD SWARTZ, PhD, MD,**
6 was called as a witness and, after having been first duly
7 sworn, testified as follows:
8 **DIRECT EXAMINATION**
9 **THE COURT:** Very good. Right there.
10 **THE COURT SECURITY OFFICER:** Right here, sir.
11 **THE COURT:** Tell us your name and how to spell it
12 please.
13 **THE WITNESS:** My name is Conrad Melton Swartz.
14 C-o-n-r-a-d, S-w-a-r-t-z.
15 **THE COURT:** Okay. Go ahead, give your attention to
16 him. He's going to ask you some questions.
17 **BY MR. BENKNER:**
18 **Q.** Good morning, Doctor. Can you hear me okay?
19 **A.** Yes, Jason. Thank you.
20 **Q.** Perfect. To start, can you tell us a little bit about
21 your educational background?
22 **A.** Sure. I started -- I went to Brooklyn Technical High
23 School with a technical academic bachelor's degree, where I got
24 the chemistry golden medal. And then I went to Cooper Union
25 School of Engineering, which is a college in Manhattan where I

1 earned a degree in engineering with a specialty in chemical
2 engineering, and I finished that in three years. Then went to
3 Cal Tech for my master's degree in chemical engineering, which
4 I earned in a year.
5 And then I went to University of Minnesota, Department of
6 Chemical Engineering, where I earned a doctorate in chemical
7 engineering with a thesis that was entirely mathematical
8 physics. And that took me four years. Then I went to medical
9 school at the University of Minnesota where I graduated in
10 three years. And following that, an internship in straight
11 internal medicine at Abbott Northwestern Hospital of
12 Minneapolis, affiliated with University of Minnesota. And then
13 a residency, full residency in psychiatry at the University of
14 Iowa Hospitals & Clinics in Iowa City.
15 After that, I was invited to join the faculty where I did
16 join the faculty. That was the start of my academic career.
17 **Q.** Thank you, Doctor, for that.
18 You had a couple references in there to chemical
19 engineering. Can you explain for us what that is?
20 **A.** Sure. Chemical engineering is a field that focuses on the
21 production of materials that we use in everyday life, whether
22 gas, liquid, or solid. It is involved with the description of
23 flows and accumulations and changes in fluids, gases, slurries,
24 electric -- heat, heat transfer, chemical reaction products,
25 and, similar, occasionally involved with some electricity, and

1 that's what it is.
2 **Q.** And you had mentioned heat transfer. Can you elaborate on
3 what that means?
4 **A.** That generally means the transfer of heat from one
5 material to another, generally following a flow of heat from
6 hotter to cooler areas. This, of course, is an important part
7 of refrigeration and heating places and controlling the
8 temperatures of chemical reactions and controlling the
9 temperatures of fluids in distillation of petroleum and so
10 forth.
11 **Q.** Are you board certified?
12 **A.** Yes, I'm board certified in general psychiatry and also
13 with a specialty in geriatric psychiatry. I remain board
14 certified in general psychiatry, but I allowed my geriatric
15 psychiatry to lapse when I retired from active academic
16 practice.
17 **Q.** Can you explain what geriatric psychiatry is?
18 **A.** Geriatric psychiatry is a field that specializes in the
19 field of older adults. Different doses of medications are
20 commonly used. There's a special development of knowledge in
21 evaluating and treating dementia and cognitive impairments and
22 making the distinction between cognitive, mild cognitive
23 impairment, and dementia, and in using medications to alleviate
24 the cognitive impairment and in cutting the agitation that
25 often accompanies dementia that makes the poor souls who have

1 dementia difficult to manage.
2 **Q.** Thank you. As a board certified psychiatrist, does that
3 also mean you're a medical doctor?
4 **A.** Yes. I graduated medical school and did an internship.
5 I'm fully licensed to practice medicine and surgery without
6 limit, according to my license.
7 **Q.** Okay. And as a medical doctor, did you ever have a
8 clinical practice where you saw patients?
9 **A.** Well, ever since I started my internship, internal
10 medicine, I have been involved with clinical practice through
11 every job that I've had until I retired from full-time academic
12 practice in 2006. Then I've had several part-time jobs since
13 then just to stay active, and because I enjoy seeing patients
14 and helping them, and because I can.
15 **Q.** What was the focus of your clinical practice?
16 **A.** Generally, I treated the patients that other psychiatrists
17 had trouble treating. They were referred to me all throughout
18 my career, and I just focused on skills for evaluating and
19 treating them. Sometimes at the University of Iowa, I was
20 known as the medical hypnotist. And, oddly, I was the only one
21 there who did that. But it was important for certain patients,
22 who actually needed hypnosis to get better.
23 And I also learned other methods for studying and treating
24 the most seriously ill, such as involving the mathematical
25 analysis of blood levels of drugs and electroconvulsive

1 therapy.
2 **Q.** That's where I was going to go next. Your medical
3 practice also included prescribing and recommending ECT.
4 Correct.
5 **A.** Yes, but not all jobs had that. In some places, ECT is
6 not available, and that was very difficult.
7 **Q.** When did you first become interested in the field of ECT?
8 **A.** When I was a resident in 1975 at the University of Iowa,
9 all of us residents were required to do a month of delivering
10 ECT. Standards were different then. And at the time, we were
11 the only doctors in the room. But everything went smoothly
12 anyway.
13 Anyway, but what I saw was patients change, improve from
14 being unable to take care of themselves, including basic body
15 needs to looking normal within a few weeks. It allowed them to
16 regain the respect of other people and of themselves. Many of
17 them were -- had very poor, weak memory of how sick they were
18 before the treatment, and it was an awakening.
19 **Q.** Thank you, Doctor.
20 Have you also taught other physicians or psychiatrists how
21 to practice ECT in the field?
22 **A.** Yes. Ever since I began being a faculty member at the
23 University of Iowa, I was involved in teaching them and
24 delivering courses and explaining and reviewing articles and
25 literature.

1 I clearly remember one resident in Iowa City telling me
2 that between the hypnosis and the ECT I taught him, he knows
3 how to treat most of the patients. So the biological took care
4 of the ECT and the psychological was treated with hypnosis is
5 what he meant.
6 My role in teaching varied from course work in rooms to
7 hands-on demonstrations and supervision in the hospital with
8 psychiatry residents, teaching them how to give ECT. At one
9 particular place, they worked with me for two months. And at
10 the end of that, I gave them an oral examination. And if I was
11 satisfied with the knowledge, I issued them a certificate
12 saying they had demonstrated knowledge to my satisfaction.
13 **Q.** Thank you.
14 Have you also conducted research into the field of ECT?
15 **A.** Yes. In many different aspects, but I have a special
16 interest in decreasing the side effects of the ECT, the
17 cognitive side effects of ECT. And I have about half a dozen
18 different approaches that I have developed, some of which I've
19 introduced to decrease the side effects of ECT.
20 **Q.** Has any of that research been published in peer-reviewed
21 journals?
22 **A.** Yes, all of it has.
23 **Q.** Okay. How many times have you been published in
24 peer-reviewed journals related to the field of ECT?
25 **A.** Well, last count was about 65 publications that are full

1 articles and another 30 or so that are letters. These letters
2 aren't like hello. They're like short explanations of new
3 ideas that aren't full studies. They're small studies or just
4 concepts.
5 **Q**. And over the course of your clinical medical practice, how
6 many people would you say that you've treated with ECT?
7 **A**. It's been a long career, and I estimate it's at least
8 1,500 people.
9 **Q**. And over the course of your career, are you able to tell
10 us about how many treatments you've administered to those
11 patients?
12 **A**. That's easier, because I can say I know my median number
13 of treatments is eight per patient. So eight times 1,500 is
14 12,000.
15 **Q**. Now, you co-own the company Somatics, LLC with Dr. Richard
16 Abrams. Correct?
17 **A**. Yes. That's correct.
18 **Q**. How did you first meet Dr. Abrams?
19 **A**. That was in 1982. When I interviewed for jobs, my wife
20 and I and family were living in Iowa City. We decided we would
21 like to live somewhere else. I interviewed for several jobs
22 and several job offers, and one of them was at the VA medical
23 center in north Chicago, Illinois, where Dr. Abrams was
24 directing ECT services for the medical school, and the hospital
25 was the affiliated hospital, the main hospital for that medical

1 school. And they were looking for a director of ECT services
2 in the hospital.
3 **Q**. When you met him, what was Dr. Abrams doing for a living?
4 **A**. He was a professor of psychiatry at Chicago Medical
5 School. And he was writing papers, getting grants, teaching
6 medical students and psychiatry residents.
7 **Q**. So he was a medical doctor as well?
8 **A**. Yes. He was board certified in psychiatry. And he had
9 written several research papers on the nature of mania and
10 endogenous, which means biological, depression, that I had
11 studied and had learned a lot from. So I was expecting I would
12 learn a lot by interacting with Dr. Abrams.
13 **Q**. Did Dr. Abrams also recommend and administer ECT to
14 patients?
15 **A**. He recommended ECT. I was the one -- when I began there,
16 I was the one who administered it.
17 **Q**. I see.
18 **A**. But when I was gone on vacation or to a meeting, he would
19 substitute for me.
20 **Q**. Did Dr. Abrams also conduct research into the field of
21 ECT?
22 **A**. Dr. Abrams has many papers. I didn't count on his CV how
23 many he published, but he has five books and dozens of papers.
24 **Q**. All on the field of ECT?
25 **A**. That's right. He and I have collaborated on maybe a dozen

1 publications.

2 **Q.** So what led you and Dr. Abrams to design and put out your

3 own ECT device?

4 **A.** At the time, the most common ECT device was a sine wave

5 device. They're basically -- there are two kinds of ECT

6 electricity generators.

7 One generates sine wave and the other generates a series

8 of brief -- actually, very brief pulses that are spaced out.

9 Spaced -- that means there are lots of spaces in between the

10 pulses. And the sine wave ECT that I used at the University of

11 Iowa had impressive cognitive side effects. They were

12 temporary, but they interfered with care of patients on the

13 ward, and they didn't look nice. And the patients would see

14 each other on the ward, and it wouldn't look good that each

15 patient would see the other one suffering side effects of ECT.

16 As an example, it pains me to describe any of them, but

17 patients would put their socks on over their shoes with sine

18 wave ECT. And the extent of cognitive side effects would

19 accumulate along the course of ECT and take, oh, somewhere

20 between a week and four weeks to fade, and then the patient

21 would be -- only then could we really evaluate how much the

22 patient had returned to his normal self.

23 And in north Chicago, when I joined, they were using a

24 brief pulse machine, which was a MECTA Model C. And I could

25 immediately see an enormous difference in cognitive side

1 effects between the MECTA C brief pulse and the sine wave
2 devices that were used previously on my patients in Iowa. And
3 I had heard -- I had heard a lot of complaints from colleagues
4 in psychiatry that the MECTA device was awkward for them to
5 use, and it had just -- had difficulty in inducing seizures
6 with it. They would give the electrical stimulus and nothing
7 would happen, and the patients wouldn't get better.
8 Dr. Abrams and I attributed this to the fact that in order
9 to set the dose, as to say the charge or the energy, at any
10 particular resistance between the two electrodes, you had to
11 set four different dials on the MECTA device. And this seemed
12 to be -- to give unnecessary choices that were inefficient.
13 And a subset of those choices can be selected that are much
14 more -- that are known to be more efficient than the ones you
15 don't want to use.
16 And so the plan was to come out, reduce the device where
17 the stimulus dose would be set with a single knob, and
18 automatically the selection of the stimulus characteristics,
19 such as pulse width and frequency of the electrical pulses,
20 would be set by default in the machine.
21 **Q.** So what your goal was with putting out your own device,
22 then, was to simplify a brief pulse ECT machine and make it
23 more user friendly for the doctors. Is that correct?
24 **A.** That is right. More user friendly, less likely to
25 produce -- to choose inefficient electrical stimulus

1 characteristics. Because let's face it, psychiatrists are not
2 trained in physics or electricity. Very few. Very few.
3 **Q.** Doctor --
4 **A.** And I saw that I was.
5 **Q.** All right, Doctor. What is -- what was the first model
6 that Somatics put out?
7 **A.** Well, it was called the Thymatron. We now call it the
8 Thymatron Model I, because we came out with models with other
9 names. The present one is the Thymatron System IV. We could
10 have called it the Model IV, but for presentation purposes, we
11 like system better, because it had become part of the system of
12 using our electrodes and our mouth protectors with it.
13 **Q.** And is it also called System IV because there are four
14 total models that have been sold by the company?
15 **A.** Yes.
16 **Q.** And who does Somatics sell ECT devices to?
17 **A.** Only to hospitals. They're used only by hospitals.
18 **Q.** Why is that?
19 **A.** In the US, we sell only to hospitals. For other
20 countries, we sell to distributors who then sell only to
21 hospitals.
22 **Q.** Why is that?
23 **A.** Why is ECT given only in hospitals?
24 **Q.** Why do you only sell to hospitals?
25 **A.** Because ECT is only given to hospitals and by -- and by

1 the standard of practice, it may be used only by licensed
2 medical doctors, like surgery.
3 **Q.** Now, has Somatics, as a company, ever performed any
4 clinical trials on any of its ECT devices?
5 **A.** Clinical trials on humans?
6 **Q.** On humans. Correct?
7 **A.** No. Somatics has not, as a company, performed clinical
8 trials, but Richard Abrams and I have.
9 **Q.** And why hasn't Somatics, as a company, performed those
10 trials?
11 **A.** They didn't -- there was no need to in order to have
12 permissions to legally market the Thymatron device and to meet
13 all regulations --
14 **MR. ESFANDIARI:** Objection, Your Honor. Sidebar,
15 please.
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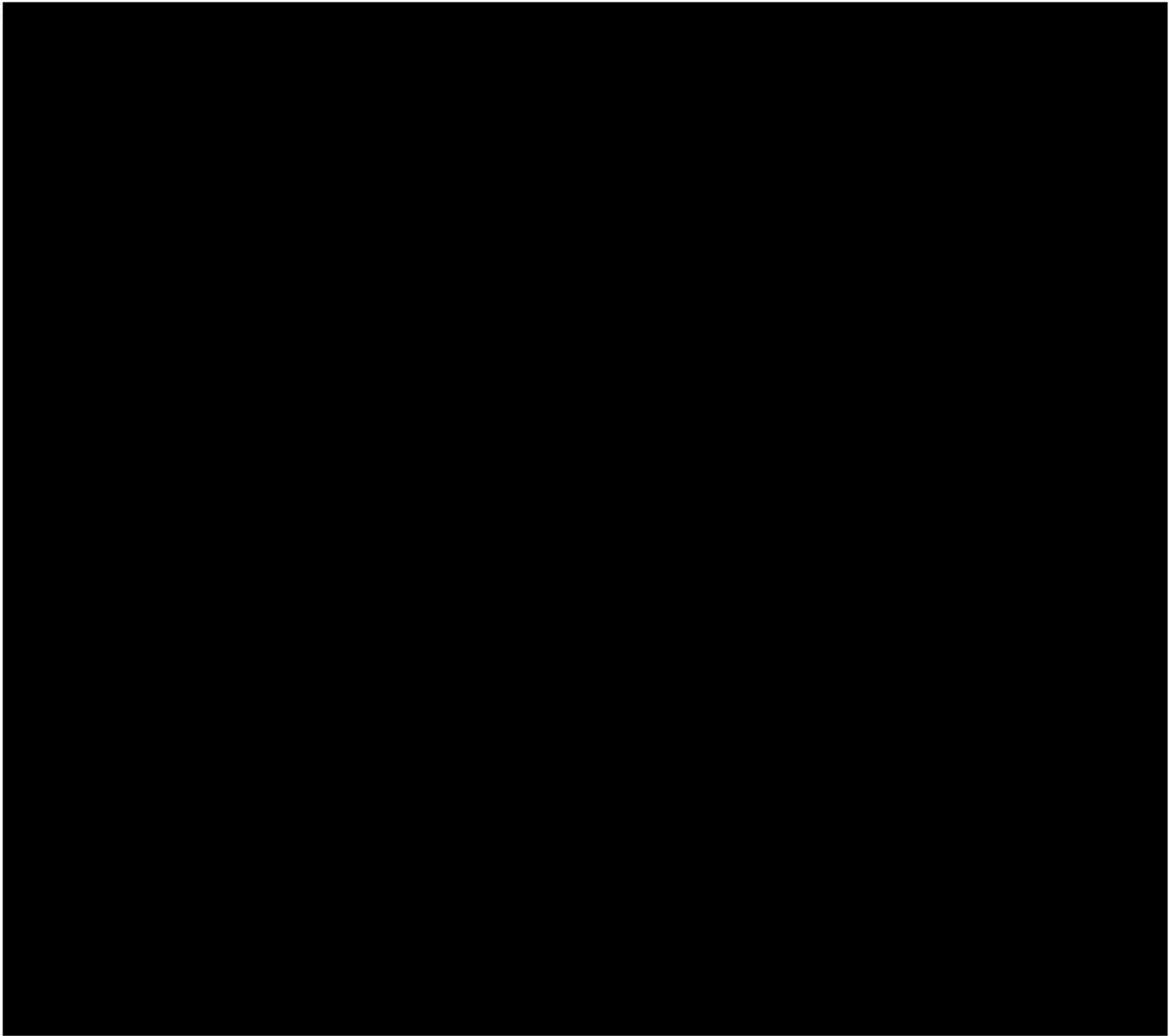

16 **BY MR. BENKNER:**

17 **Q.** All right. Thank you, Doctor, for that explanation.

18 A follow-up question for you, even though Somatics hasn't

19 done any clinical trials on humans, did it perform any kind of

20 safety tests at all on these devices before they offered them

21 to their customers?

22 **A.** Yes. Every single Thymatron device is examined repeatedly

23 before it's sold. It's first examined, the electronic

24 components are examined at the Elektrika, Incorporated, which

25 designed and produces the electronic assembly part of the

1 Thymatron. And then the final testing before sale is done at
2 Somatics. And these -- this testing uses sophisticated
3 electronic equipment to assure that the output of the -- the
4 electrical output of the Thymatron matches the specifications
5 within expected limits.
6 **Q.** Thank you, Doctor.
7 **A.** There's also -- each time a Thymatron is turned on, it
8 undergoes a series of self-tests to assure that it's operating
9 properly. I can --
10 **Q.** Can you explain what those self-tests are?
11 **A.** Well, there's a series of them. First, the alarm
12 circuitry is examined to make sure that it communicates with
13 the main circuitry of the Thymatron, that the microprocessors
14 and the controllers are functioning properly. And then the
15 different kinds of memory that are involved are read-only
16 memory, the static RAM and the dynamic RAM, are examined. And
17 then there are a few other tests I have to consult my papers,
18 papers on.
19 **Q.** Fair enough. Thank you.
20 I want to turn to the user manuals that are included with
21 the devices. Mr. Thelen, the plaintiff in this case, he
22 underwent ECT at CHI Hospital in Omaha, Nebraska. And it's not
23 in dispute that CHI received the February 2013 Thymatron
24 instruction manual either.
25 If we could pull that up, it's Plaintiff's Exhibit

1 Number 1. It might be on your screen in front of you. Do you
2 see that?
3 **A.** Oh, yes.
4 **Q.** Okay. Great.
5 Doctor, do you recognize this as the February 2013
6 Thymatron instruction manual?
7 **A.** Yes, I do.
8 **Q.** Okay. And I want to take a look at the opening
9 introduction -- there we go -- where it says, ECT is a complex
10 medical procedure. Its proper and safe conduct requires a
11 staff of professionals who are experienced with the procedures
12 and familiar with the medical literature concerning the risks,
13 benefits, complications, and methods of ECT. This literature
14 includes the major textbooks of ECT and of psychiatry, the
15 Journal of ECT, and publications about ECT that have appeared
16 in the major journals of psychiatry. As with other aspects of
17 medical practice, knowledge about ECT continues to change, and
18 clinicians are responsible for maintaining awareness of these
19 changes from the publications and other sources.
20 Did I read that correct?
21 **A.** Yes.
22 **Q.** Okay. Why did you, right out the gate, first page of the
23 manual, put this disclosure?
24 **A.** We wanted to make it clear to anyone who happened upon
25 this manual that it's intended for use by highly trained

1 specialists, and so is the ECT device. We didn't want any
2 confusion about that.
3 **Q.** Now, can we turn to Page 6 of the manual. Under the
4 section for "Indications of Use," can we blow that up?
5 **A.** Yes.
6 **Q.** Okay. And then that first sentence there says, "We
7 recommend that doctors planning to use the Thymatron System IV
8 read and follow the recommendations of the Task Force Report of
9 the American Psychiatric Association as set forth in The
10 Practice of Electroconvulsive Therapy, American Psychiatric
11 Association, 2001."
12 Did I read that correctly?
13 **A.** Yes. Thank you.
14 **Q.** Is this the book that you were referring doctors to read
15 in this passage of the manual?
16 **A.** Yes, it is.
17 **Q.** So you got a copy there as well?
18 **A.** Yes.
19 **Q.** You can take that down.
20 **A.** I bought this.
21 **Q.** You can put -- leave the manual back up, though, on that
22 same page.
23 Under the next section there, it says, "Patient Selection
24 Criteria." It also makes another reference to the APA book,
25 2001. Is that the same book that you're referring patients --

1 doctors to?
2 **A.** Yes, it is.
3 **Q.** And then the next section below that, which starts with
4 "Contradictions and Warnings." You see there's another
5 reference to the APA Task Force book. Right?
6 **A.** Yes. Contraindications and Warnings, yes.
7 **Q.** Contraindications and Warnings. Thank you. That's the
8 same book that you're referring doctors to read. Right?
9 **A.** Yes, it is.
10 **Q.** Now, speaking about this -- the APA book, why did you
11 select this book to include in your 2013 manual?
12 **A.** The answer is because it's authoritative and
13 knowledgeable. It was produced by the premium organization of
14 psychiatrists, the American Psychiatric Association, the most
15 honored and respected of all the psychiatric organizations.
16 And it was their obvious, they were now focused intent to
17 produce a manual that represents the standard by which --
18 standard practice by which ECT is conducted.
19 **Q.** Okay. Did the APA Task Force Report also discuss adverse
20 effects or side effects of treatment?
21 **A.** Yes. There's an entire chapter in here.
22 **Q.** And did you read that section before agreeing to put the
23 recommendation in your manual that doctors read the book?
24 **A.** Read the whole book.
25 **Q.** Do you believe that the Task Force book contains all of

1 the risks -- all of the known risks and side effects of ECT?
2 **A.** Yes.
3 **Q.** And you know that this book was published in 2001.
4 Correct?
5 **A.** Yes.
6 **Q.** Okay. And do you still believe it contains all of the
7 known risks and side effects disclosed in it?
8 **A.** Yes, I do. ECT has not actually changed that much since
9 2001.
10 **Q.** I want to go back to the manual, Page 4. We can blow up
11 that section that starts with "Disclaimer."
12 This one, Doctor, can you see that on your screen there?
13 **A.** Yes.
14 **Q.** Okay. And it says "Please note that nothing in this
15 manual constitutes or should be construed as a claim by
16 Somatics, LLC that confusion, cognitive impairment, or memory
17 loss, parentheses, short term, long-term, recent, remote,
18 transient, or persistent, cannot occur as a result of ECT, many
19 patients experiencing temporary loss of recent or remote
20 memories with ECT, particularly with traditional bilateral ECT.
21 A few patients have reported experiencing persistent loss of
22 memories or memory functions after ECT. These are subjective
23 symptoms that have not been related to observable structural
24 brain changes. Mental and physical illnesses, anesthesia,
25 medications, and postponement of treatment each have their own

1 adverse effects which can be substantial."

2 Did I read that correctly?

3 **A.** Yes.

4 **Q.** How did that disclaimer language make it into the manual?

5 **A.** Richard Abrams and I had several arguments about how it

6 should be phrased. Some of these arguments were emotional, but

7 it was my intent that we include language such as this. I'm

8 quite satisfied with the result.

9 **Q.** Do you believe that this -- the language in this section

10 that we just read, do you believe that it accurately reflects

11 what's being stated here in terms of the risks of ECT?

12 **A.** I think it overstates the risks of ECT.

13 **Q.** And do you believe that this language was necessary in

14 light of the fact that the manual was already instructing

15 doctors to read the APA Task Force Report disclosures?

16 **A.** It was not necessary. We were just trying to promote

17 awareness of this particular section in the APA Task Force

18 Report. After all, it's an important topic, and we wanted to

19 keep this in mind of the physicians who give ECT.

20 **Q.** Thank you, Doctor.

21 Now, I want to switch gears with you a little bit.

22 You can take that down.

23 Doctor, are you concerned at all about the amount of

24 electricity that's put out by ECT devices?

25 **A.** No, I am not. It is not much.

1 **Q.** Okay.

2 **A.** It's very controlled and limited and given a little at a

3 time.

4 **Q.** Have you studied this issue before?

5 **A.** Oh, yes. I have several publications on precisely this

6 matter.

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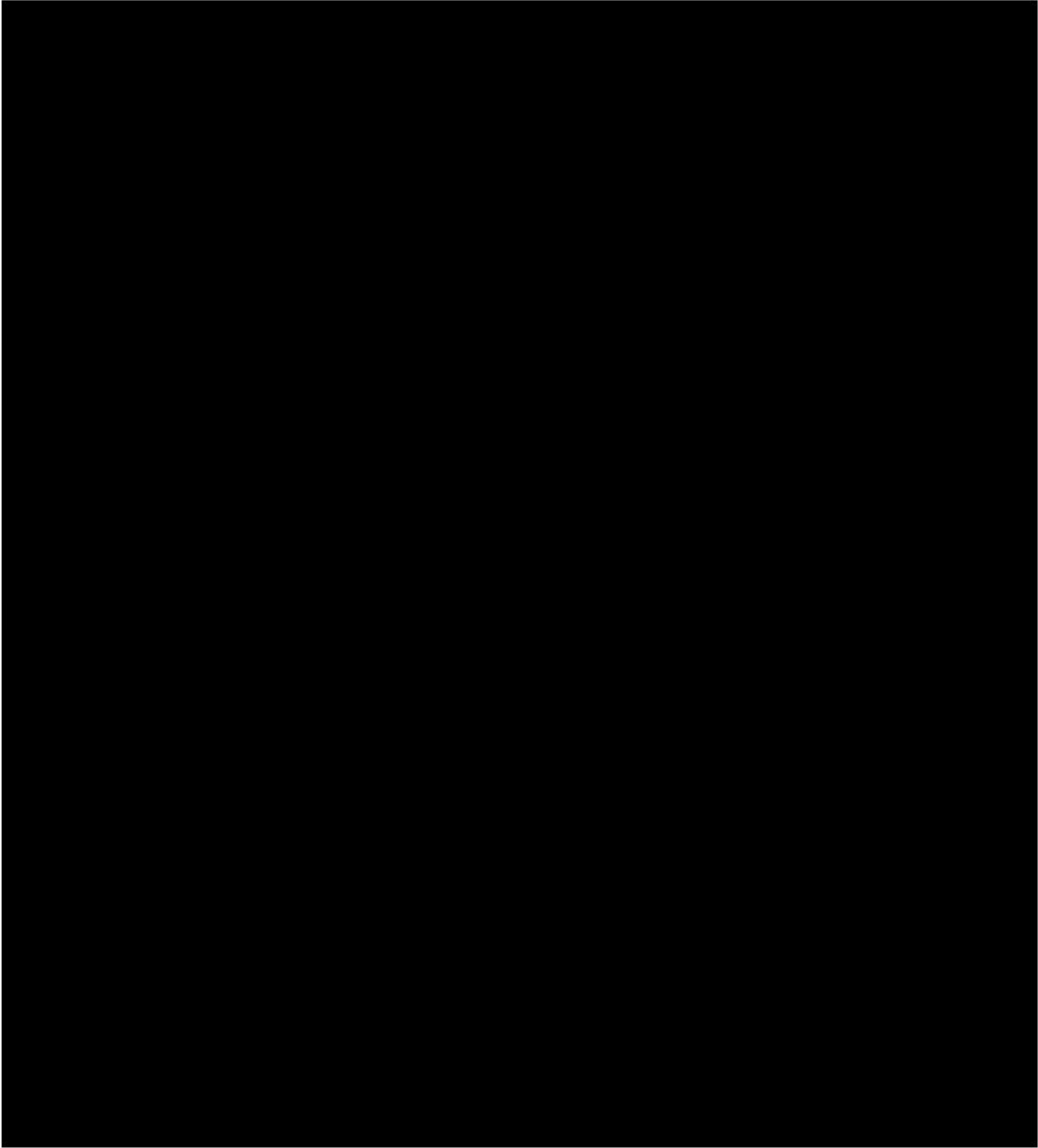

THE COURT: Go ahead.

MR. BENKNER: Can I have the last question read back, please?

THE COURT: The last question was, "Have you studied this issue before?"

He said, "Oh, yes, I have several publications on

1 precisely this matter."

2 **BY MR. BENKNER:**

3 **Q.** Doctor, when were you first published on this topic?

4 **A.** Topic of pulse width?

5 **Q.** Examining the electricity that comes out of the ECT device

6 to determine if it was safe or dangerous.

7 **A.** I suppose that the first one was the -- the publication in

8 the "Journal of ECT" in 1989, "Safety and ECT Stimulus

9 Electrodes: Heat Liberation at the Electrode-Skin Interface."

10 **MR. BENKNER:** I've given a copy to counsel.

11 Permission to publish?

12 **MR. ESFANDIARI:** Your Honor, this -- we decided he

13 can't publish on direct, articles.

14 **THE COURT:** Well --

15 **MR. ESFANDIARI:** We weren't permitted to do so.

16 **THE COURT:** No. This is his study. Yes?

17 **MR. BENKNER:** Correct.

18 **THE COURT:** And it's not being admitted. It's

19 being -- he's being questioned about it in court about it.

20 That's fine. Go ahead.

21 **THE WITNESS:** That's it.

22 **BY MR. BENKNER:**

23 **Q.** Title of this article is called "Safety and ECT Stimulus

24 Electrodes: Heat Liberation at the Electrode-Skin Interface."

25 Correct?

1 **A.** Yes.
2 **Q.** That's your name right there as the author?
3 **A.** Yes.
4 **Q.** What journal was this article published in?
5 **A.** At the time it was called "Convulsive Therapy." And the
6 journal title has changed to the "Journal of ECT" a few years
7 later.
8 **Q.** What year was this published?
9 **A.** 1989.
10 **Q.** This is a peer-reviewed journal?
11 **A.** Yes. Each paper is individually peer reviewed.
12 **Q.** What were you examining in this study?
13 **A.** I was examining the safety of the electrical stimulus.
14 The question is, is there the possibility of injury from the
15 electricity itself?
16 **Q.** And how did you go about doing that?
17 **A.** By examining the energy of the electrical stimulus. The
18 electrical stimulus energy is converted into heat, according to
19 the law of conservation of energy. The energy doesn't
20 disappear. It's just converted from one form into another.
21 And the question then is, so how much heat does the electrical
22 stimulus produce? How much can it raise the temperature in the
23 brain or at the skin? Where does it raise the temperature?
24 And what are the risks, if any, from the temperature increase?
25 **Q.** What methodology did you employ to investigate that

1 question?

2 **A.** I used the methods of the modeling of physics with

3 mathematics.

4 **Q.** Are you able to articulate exactly what you did in order

5 to come up with your conclusions?

6 **A.** I will try. I calculated the amount of heat that is

7 produced by an electrical stimulus. The maximum electrical

8 stimulus in the Thymatron at 220 ohms, impedance, the average

9 impedances, which is resistance, which is 100 joules. Joules

10 are related to calories, which you're all familiar, as

11 centimeters are related to feet. So it's a conversion factor.

12 It's about 4 joules per calorie. So 100 joules of maximum

13 energy in a Thymatron equals 25 calories; 1 calorie is the

14 amount of heat it takes to raise the temperature of 1 gram of

15 water by 1 degree centigrade. So this is 25 calories, so this

16 could raise 25 grams of water by 1 degree Fahrenheit.

17 **Q.** What you just discussed --

18 **A.** Centigrade, 1 degree centigrade.

19 **Q.** 1 degree centigrade. Thank you. What you just discussed

20 there -- we now blow up your summary section. This identifies

21 your conclusion of the study. Correct?

22 **A.** Yes.

23 **Q.** It says "Calculations reveal that the electroconvulsive

24 therapy, ECT, stimulus cannot cause brain injury to brain

25 tissue, but poor electrode skin contact is a risk of skin

1 burn." Did I read that correctly?
2 **A.** Well, almost. You said brain injury to brain tissue.
3 It's burn injury to brain tissue.
4 **Q.** Burn injury to brain tissue. Thank you.
5 And so how are you able to come up with that conclusion
6 based off what you just told us about your methodology?
7 **A.** I just examined the amount of temperature increase that
8 can result from the electrical stimulus.
9 **Q.** I believe you said that temperature increase was 1 degree
10 centigrade. Is that right?
11 **A.** It's 1 degree centigrade per gram of water per calorie.
12 **Q.** Is that a lot of heat?
13 **A.** No.
14 **Q.** Are you able to give us any kind of idea of what that
15 would look like?
16 **A.** It's negligible. It's not palpable. As you know, we --
17 every day we eat thousands of food calories per day. Each food
18 calorie is 1,000 ordinary calories, such as I'm referring to.
19 So the amount of energy in our food is just enormously much
20 larger than the amount of energy in an ECT stimulus.
21 **Q.** If somebody is sick and they're running a fever, is this
22 greater or less than the amount of temperature change that
23 would be expected in the brain?
24 **A.** Much greater. We would expect the fever to be, let's say,
25 102 degrees throughout the entire body. Whereas, for an ECT

1 stimulus, we're talking about 25 calories over the entire head,
2 and the brain weighs -- the average male brain weighs
3 1,400 grams. So if the entire electrical -- maximum electrical
4 stimulus was delivered over the entire brain, it would raise
5 the temperature by less than .02 degrees of the entire brain
6 and, of course, of the entire head. Skin and scalp and
7 everything, it's much less than that. So .02 degrees is quite
8 tiny and well within the ordinary range of variation over the
9 day for a normal person, the circadian variation.
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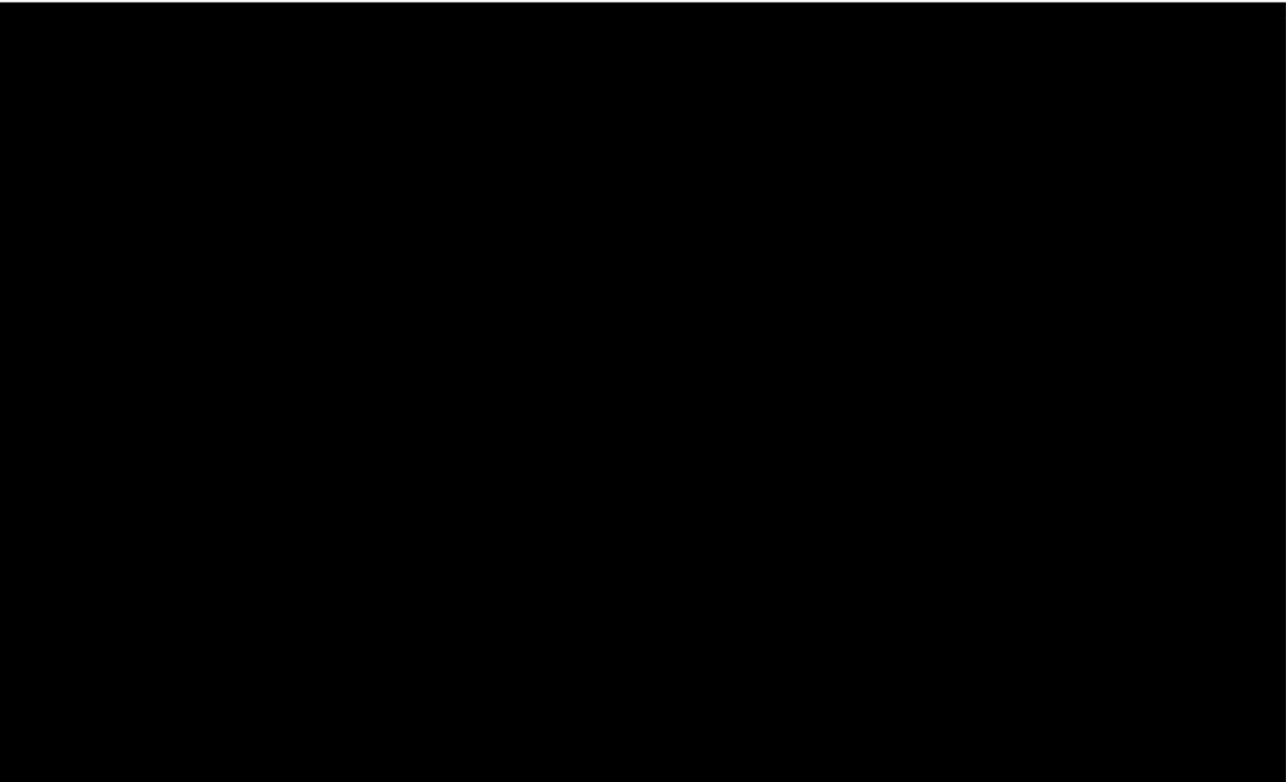

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11 **BY MR. BENKNER:**
12 **Q.** Doctor, I want to move on now. When you were a practicing
13 psychiatrist, did you ever review the scientific and medical
14 literature on ECT to stay current on what's happening in the
15 field?
16 **A.** Yes. To stay current and also to teach the students and
17 the residents with accurate current information and also to
18 improve the quality of the ongoing research studies that I was
19 trying to do.
20 **Q.** How often did you do that?
21 **A.** Several times a week usually. Oh, in addition, I did
22 referee articles submitted to journals on a variety of topics,
23 including ECT, and I had to review the literature for those,
24 too.
25 **Q.** What does that mean, referee?

1 **A.** Evaluate if the quality of the article to -- and make a
2 recommendation if it's good enough to be published.
3 **Q.** And what sources did you look at when you'd review the
4 scientific literature on ECT?
5 **A.** Generally, I would do a search on National Library of
6 Medicine contents and look for articles related to the topic
7 that I was looking for, such as adverse effects, temperature,
8 pulse width, so forth.
9 **Q.** And you've since retired from your clinical psychiatric
10 practice. Correct?
11 **A.** Yes. My last job was in 2019.
12 **Q.** And do you still stay current with the medical literature
13 on ECT?
14 **A.** Yes, I do. And one reason is I still have aspirations of
15 writing more publications. I just -- it's something I have
16 done so long, I enjoy doing.
17 **Q.** Throughout all of your review of the literature throughout
18 the years, have you ever come across any studies that have
19 concluded that ECT was causing a total and complete loss of
20 past memories experienced before the treatment?
21 **A.** Nope.
22 **Q.** And how about in your clinical practice in administering
23 ECT, have you ever come across any of your patients
24 experiencing a total and complete loss of past memories from
25 ECT?

1 **A.** Only briefly. Some of them -- some patients would become
2 quite confused after a course of ECT, especially with sine
3 wave.
4 **Q.** When you say briefly, are you talking about the time
5 frame?
6 **A.** Yes. Yes. I'm talking about, oh, a few days following
7 the last treatment.
8 **Q.** Would those memories return after a few days?
9 **A.** Yes, but they would.
10 **Q.** In your medical practice, have you ever seen ECT lift
11 depression in any of your patients?
12 **A.** Well, yes, indeed. That's why we give it. Now, the
13 meaning of what depression is can become very technical in
14 psychiatry. Lots of people say they are depressed. But in my
15 evaluation and that of Dr. Abrams and other professors, we
16 would say they are dissatisfied and unhappy from anxiety
17 disorders or personality disorders or stressors in their lives
18 rather than having the illness of major depression.
19 **Q.** But in those instances where depression was an issue for
20 the patients, and you've administered ECT, have you found that
21 the ECT has helped those patients?
22 **A.** Yes. Nearly always. Nearly always.
23 **Q.** And in your medical practice, have you also seen ECT help
24 prevent suicide in any of your patients?
25 **A.** Oh, yes. The suicidal patients are generally funneled to

1 the ECT surface, to the ECT consultant to determine whether ECT
2 will help them. And I have been in that position many times in
3 my career as the person who decides whether ECT should be given
4 after referral from other psychiatrists. And I would say,
5 overall, about half the patients I accept for ECT, and the
6 other half I reject, because they're dissatisfaction is coming
7 from a condition that ECT does not treat.
8 **Q.** In those patients that you've treated that exhibited to
9 you signs of suicide or suicidality, have you seen that ECT has
10 helped them either by preventing the suicide?
11 **A.** Well, the people -- the suicidality was often the major
12 reason for the patients to be referred to me. And I would
13 reject ECT and those I thought it would not help, even if they
14 were suicidal. People with anxiety disorders and alcoholism
15 become suicidal too. And suicide is pretty common -- actually,
16 it's not as common -- it's most common in people with serious
17 major depression. But it is also far more common in the
18 general population and other people with PTSD, anxiety
19 disorders, and alcoholism.
20 **Q.** All right. Thank you, Doctor. No more questions for you
21 for now.
22 **THE COURT:** All right. Let's take a break now. If
23 you leave your tablets on the chairs. We'll let you know when
24 we need you back. Thank you.
25 **THE COURT SECURITY OFFICER:** All rise for the jury.

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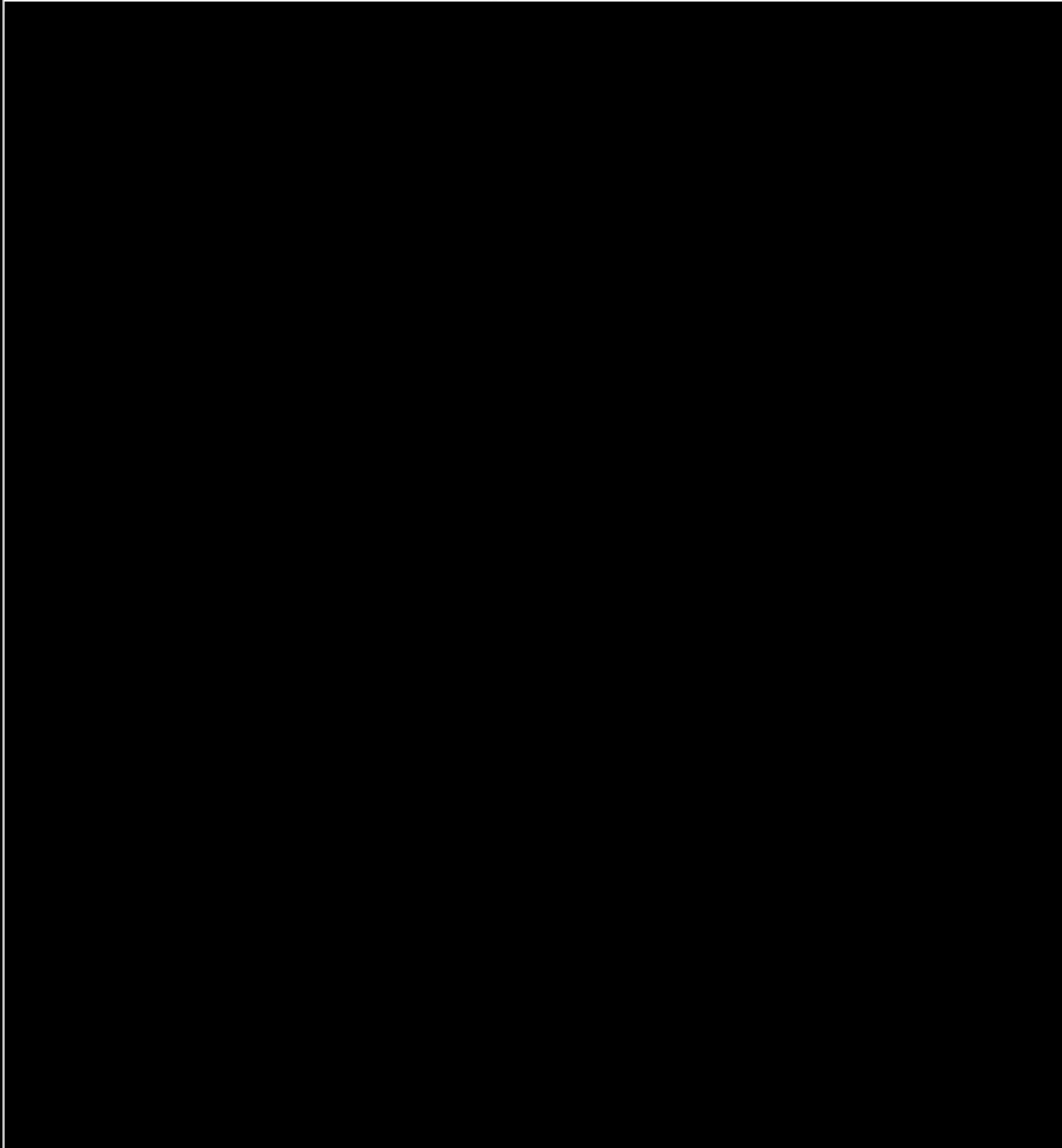


21 Bring the jury back, please.

22 **THE COURT SECURITY OFFICER**: All rise for the jury.

23 (Jury in at 10:22 a.m.)

24 **THE COURT**: Okay. Have a seat. Looks like we are

25 ready to go, whenever you're ready.

1 **MR. ESFANDIARI:** Thank you, Your Honor.

2 **CROSS-EXAMINATION**

3 **BY MR. ESFANDIARI:**

4 **Q.** Ready, Dr. Swartz?

5 **A.** I'm ready, sir.

6 **Q.** All right. You and Dr. Abrams formed Somatics in the mid

7 '80s. Correct?

8 **A.** Yes.

9 **Q.** And you testified that there is -- in your opinion, the

10 cognitive risks associated with sine wave are more dangerous

11 than the brief pulse machine, which is the Thymatron machine

12 you guys made. Is that correct?

13 **A.** They're more severe for a while.

14 **Q.** More severe for a while. So let me cut to the chase.

15 Does ECT, whether used in sine wave or ultra pulse or Thymatron

16 machine, does it cause brain damage?

17 **A.** It is not known to cause brain damage. There's no

18 evidence for it, and I have not seen that.

19 **Q.** All right. So are you -- when you formed Somatics and put

20 out your first Thymatron machine, were you familiar with the

21 literature that preceded you?

22 **A.** Yes.

23 **Q.** Did you rely on that literature in ensuring that your

24 product is going to be safe and effective?

25 **A.** Yes.

1 **Q.** Let me go through some of that literature. Were you
2 familiar with a paper by Alpers, called "The Brain Changes and
3 Electrically Induced Convulsions in the Human"?
4 **A.** I don't recall this particular one.
5 **Q.** You don't recall this paper. Were you aware that
6 Dr. Alpers published a number of publications inquiring whether
7 ECT causes brain damage?
8 **A.** I don't recall.
9 **Q.** The conclusions of this paper -- these were biopsies that
10 were done on individuals who had recently died after convulsive
11 therapy. Are you familiar with the literature that analyzed
12 the brain tissue of dead people after ECT?
13 **A.** I have seen at least some of that literature.
14 **Q.** And you agree with me that some of that literature
15 actually found what they attributed to be brain damage caused
16 by ECT?
17 **A.** I believe they claim that.
18 **Q.** So in this, this is one of the first publications you've
19 seen at the fourth finding, the possibility of sequelae
20 resulting from the brain damage, as suggested, and they've
21 gone -- they've discussed two individuals who underwent ECT.
22 Do you see that?
23 **A.** I see this.
24 **Q.** Are you familiar with a paper by Dr. Allen in 1959
25 entitled "Cerebral Lesions from Electric Shock Treatment"?

1 **A.** Some of this very early work, I haven't seen.
2 **Q.** I mean, this is -- so 1959 was approximately 25 years
3 before you started ECT -- the Thymatron machine. Correct?
4 **A.** Yeah.
5 **Q.** And you just told the jury that in the past 25 years, from
6 the time that the APA put out its book in 2001, not much has
7 occurred in the field of ECT?
8 **A.** Since 2001.
9 **Q.** Till 2001. What is your opinion as to how much
10 development had occurred in the field of ECT between 1950s and
11 1985 when you put out your machine?
12 **A.** Enormous changes.
13 **Q.** But you were not familiar with the literature that we just
14 looked at right now.
15 **A.** I was not familiar with this -- I believe I've seen -- I
16 saw the first paper with the punctate hemorrhages. I don't
17 think I saw this particular report, the second one.
18 **Q.** So let's look at this paper and its conclusion writes.
19 "Those observations showed the damage to the brain, sometimes
20 reversible but often irreversible, occurred in the course of
21 electric shock treatment."
22 Were you aware of these findings when you put out your
23 Thymatron machine into the public?
24 **A.** I was aware that such reports had appeared in the old
25 literature. Not this specific report.

1 **Q.** Are you familiar with a paper by Goldman from 1972?
2 **A.** I wouldn't say familiar. Maybe I had seen it.
3 **Q.** All right. This paper, "Long-term Effects of
4 Electroconvulsive Therapy upon Memory and Perceptual Motor
5 Performance," does this refresh your recollection, if you
6 recall this paper?
7 **A.** I don't recall it.
8 **Q.** In this study, this was not an autopsy report, but they
9 were -- in looking into people who had received more than 50
10 ECT treatments to determine what impact it had on their
11 cognition. Were you aware that such a study had occurred?
12 **A.** Nope.
13 **Q.** Let's look at the findings, Doctor.
14 **A.** We are skipping to findings here without reviewing
15 methods.
16 **Q.** I understand. But at least we're looking at it.
17 Apparently, you never looked at it when you put out the
18 machine. So it states, "The significantly greater error scores
19 obtained by ECT subjects on both the Bender-Gestalt and the
20 Benton," those are memory tests, "after a relatively long time
21 period since the last course of treatment suggests that ECT
22 causes irreversible brain damage."
23 Were you aware of that?
24 **A.** Nope.
25 **Q.** How about this paper from 1973 by Templer, "Cognitive

1 Functioning and Degree of Psychosis in Schizophrenics Given
2 Electroconvulsive Therapy"?
3 Are you familiar with this publication, Doctor?
4 **A.** No.
5 **Q.** In Templer, they were trying to test the conclusions from
6 the prior article that I showed you, the Goldman article.
7 Let's look at their findings.
8 The ECT patients' inferior Bender-Gestalt performance does
9 suggest that ECT causes permanent brain damage.
10 Were you familiar with that, Doctor?
11 **A.** No.
12 **Q.** Putting in front of you what we're identifying as the
13 article by John Friedberg, "Shock Treatment, Brain Damage, and
14 Memory Loss: A Neurological Perspective." This was published
15 in the American Journal of Psychiatry in 1977.
16 Are you familiar with this paper, Doctor?
17 **A.** No.
18 **Q.** This paper, they were looking into the issue of ECT and
19 brain damage. I want to look at the conclusions here. It
20 states, "Many psychiatrists are unaware that ECT causes brain
21 damage and memory loss because numerous authorities and leading
22 psychiatric textbooks deny these -- deny those facts."
23 Do you see that, Doctor?
24 **A.** I see it in front of me.
25 **Q.** When you -- since 1977, this is about eight years before

1 you formed Somatics. Correct?
2 **A.** Yeah.
3 **Q.** And so you were one of the group of psychiatrists who
4 apparently were unaware that ECT causes brain damage. Correct?
5 **A.** I was among a group of psychiatrists who understood that
6 ECT does not cause brain damage, that there's no evidence that
7 ECT causes brain damage.
8 **Q.** No evidence, notwithstanding --
9 **A.** No evidence.
10 **Q.** Notwithstanding the publications --
11 **A.** Notwithstanding this publication.
12 **Q.** Very well, Doctor.
13 You're familiar with a psychiatrist by the name of Max
14 Fink?
15 **A.** Yes.
16 **Q.** Dr. Fink actually prepared -- when you formed Somatics, he
17 prepared one of the first introductory videos that accompanied
18 your machine. Is that correct?
19 **A.** Yes. Well, no, it didn't accompany the machine. It was
20 available for purchase separately from the machine.
21 **Q.** Oh.
22 **A.** Somatics published it, like a book publisher publishes
23 books.
24 **Q.** This was an informational video that you would give to
25 psychiatrists. Correct?

1 **A.** That psychiatrists or hospitals would purchase from
2 Somatics.
3 **Q.** Is Dr. Fink an authority in the field of ECT?
4 **A.** Yes.
5 **Q.** Are you familiar with this publication from 1978, sorry,
6 comprehensive -- the journal is Comprehensive Psychiatry,
7 titled, "Efficacy and Safety of Induced Seizures in Man" by Max
8 Fink?
9 **A.** I don't remember this article.
10 **Q.** Drawing your attention to a section of this paper entitled
11 safety. I'm going to start reading from right here. "The
12 principal complications of EST" -- and EST is ECT. Correct,
13 Doctor?
14 **A.** Yes.
15 **Q.** It used to be called electroshock therapy back then.
16 Correct?
17 **A.** Yeah.
18 **Q.** But it's still the same electroconvulsive therapy?
19 **A.** Yeah.
20 **Q.** It states, "The principal complications of EST are death,
21 brain damage, memory impairment, and spontaneous seizures."
22 Did I read that correctly, Doctor?
23 **A.** Yes, you did.
24 **Q.** Were you aware of that when you put out your Thymatron
25 machine?

1 **A.** I was aware of his statement.

2 **Q.** You were aware of his statement?

3 **A.** Yeah.

4 **Q.** So you knew that a gentleman, who's an authority of the
5 field of psychiatry, someone who you went to to prepare a
6 promotional video for your machine, believed that ECT causes
7 brain damage?

8 **A.** I believe he had written that at the time.

9 **Q.** You never warned -- did the manual for Somatics' machine
10 ever warn about memory loss prior to 2006?

11 **A.** Manual for the Thymatron DG and DGX did warn. And this
12 was a device that was sold until 2001.

13 **Q.** So how about the Thymatron IV machine? Mr. Benkner talked
14 to you a little bit about the manual, and that in 2006, you
15 added, what is it, a disclaimer to it. Did that disclaimer
16 exist prior to 2006?

17 **A.** Specific wording under the name disclaimer, it was
18 introduced in 2006.

19 **Q.** Okay.

20 **A.** There was an earlier warning.

21 **Q.** Let me show you -- and the literature continued to look
22 into the issue of whether ECT causes memory loss and brain
23 damage. Do you agree with me, Doctor?

24 **A.** Yes.

25 **Q.** And many of the studies, because obviously -- you agree

1 with me that the best study in terms of analyzing brain damage
2 would be an autopsy?
3 **A.** I don't know.
4 **Q.** Are there changes that could occur to a brain that only an
5 autopsy would reveal, which would not be revealed, for example,
6 by the CT scan or an MRI machine?
7 **A.** I can say that there are changes in the brain that are
8 revealed only on MRI scans that do not appear on autopsy.
9 **Q.** So you're saying things appear on MRI, but don't appear in
10 an autopsy?
11 **A.** Yeah.
12 **Q.** How about the reverse? Are there things we find in an
13 autopsy when we're looking at brain tissue samples with
14 powerful microscopes that may not appear in an MRI machine?
15 **A.** I don't know.
16 **Q.** You don't know. Do -- would cellular damage appear on an
17 MRI machine?
18 **A.** It can.
19 **Q.** Is it possible to have cellular damage and it not
20 appearing on an MRI machine?
21 **A.** I believe so.
22 **Q.** The ECT machine, you agree with me that it releases
23 electricity. Correct?
24 **A.** Yeah.
25 **Q.** Some of that electricity ends up in the brain. Correct?

1 **A.** Yeah. Ends up passing through the brain.

2 **Q.** Passing through the brain. From one electrode to another?

3 **A.** Yeah.

4 **Q.** Assume -- we have your ECT in the other room, but I don't
5 need to bring it out. If we brought it out here and applied it
6 to me with no anesthesia or anything, what would happen when
7 you hit the on button?

8 **A.** It would knock you unconscious.

9 **Q.** Would knock me unconscious?

10 **A.** Yes. You would not feel anything, but you would be
11 unconscious. And then it -- depending on how we set it, it
12 might or might not induce a seizure.

13 **Q.** And would I be jolting up -- my body be jolting,
14 convulsing?

15 **A.** If you were administered ECT in this -- according to the
16 standard of practice, it would not, because there would be
17 muscle paralysis agents given to prevent muscle movement.

18 **Q.** I understand, but assume I never got the muscle relaxants,
19 I didn't get the anesthesia, we just got the ECT as we used to
20 do back in the early days?

21 **A.** We're not talking about the standard of practice. And
22 this is something that is not relevant to the Thymatron.

23 **Q.** Well, your machine passes electricity through the brain.
24 Correct?

25 **A.** Yes.

1 **Q.** Yes. So what the muscle relaxants do is basically mask
2 the seizure that is occurring, like you can physically see the
3 body jolting. Correct?
4 **A.** It masks the muscle movement part of the seizure, just the
5 muscle movement.
6 **Q.** In fact, you agree with me, if we did it without muscle
7 relaxants, the jolting would potentially fracture my vertebrae
8 and cause bone damage?
9 **A.** Potentially. There are ways to give it without causing
10 fracture.
11 **Q.** Why does electricity cause a seizure?
12 **A.** The pulses of the Thymatron cause ion changes to occur in
13 the brain so that potassium is extruded from the cell and
14 sodium is pushed into the cell from the extra cellular fluid.
15 And this changes the voltages, the voltage environment of the
16 cell, and as it continues with multiple pulses, these ionic
17 changes accumulate to produce what is called an action
18 potential or depolarization of the neuron.
19 **Q.** Is the seizure in response to the electricity?
20 **A.** Yes. These -- it's in response to the progressive ionic
21 changes induced by each little pulse. One pulse is not enough
22 to induce a seizure, but a series of pulses does it.
23 **Q.** Have you read literature to suggest when ECT is
24 administered it causes brain cells to die?
25 **A.** No.

1 **Q.** Do you believe ECT has any impact on brain cells?
2 **A.** It causes release of neurotransmitters which the cells
3 then replenish according to the genes.
4 **Q.** Does it bruise the cells?
5 **A.** No.
6 **Q.** No? Do you recall testifying in your deposition where you
7 told me that ECT doesn't cause cell death, it causes cell
8 bruising?
9 **A.** No, I don't recall that.
10 **Q.** You don't recall. I'll show it to you in a second.
11 Have you read literature where they've analyzed the recent
12 literature, where they looked at autopsies of animals that were
13 administered ECT and have seen cellular damage in certain parts
14 of the brain?
15 **A.** I recall seeing articles where toxic substances were
16 administered to induce seizures. And cell damage resulted, and
17 they never proved that it wasn't from the toxic substances that
18 were given. So it's not proven that it was from seizures.
19 **Q.** Does ECT impact the hippocampus in the brain?
20 **A.** Actually, it does. It causes the -- it promotes the
21 hippocampus to grow, to increase the number of neurons in it.
22 **Q.** Have you heard the opposite where some have argued that
23 actually the -- the hippocampus is where memory is stored.
24 Correct?
25 **A.** Yeah.

1 **Q.** And have you heard the opposite, that some researchers
2 have actually found that it's causing damage to the
3 hippocampus?
4 **A.** I think I've heard that. These studies -- those are not
5 modern. The modern studies show hippocampal growth.
6 **Q.** Okay. Let's look at study here from Neuroscience and
7 Behavioral Psychology in 2005. Apologies. "Electroconvulsive
8 Shock Induces Neuron Death in the Mouse Hippocampus:
9 Correlation of Neurodegeneration with Convulsive Activity."
10 Are you familiar with this study, Doctor?
11 **A.** No.
12 **Q.** Let's take a look at the conclusion. The data reported
13 here support the concept that significant functional changes
14 following repeated electric shocks do occur. They deepen our
15 understanding of this phenomenon by providing direct evidence
16 for a moderate, up to 10 percent, but significant level of
17 neuron death in particular parts of the hippocampus due to
18 shocks.
19 Were you familiar with that study, Doctor?
20 **A.** No.
21 **Q.** You still believe science has developed since 2001
22 concerning the safety since ECT?
23 **A.** It has shown that safety -- it has confirmed the safety of
24 ECT since 2001.
25 **Q.** Notwithstanding -- I apologize. Notwithstanding the

1 articles that talk about neuronal death and so forth?
2 **A.** I need to see the methods of those studies to evaluate
3 them.
4 **Q.** Doctor, as a manufacturer of the ECT machine, do you
5 believe you have responsibilities to ensure that your product
6 is safe?
7 **A.** Yeah.
8 **Q.** Do you believe that part of that responsibility also is to
9 ensure that adequate warnings are given to the users?
10 **A.** No. That is the responsibility of the doctors.
11 **Q.** The doctors are the users. Right?
12 **A.** Oh, to the users, yes. Warnings are given to the doctors.
13 **Q.** Just so the record is clear, do you believe you have a
14 responsibility to give adequate warnings to the users of your
15 machine?
16 **A.** We have a responsibility to assure that the users of the
17 machine receive adequate warnings.
18 **Q.** And you do that through the manual. Correct?
19 **A.** We do that through the manual.
20 **Q.** And do you believe you have a responsibility to continue
21 to review the literature and the science that it develops to
22 continuously update your manual and ensure that the most recent
23 data is made available and published in your manual?
24 **A.** Yes.
25 **Q.** Are you familiar with a study done by a Dr. Sackeim from

1 Columbia University in 2007 titled, "Cognitive Effects of
2 Electroconvulsive Therapy in Community Setting"?
3 **A.** I have read this paper several times. I don't have a
4 perfect recall of it. I know some things about it.
5 **Q.** The jury has heard extensively about this paper. So I
6 don't need to go delving into it. You agree with me --
7 Dr. Sackeim is actually a proponent of ECT. Correct?
8 **A.** I don't know.
9 **Q.** Dr. Sackeim, he's a reputable scientist within the ECT
10 community?
11 **A.** I don't want to answer that question.
12 **Q.** Why not? Strike that.
13 Do you believe he's an authority?
14 **A.** Personally, I don't.
15 **Q.** You don't. You're aware, though, that in his study that
16 he did, and he states that this was done in 2007, despite
17 ongoing controversy, there has never been a large-scale
18 prospective study of the cognitive effects of electroconvulsive
19 therapy. Do you agree with that statement that he made in
20 2007?
21 **A.** No longer true.
22 **Q.** Saying no longer true. Was it true in 2007?
23 **A.** I don't know.
24 **Q.** Okay. You agree with me that his study found that
25 12.4 percent of the patients had marked and persistent

1 retrograde -- we'll just read it together. Of the 306 patients
2 classified, 12.4 percent patients met the a priori criteria for
3 having marked and persistent retrograde amnesia on the AMI -- I
4 believe that is the autobiographical memory inquiry.
5 Do you see that, Doctor?
6 **A.** I see it. I dispute it.
7 **Q.** You dispute the findings of Dr. Sackeim?
8 **A.** I dispute Dr. Sackeim's interpretations.
9 **Q.** And because you don't agree with it, you never updated
10 your manual to warn about the findings from the Sackeim paper.
11 True?
12 **A.** We did not change what was in the manual in response to
13 what Dr. Sackheim wrote.
14 **Q.** Are you familiar with a paper by Christopher Dubey, titled
15 "Electroconvulsive Therapy and Brain Damage: Survey of the
16 Evidence from a Philosophical Promontory"?
17 **A.** Maybe. If you put it up, maybe I -- let me see the
18 journal it was in.
19 **Q.** The journal was the "Ethical Human" --
20 **A.** Yes. Yes. I have -- I have read through this paper.
21 **Q.** Now, this came out in 2017, so this is admittedly after
22 Mr. Thelen's treatment, but I wanted to know, he talks about in
23 Europe, I believe it was Scotland, there was a death. And
24 there was an inquest done following the death that concluded
25 formal cause of death as anoxic ischemic brain damage due to

1 status epilepticus, due to electroconvulsive therapy.
2 Were you aware of that?
3 **A.** I'm aware of that as a possible result of ECT.
4 **Q.** Brain damage?
5 **A.** Status epilepticus, which can then cause problems.
6 **Q.** How about the brain damage part?
7 **A.** Well, it can cause death, which is brain damage.
8 **Q.** So if I understand you correctly, unless someone dies,
9 they didn't have brain damage?
10 **A.** I can -- I'm not aware of brain damage outside of death.
11 In that case, the woman died, and she -- let's see. Let's see.
12 Tardive seizures can cause brain damage, and death may also
13 occur or may not. Okay. So death -- so I will say that brain
14 damage from tardive seizures or status epilepticus can result
15 without death.
16 **Q.** Can brain damage also then result from the seizures
17 induced by the ECT machine?
18 **A.** Through the causation of status epilepticus or tardive
19 seizures.
20 **Q.** You -- your manual, as Mr. Benkner pointed out, makes
21 reference to the APA Task Force. Correct?
22 **A.** Yeah.
23 **Q.** And it encourages psychiatrists to read this from 2001.
24 Correct?
25 **A.** It directs them to read it.

1 **Q.** Yeah. We both agree that your manual makes no reference
2 to brain damage, correct, exhibit 1, a manual that you and
3 Mr. Benkner went over?
4 **A.** The words do not appear in that -- explicitly in that
5 manual.
6 **Q.** Okay.
7 **A.** But it does make reference to the APA Task Force, which is
8 embodied, incorporated by mention.
9 **Q.** All right. But the manual makes no reference to brain
10 damage --
11 **THE REPORTER:** I'm sorry, brain damage what?
12 **BY MR. ESFANDIARI:**
13 **Q.** Or the risk of brain damage. True?
14 **A.** Makes no explicit mention of it.
15 **Q.** And you agree with me that there's also no warnings given
16 that ECT could cause either dementia or amnesia. True?
17 **A.** Amnesia is warned.
18 **Q.** How about dementia?
19 **A.** The word dementia is not used, but persistent cognitive
20 changes and cognitive impairment is warned.
21 **Q.** Okay. Let's break this down. First of all, you have a
22 copy of the APA Task Force?
23 **A.** I left it in the room. I can go get it.
24 **Q.** No, no, no.
25 **MR. ESFANDIARI:** Permission to approach, Your Honor?

1 **THE COURT:** Yeah.

2 **BY MR. ESFANDIARI:**

3 **Q.** Can you please open the page that informs the users that

4 ECT causes brain damage? Or let us know if such a page even

5 exists.

6 **A.** Page 61.

7 **MR. ESFANDIARI:** Permission to approach, Your Honor?

8 **THE COURT:** Yeah.

9 **BY MR. ESFANDIARI:**

10 **Q.** Okay. What part would you like to -- what part do you

11 want to read that you believe warns of brain damage being

12 caused by ECT?

13 **A.** Well, we start with inadequate oxygenation during

14 prolonged seizures increases the risk of hypoxia and cerebral

15 dysfunction as well as cardiovascular complications.

16 **THE REPORTER:** I'm sorry, Doctor. Would you slow

17 down?

18 **THE WITNESS:** Sorry. Shall I start from the

19 beginning?

20 **THE REPORTER:** Sure.

21 **THE WITNESS:** Inadequate oxygenation during prolonged

22 seizures increases the risk of hypoxia and cerebral dysfunction

23 as well as cardiovascular complications. In animal studies,

24 seizure activity sustained for periods exceeding 30 to 60

25 minutes is associated with an increased risk of structural

1 brain damage and cardiovascular and cardiopulmonary
2 complications.
3 **BY MR. ESFANDIARI:**
4 **Q.** And this is for prolonged seizures. Correct?
5 **A.** Yes.
6 **Q.** All right. And --
7 **A.** I think there's another statement on Page 71 that is
8 somewhat relevant.
9 **Q.** I'll get to it in one second, Doctor. I want to show you
10 another portion of this book, though. And I can find it in the
11 actual hard-copy book, but I have a printout of the book,
12 because I didn't want to write notes on the hard copy.
13 I represent to you that this is a page from the same APA.
14 Does this look familiar to you, Doctor?
15 **A.** I read Devanand's article. So I am familiar with the
16 meaning of this statement.
17 **Q.** Okay. And I can try to see. What does it say in the part
18 that I've highlighted, Doctor?
19 **A.** In light of the accumulated body of data dealing with the
20 structural effects of -- structural effects of ECT,
21 parentheses, Devanand, et al., 1994, closed parentheses, comma,
22 quote, brain damage, unquote, should not be included as a
23 potential risk of treatment.
24 **Q.** So this tells doctors don't warn about brain damage.
25 Right?

1 **A.** That's what it says.
2 **Q.** I thought you told me that it warned about brain damage.
3 Confused.
4 **A.** It warned the doctors about brain damage.
5 **Q.** And then it proceeded to tell the doctors don't warn the
6 patients about brain damage?
7 **A.** So it says.
8 **Q.** And you told doctors to go read this. Right? And to rely
9 on this and make their -- the information that they give to
10 patients to be based upon this book and a doctor reading this
11 book, according to your instructions, then is told do not warn
12 patients about brain damage. Right?
13 **A.** So he's told.
14 **Q.** Would it surprise you, then, the doctor in this case,
15 Dr. Sharma, did not know that ECT could cause brain damage and
16 never warned Mr. Thelen? In light of what we just read, would
17 that surprise you?
18 **A.** No. We were talking about structural brain damage.
19 **Q.** There's no question pending, Doctor.
20 Now, you, during your direct, made reference to APA Task
21 Force book being authoritative, I believe, and the gold
22 standard, so to speak. Is that right?
23 **A.** Yeah.
24 **Q.** In 2006, Doctor, you were contemplating writing a book
25 concerning ECT. Is that true?

1 **A.** I have contemplated writing a book for decades.

2 **Q.** Is it true?

3 **A.** I didn't do it until 2009.

4 **Q.** Were you contemplating writing a book because you felt

5 that the APA Task Force book was incomplete?

6 **A.** No.

7 **Q.** No? Showing you, Doctor, it's an e-mail from you to a

8 Holly -- psychiatrist named Holly Lisanby. Do you know that

9 individual?

10 **A.** Yes.

11 **Q.** Is this your e-mail address, Doctor?

12 **A.** Yeah.

13 **Q.** And you were letting her know that you were interested in

14 a book proposal. Do you see that, Doctor?

15 **A.** Yes.

16 **Q.** And you're discussing competing publications. Can you

17 please read for me -- and you said the competing publications

18 are Dr. Abrams' book, who is your partner. Correct?

19 **A.** Yes.

20 **Q.** And the other competing publication is the APA Task Force.

21 Correct?

22 **A.** Yes.

23 **Q.** Can you please read into the record your comments about

24 the APA Task Force?

25 **A.** "The other book is the American Psychiatric Press APA Task

1 Force Report 2001. The practice of Electroconvulsive Therapy."

2 **THE COURT:** You're going to have to slow down or the

3 court reporter is going to yell at you.

4 **THE WITNESS:** Sorry. You're right.

5 "The other book is American Psychiatric Press APA

6 Task Force Report 2001, quote, the practice of

7 electroconvulsive therapy, period, recommendations for

8 treatment, training, and privileging, period, second edition,

9 period, closed quote.

10 "It has 243 large-print pages plus references. This

11 book is psychiatrist centered and apparently aims to make

12 permissible as much as possible. This is what a task force

13 should do. To illustrate the extremity this has taken, the

14 book section on patient selection figuratively throws up its

15 hands about which patients with major depression should or

16 should not receive ECT.

17 "It is a book of administrative policy that withholds

18 basic judgments, including clinical advice about what works

19 best. This book probably decreases litigation risks because

20 virtually everything is permissible. Although this is nice for

21 clinicians, it provides virtually no guidance for how to

22 practice."

23 **BY MR. ESFANDIARI:**

24 **Q.** Still think this is the most authoritative book on ECT?

25 **A.** Yeah.

1 **Q.** After you read your own words?
2 **A.** Oh, it's more authoritative than mine.
3 **Q.** Now, any of the shortcomings associated with this book
4 that you identified, did you bother to update your manual to
5 warn psychiatrists about those shortcomings, including patient
6 selection and so forth?
7 **A.** Bother is not the word. I chose not to change it.
8 **Q.** This idea, what are you talking about here that this book
9 probably decreases litigation risks, because virtually
10 everything is permissible? What do you mean by that?
11 **A.** Given ECT to patients who receive the diagnosis of major
12 depression of severe proportions is within the realm of what
13 this book says is indicated.
14 My own writings are more specific in terms of the ECT
15 patient selection. Unfortunately, my own writings are not well
16 justified by the literature for narrowing the choice of who
17 should get ECT. So I cannot prove that the patients I want --
18 I restrict ECT to should have ECT -- should -- that ECT should
19 be restricted to the patients that I would choose for ECT, only
20 those patients. I say -- can say it in my book, but I can't
21 prove it. So I don't have justification to criticize the APA
22 Task Force in a formal way. I can only express my opinion in
23 the pages of a publication that allows its opinions to be
24 expressed without peer reviews, such as the book.
25 **Q.** Doctor, you and Dr. Abrams are the sole authors of the

1 Thymatron machine manual. Correct?
2 **A.** Yeah.
3 **Q.** You have authority to make whatever changes you want to
4 make to this manual, correct, in 2006 -- in that time frame.
5 If you wanted to warn about whatever risks you felt were
6 associated with ECT, you had the ability to do so in this
7 manual. Correct?
8 **A.** We had the ability to make stuff up and put it in the
9 manual.
10 **Q.** Make stuff up?
11 **A.** Yes.
12 **Q.** So what we're looking at, this exhibit right here, you're
13 making that stuff up, the perspective book publication?
14 **A.** What's in my book, some of it I made up.
15 **Q.** Going back to the question. You have the ability to
16 advise practitioners of whatever risks you felt are associated
17 with the device that you're putting out on the market. True?
18 **A.** I have the opportunity to, yes.
19 **Q.** And you agree with me that you and Dr. Abrams alone are
20 the ones that are profiting from the ECT machine that you're
21 selling to hospitals and doctors. True?
22 **A.** Yes. The differences that I'm talking about concern --
23 **Q.** I understand.
24 **A.** -- efficacy, not side effects.
25 **Q.** But you're profiting off of a product that you're putting

1 out into the market, and you agree with me that with that comes
2 the responsibility to ensure that the product has adequate
3 warnings.
4 **A.** With that comes a responsibility to present evidence that
5 has been shown by impartial study.
6 **Q.** So anything that goes against your viewpoints is partial,
7 and anything that supports your viewpoints is impartial?
8 **A.** Not so. I'm talking about --
9 **Q.** That's --
10 **A.** -- peer-review studies.
11 **Q.** You, in response to Mr. Benkner, made some reference to
12 the sine wave, the old sine wave machines being more dangerous
13 than the current machine that you're manufacturing.
14 **MR. BENKNER:** Objection. Asked and answered.
15 **BY MR. ESFANDIARI:**
16 **Q.** Yes?
17 **A.** Yes.
18 **THE COURT:** Overruled. It's cross-examination.
19 **BY MR. ESFANDIARI:**
20 **Q.** Is that -- has that been tested in any clinical trials,
21 that statement?
22 **A.** Would you clarify the question, please?
23 **Q.** Sure. Does the statement that the Thymatron brief pulse
24 machine is safer from a cognitive risk or -- than the sine wave
25 devices from the '70s and '80s?

1 **A.** Richard Weiner published several studies of the cognitive
2 side effects with sine wave ECT with brief pulse ECT, finding
3 large advantages for brief pulse ECT, that is to say less
4 cognitive side effects.
5 **Q.** So your testimony to the jury is that that fact, then, was
6 proven as a result?
7 **A.** Yes.
8 **Q.** Yes. Okay. You have a book published out currently.
9 Correct, Doctor?
10 **A.** Yes.
11 **Q.** That Electroconvulsive and Neuromodulation Therapies?
12 **A.** Yes.
13 **Q.** I don't have a hard copy. Is this kind of the cover of
14 your book? Is that the cover of your book?
15 **A.** Yes. I edited the book.
16 **Q.** You edited this book. So this book has chapters written
17 by other psychiatrists and other chapters by you and a preface
18 by you?
19 **A.** That's correct. There are more than 50 collaborators.
20 **Q.** Okay. Let's go to the preface. I'm sorry. Let's go
21 to -- Chapter 1 of your book is a article titled, "Electricity
22 and Electroconvulsive Therapy" by Conrad Swartz?
23 **A.** Yeah.
24 **Q.** Correct?
25 Let's go to Page 12 of that article. Let me get this nice

1 and focused here for us. All right. The section here, "Sine
2 Wave Versus Brief Pulse Stimuli." Since these are your own
3 words, I'll let you read them please.
4 **A.** "The report that brief pulse stimuli have milder side
5 effects and use less charge than sine wave stimuli do is well
6 known. However, the result was never proven as just stated.
7 "Although the comparison" --
8 **Q.** That's all I wanted you to read.
9 **A.** May I explain?
10 **THE COURT:** You'll have an opportunity to be
11 questioned again by the lawyer that called you, and I'm sure
12 he'll follow up on anything that he feels necessary.
13 Go ahead.
14 **BY MR. ESFANDIARI:**
15 **Q.** We briefly were talking about the hippocampus. Do you
16 recall that?
17 **A.** Yeah.
18 **Q.** And am I understanding you correctly, do you believe that
19 the hippocampus is injured at all as a result of ECT?
20 **A.** No. Based on recent studies.
21 **Q.** And in this book of yours we've been talking about, when
22 was it published, Doctor?
23 **A.** 2009, as I recall.
24 **Q.** And I'm looking at the preface, you wrote the preface?
25 **A.** Yes.

1 **Q.** Can you read for me what I've highlighted there, Doctor?
2 **A.** "The numerous alterations in the hippocampus with ECT
3 suggest its involvement in ECT mechanism, but this part of the
4 brain is particularly given to change. This tendency to
5 change, together with its involvement in memory, suggests that
6 the hippocampus may be involved in ECT cognitive effects, side
7 effects, as well as efficacy."
8 **Q.** You believe that to be true still today?
9 **A.** Yeah.
10 **Q.** Yes?
11 **A.** Yes.
12 **Q.** So why is it when I asked you if ECT is associated with
13 damaging the hippocampus, you said no?
14 **A.** It's not damage. It's alterations.
15 **Q.** Causing cognitive side effects is not damage?
16 **A.** Not damage. I'll explain, as I did in the book.
17 **Q.** No, I just want -- so your understanding -- so if someone
18 is suffering from a cognitive side effect, do you believe
19 that's damage to the brain?
20 **A.** No.
21 **Q.** No. Is it injury to the brain?
22 **A.** No.
23 **Q.** Is it a good thing?
24 **A.** No. It's a temporary change sometimes.
25 **Q.** So your opinion, then, or your testimony is that whatever

1 change occurs to the hippocampus is temporary?

2 **A.** Yeah.

3 **Q.** Notwithstanding some of the studies that suggest that

4 actually cells are dying in the hippocampus as a result of ECT

5 including, for example, that mouse study we previously looked

6 at?

7 **A.** They are temporary, the changes.

8 **Q.** Cell death is temporary?

9 **A.** The --

10 **Q.** It's a question. Is cell death temporary?

11 **A.** I'm not endorsing that mouse study. I haven't seen the

12 methods, and I'm not going to refer to it in my answers.

13 **Q.** I'm asking you, is cell death temporary, Doctor?

14 **A.** No.

15 **Q.** Is -- have you heard the concept that the brain is a

16 postmitotic organ?

17 **A.** I've heard that concept.

18 **Q.** Do you endorse it or not?

19 **A.** I disagree firmly.

20 **Q.** What does postmitotic mean?

21 **A.** Means it's fixed. It can't continue generating additional

22 cells, but it can.

23 **Q.** In this book that you wrote, on the very, very first page

24 actually -- sorry it's a little crooked. I'll do the reading.

25 You informed the readers that "readers are strongly advised to

1 pay careful attention to information provided by the
2 manufacturer of any drugs or equipment that they plan to use."
3 Do you see that, Doctor?
4 **A.** Yes.
5 **Q.** You believe that. Right, Doctor?
6 **A.** Yes.
7 **Q.** So this confirms, then, that the manual is actually
8 important, because you're telling readers that go consult the
9 manual concerning any safety and efficacy associated with a
10 product that they're planning on using?
11 **A.** Yes. At least for changes.
12 **Q.** Is -- is ECT, in your view, a treatment of last resort?
13 Is that what you believe ECT should be?
14 **A.** No. It is not a treatment of last resort. Sometimes it
15 is a treatment of first resort. It is the most desirable
16 treatment sometimes.
17 **Q.** Is --
18 **A.** I'd be happy to describe several cases.
19 **Q.** Let me ask you if someone has shown to be not responding
20 to medication, antidepressant medications, do you have any
21 opinion as to whether that person would then respond favorably
22 to ECT?
23 **A.** No, I don't. In my last job, in which I was in charge of
24 the partial hospital at a psychiatric hospital, I saw virtually
25 all patients discharged from the psychiatric unit. They were

1 followed up with me for several weeks. And then they were
2 discharged to a regular outpatient doctor, unless they were
3 kept in the longer partial hospital program.
4 In any case, no ECT was available at this hospital. And
5 almost everybody was diagnosed as having major depression. And
6 almost nobody had responded to the medication, which were
7 merely always SSRIs, such as Zoloft, sertraline. And it was
8 then my job to reevaluate the patients and treat them as best I
9 could, which I did. And I changed their medications, and they
10 responded. And of those many, many patients I saw, hundreds of
11 patients, I think there was one patient I would have given ECT
12 to if it had been available.
13 **Q.** I'm sure you answered -- I'm simply asking a yes or no
14 question. Do you believe if someone is not responding well to
15 medication, are they going to respond well to ECT?
16 **A.** No. They --
17 **Q.** Yes or no?
18 **A.** Not always.
19 **Q.** Not always?
20 **A.** And not even most of the time.
21 **Q.** But, then, why is it that the jury has heard a lot about
22 that the ECT is to be used for treatment-resistant patients,
23 where does that come from? Have you heard that first of all?
24 **A.** Well, yes, I have.
25 **Q.** Is that also mentioned either in your -- in the APA manual

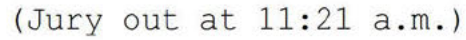
1 or anything that you've written?
2 **A.** It's mentioned in articles I've seen, that when you have
3 treatment-resistant patients, ECT should be considered, yeah.
4 **Q.** Is that something that's endorsed by the APA Task Force?
5 **A.** I expect so. I'm not sure.
6 **Q.** Somatics ever disavow that position?
7 **A.** I believe so.
8 **Q.** You disavowed it, so in your manual, you told doctors,
9 hey, if somebody is treatment resistant, don't give them ECT,
10 because ECT is not going to work?
11 **A.** That distorts it and oversimplifies what we said. But,
12 basically, we said that if it's primarily an anxiety disorder
13 or a personality disorder, ECT is probably not likely to work.
14 **Q.** Can you show me where in the manual that's stated? Do you
15 have a copy of your manual?
16 **A.** No, I don't. And it might not have been in this
17 particular manual. I think it was in the DG, DGX manual.
18 **Q.** Did DGX is a different device altogether. Right, Doctor?
19 **A.** No, it's not. It's -- essentially, the electricity it
20 produces is the same.
21 **Q.** Does the DGX manual accompany the Thymatron manual in this
22 case?
23 **A.** The Thymatron IV. It does not accompany the Thymatron IV.
24 **Q.** Okay. You agree with me that statement you made about
25 treatment resistance and that treatment-resistant patients

1 should not be a good candidate for ECT is not contained
2 anywhere on Exhibit 1, the manual at issue in this case?
3 **A.** That's not what I said. The treatment-resistant patients
4 should not be considered for ECT, that is not what I said.
5 **Q.** What did you say?
6 **A.** I said that only some patients with treatment-resistant
7 major depression are likely to respond to ECT, and some
8 patients can be seen to be unlikely to respond to ECT.
9 **Q.** And do you give an explanation how one will go about
10 determining which patient is going to be which?
11 **A.** I did that in my book.
12 **Q.** You did that in your book. Did you do it in this manual?
13 **A.** No, not that manual.
14 **Q.** In your book, you state, "Several reports from Columbia
15 University claim that medication-resistant major depression
16 responds poorly to ECT," and cites publications. True?
17 **A.** Yes. Prudic is a coauthor of Sackeim. Sackeim is a
18 coauthor of studies of Prudic, yes.
19 **Q.** This information was nowhere in your manual. Correct?
20 **A.** Correct.
21 **Q.** Let's talk about -- should I keep going, Your Honor, or do
22 you want to take a break?
23 **THE COURT:** I think it's about time for a break.
24 **MR. ESFANDIARI:** I agree.
25 **THE COURT:** So we'll do that now, leave your tablets

1 on your chairs, please, and we'll see you in about five

2 minutes.

3 **THE COURT SECURITY OFFICER:** All rise for the jury.

4 
(Jury out at 11:21 a.m.)

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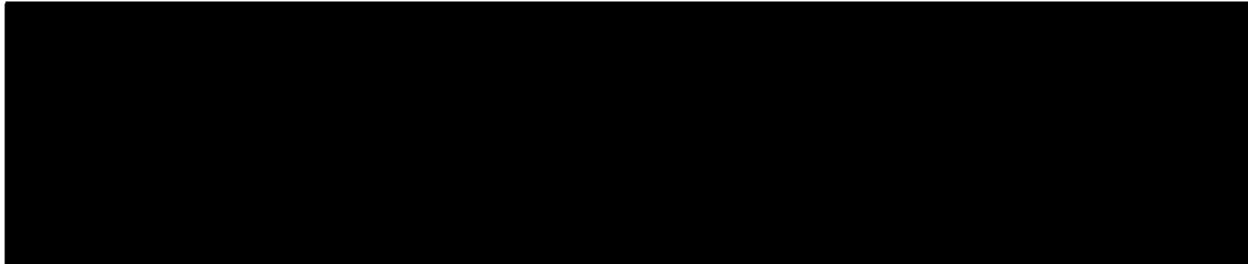

5 **THE COURT:** Okay. Have a seat, everybody. Go ahead.

6 **BY MR. ESFANDIARI:**

7 **Q.** Dr. Swartz, you remember before we took a break earlier
8 today, we -- I asked you if you'd ever testified that ECT
9 bruises the cells?

10 **A.** Yes, I remember you mentioned that. I was surprised to
11 hear that, yes.

12 **Q.** Okay. You had your deposition taken previously.

13 **A.** Oh, yes.

14 **Q.** All right. Let me show you.

15 Thank you, Sonya.

16 **THE COURTROOM DEPUTY:** Sorry.

17 **BY MR. ESFANDIARI:**

18 **Q.** And, Dr. Swartz, just so you see, that's your deposition?

19 **A.** Yes, sure.

20 **Q.** I don't know how focused this is. You were asked, "Other
21 than damage to cells of the brain, what other rationale do you
22 have, if any, for the side effects that do follow ECT, even
23 short-term?"

24 Your answer is, "Well, I think it -- think of it as
25 disruption, not damage. It's the cells. The cells are not

1 killed, but their operation is temporarily impaired."

2 "Would that be like a bruise?"

3 Answer "Okay. Something like a bruise."

4 Okay. See that?

5 **A.** Those are your words. I said something like a bruise.

6 That doesn't mean it's a bruise. I didn't mean a bruise.

7 **Q.** But just so we're clear, your testimony is that the cells

8 in the hippocampus are impacted by the ECT machine, but

9 whatever impact that has in -- your testimony is that it's

10 positive?

11 **A.** By the ECT treatment, not the ECT machine. And it's

12 positive, yes.

13 **Q.** But you recall --

14 **A.** And temporary. It's positive and temporary.

15 **Q.** And you recall, though, we did see some literature,

16 including something from your own book, where it mentioned that

17 that is also the reason for the cognitive decline that some

18 people may experience. True?

19 **A.** Not decline. Cognitive temporary impairment.

20 **Q.** Are words important, Doctor?

21 **A.** Oh, yes.

22 **Q.** So, as a patient, if a product causes brain damage, you

23 think people should be informed of that?

24 **A.** If it is known that it causes brain damage, yeah.

25 **Q.** How about if there is a debate? How about if there's a

1 debate, some people believe brain damage is caused by the
2 product, some people don't believe within the medical
3 community. What comes of the patient? Should the patient be
4 left in the dark until this debate is finally satisfied to one
5 person's understanding, or do you think that the patient should
6 be warned that there is this risk?
7 **A.** Well, that's a difficult question. It all depends on the
8 circumstances, depends on the weight of evidence, depends on
9 the quality of the evidence of damage.
10 **Q.** And also the -- depends on the seriousness of the injury
11 we're talking about. True?
12 **MR. BENKNER:** Objection. Learned intermediary.
13 **THE COURT:** Well, I'll sustain the objection. Maybe
14 not that objection, but I'll sustain the objection to the
15 question. All right.
16 **BY MR. ESFANDIARI:**
17 **Q.** All right. Well, let me ask you, if -- in deciding what
18 warnings to give to doctors, you agree with me that when you
19 were writing your manual, the manual that's in effect in this
20 case, the 2013 manual, that, at that time, there was a debate,
21 which remains to this day, as to whether or not ECT causes
22 brain damage. True?
23 **A.** Not true. I don't agree.
24 **Q.** No. So all those literature that we looked at that made
25 reference to brain damage, the experts that this jury has heard

1 from that talked about brain damage, the discussions in the
2 books that you yourself wrote, and so forth, none of those, in
3 your opinion, is -- are indicative of even a debate existing?
4 **A.** Correct. Well, they're indicative of a disagreement.
5 Disagreement doesn't mean there's debate.
6 **Q.** Okay. And you -- because you draft the manual, you get to
7 be the arbiter and the judge of who wins that debate, because
8 you're the one who decides what are you going to warn in your
9 manual. True?
10 **A.** Okay.
11 **Q.** And you chose to side with the -- on the -- be on the side
12 of the debate that said no brain damage, we're not going to
13 warn?
14 **A.** There is no evidence of brain damage.
15 **Q.** And as a result of your decision, whoever reads your
16 manual is not going to be warned about brain damage or
17 dementia. True?
18 **A.** Is not going to be warned by this manual of that. They
19 can find other sources that say other things.
20 **Q.** Right. But you, in your own book, were recommending to
21 doctors that they should consult the manuals of the
22 manufacturer because, obviously, the manufacturer knows the
23 most about -- information about its product. True?
24 **A.** Not true.
25 **Q.** We looked at your book.

1 **A.** Why does the manufacturer know the most about his product?
2 **Q.** Doctor, we looked at your book in the first page where you
3 were encouraging readers to consult the information given by
4 the manufacturer. Do you want me to show it again?
5 **A.** I saw it. I remember it.
6 **Q.** Okay.
7 **A.** But this doesn't mean that manufacturer has the latest
8 word or knows better than what's in the published peer-reviewed
9 literature and the textbooks. There's always new information
10 coming out, and, you know, I could go on at length about
11 medication use for antidepressants. I'm sure you don't want me
12 to go on at length about that.
13 But I can assure you that what's in the manufacturer's
14 literature is not the latest understanding or the best
15 understanding or the most complete understanding. It is a
16 description of what must be said.
17 **Q.** Well, you have the authority to provide the warnings in
18 your manual. You make that decision.
19 **A.** I make that decision.
20 **Q.** Okay. And you and Dr. Abrams chose not to include any
21 warnings about brain damage in the 2013 manual. True?
22 **A.** True.
23 **Q.** Okay. And you agree with me, as a manufacturer, you have
24 a responsibility to keep abreast of the literature and the
25 development of science. True?

1 **A.** We have a responsibility to disclose what we feel is
2 correct.
3 **Q.** And notwithstanding the fact that we looked at literature
4 that discussed that the risk of brain damage, that discussed
5 that the risk of persistent memory loss was actually
6 12.4 percent, you chose not to provide any warnings about that
7 information in the manual. True?
8 **A.** False. No way am I going to endorse what Sackeim wrote.
9 **Q.** I want to talk about the manual now. This is Exhibit 1.
10 You recall we looked at this with Mr. Benkner?
11 **A.** Yes.
12 **Q.** Yes. Okay. And this is the first page of the manual.
13 And this paragraph provides some warnings. Do you agree with
14 me?
15 **A.** Yeah.
16 **Q.** You also agree with me that there are no warnings given in
17 this paragraph about brain damage or dementia or Alzheimer's.
18 **A.** Some of the items mentioned can then cause brain injury,
19 such as from hypoxia. We mentioned hypoxia. And respiratory
20 obstruction, such as laryngospasms, certainly can cause brain
21 injury from hypoxia. Pulmonary embolism is notorious for
22 causing hypoxia. Apnea causes hypoxia. When we're talking
23 about hypoxia, we're talking about the possibility of brain
24 injury from inadequate oxygen.
25 **Q.** The words brain injury don't appear anywhere in here.

1 Correct?
2 **A.** Not explicitly.
3 **Q.** If I understand your testimony is, the risk of brain
4 injury, to the extent that this implies it and some -- the jury
5 will decide that, is limited only to the lack of oxygen?
6 **A.** No. This paragraph doesn't say that. It also mentions
7 tardive seizure and nonconvulsive status epilepticus, which we
8 spoke about, you and I, a few minutes ago.
9 **Q.** So you're telling me the risks that are discussed here,
10 some of them result in brain damage?
11 **A.** Brain injury.
12 **Q.** Brain injury. But earlier this morning when I asked you
13 does ECT cause brain injury, you said, no, it does not. So
14 which is it?
15 **A.** ECT does not directly cause it. ECT can be accompanied by
16 adverse medical situations that can then injure the brain.
17 **Q.** So ECT causes brain injury?
18 **A.** No.
19 **Q.** But side effects that ECT causes, is your testimony, can
20 lead to brain injury.
21 **A.** Okay.
22 **Q.** All right. And then we get to Page 6 of the manual. I
23 apologize, Page 4 of the manual of Exhibit 1. And we have this
24 section called, "Disclaimer." Do you see that, Doctor?
25 **A.** Yes, sir.

1 **Q.** Okay. And there's some discussion of risks there. This
2 discussion, though, did not appear in the warning section on
3 Page 1. You agree with me on that?
4 **A.** Okay. It's not in the first page.
5 **Q.** Okay. And you agree with me that this disclaimer is kind
6 of written in a negative. It states, "Please note that nothing
7 in this manual constitutes or should be construed as a claim by
8 Somatics, LLC that confusion, cognitive impairment, or memory
9 loss, short-term, long-term, recent, remote, transient, or
10 persistent cannot occur as the result of ECT."
11 **A.** The disclaimer is actually that first sentence, yes. It
12 disclaims -- it says we do not claim, that is a disclaimer,
13 that ECT can't cause these things.
14 **Q.** Okay. And this was written in part by Dr. Abrams. True?
15 **A.** Yeah.
16 **Q.** And when you first saw this, you responded to Dr. Abrams
17 that that is not a warning. True?
18 **A.** Well, it was in the course of an argument, and I mean an
19 argument, that happened to be conducted by e-mail that was just
20 between us. I never expected -- never imagined that anyone
21 else would ever see it.
22 **Q.** And in that argument in 2006, when you were contemplating
23 adding this disclaimer, you told your partner, Dr. Abrams, that
24 this is not sufficient in terms of providing a warning?
25 **A.** I was just trying to motivate something -- I'm trying to

1 motivate the rest of this paragraph.

2 **Q.** Let's take a look at your e-mail. Well, actually, before
3 I get to that, a lot of these words that are thrown around,
4 what is the difference between long -- short-term, recent,
5 transient, what is -- what does that mean? What is short-term
6 memory loss?

7 **A.** Oh, that means memory loss that lasts for a couple months.
8 Long-term would be longer than that. Recent would concern
9 recent events. Remote are events that happened a long time
10 ago. Transient is shorter than short-term. Persistent is
11 longer than long-term.

12 **Q.** Do you equate those injuries to brain injury?

13 **A.** No.

14 **Q.** And then it states, "Many patients experience temporary
15 loss of recent or remote memories with ECT, particularly with
16 traditional bilateral ECT."

17 You agree with that statement. Correct?

18 **A.** Yes.

19 **Q.** And then it says, "A few patients have reported
20 experiencing persisting loss of memories or memory function
21 after ECT."

22 Do you see that, Doctor?

23 **A.** Yeah.

24 **Q.** What's a few patients? Well, first of all, do you agree
25 with this?

1 **A.** Yes.
2 **Q.** Okay. And what is a few patients? If I -- if you were
3 going to put a percentage on it, what is it?
4 **A.** We don't know what the percentage is, but it's small.
5 That's what a few means.
6 **Q.** Is it one in -- so, for example, on the first page, you
7 provided a statistic that death occurs in about one in 40,000.
8 Do you see that?
9 **A.** Yes.
10 **Q.** All right. Is one in 40,000 a few?
11 **A.** I think it is.
12 **Q.** Okay. So when you say a few patients here, is that --
13 should we believe that to be about one in 40,000?
14 **A.** No. It does not mean that. It means I don't know what it
15 is, and it's small.
16 **Q.** Is it smaller than one to 40,000?
17 **A.** I can't answer that.
18 **Q.** Okay. Dr. Sackeim's article from 2007 put the figure of
19 12 percent on it, one in eight having persistent memory loss.
20 Do you think one in eight is a few?
21 **A.** No. That's more than a few.
22 **Q.** But you didn't put the frequency of the event in this
23 disclaimer. Correct?
24 **A.** Correct.
25 **Q.** And then you say these are subjective symptoms that have

1 not been related to observable structural brain changes. Do
2 you see that?
3 **A.** Yes, sir.
4 **Q.** You believe that?
5 **A.** Entirely.
6 **Q.** Entirely. Are you familiar with a study done by
7 Dr. Calloway, even as early as 1981, that found structural
8 brain changes in ECT patients?
9 **A.** I can't place it.
10 **Q.** Let me help you out.
11 **A.** Dolan, yes.
12 **Q.** See this article, Doctor?
13 **A.** I remember seeing the name of Dolan.
14 **Q.** This is Dr. Calloway, 1981, titled "ECT and Cerebral
15 Atrophy. A Computed Tomographic Study," CT study. Correct?
16 **A.** Yes.
17 **Q.** Let's go to the discussion. "The result suggests an
18 association between history of treatment with ECT and cortical
19 atrophy in the frontal region." That's the brain. Right,
20 Doctor?
21 **A.** That's part of the brain.
22 **Q.** And so -- that's just one study. You can look at others.
23 But you still stand by your statement here that there have not
24 been -- that the side effects are only subjective and have not
25 been related to observable structural brain changes? You still

1 believe that?
2 **A.** Yes. You've taken his conclusion out of context.
3 **Q.** You've seen other publications that have found structural
4 brain changes after ECT?
5 **A.** Before ECT? I've seen defined structural changes of
6 patients who are selected for ECT where the structural changes
7 occurred before ECT. It's well-known that patients referred
8 for ECT --
9 **Q.** Doctor, my question was simply, have you seen other
10 studies that discuss structural changes after ECT?
11 **A.** I am not sure.
12 **Q.** Have -- would it surprise you that such studies exist?
13 **A.** No.
14 **Q.** And you agree with me -- and I apologize for this, if we
15 already went over this. I can't recall. But you agree with me
16 that some injuries -- some injuries to the brain will not even
17 show up in a CT or MRI, that that is a possibility. True?
18 **A.** Injuries to the brain?
19 **Q.** On a cellular level may not show up on an MRI or CT?
20 **A.** I don't agree. I think it's a hypothetical.
21 **Q.** Okay. All right. Going back to the warning. I want to
22 draw your attention to an e-mail from 2006 between you and
23 Dr. Abrams. Do you remember this, Doctor?
24 **A.** Yep.
25 **MR. ESFANDIARI:** For the record, Your Honor, this is

1 Plaintiff's Exhibit 3, moving it into evidence.

2 **MR. BENKNER:** We would object, Your Honor. We

3 already discussed these e-mails. We can deal with it after

4 this.

5 **THE COURT:** Did you say objection?

6 **MR. BENKNER:** Yeah. We have an objection. These

7 e-mails were discussed previously with Your Honor.

8 **THE COURT:** All right. Come on up.

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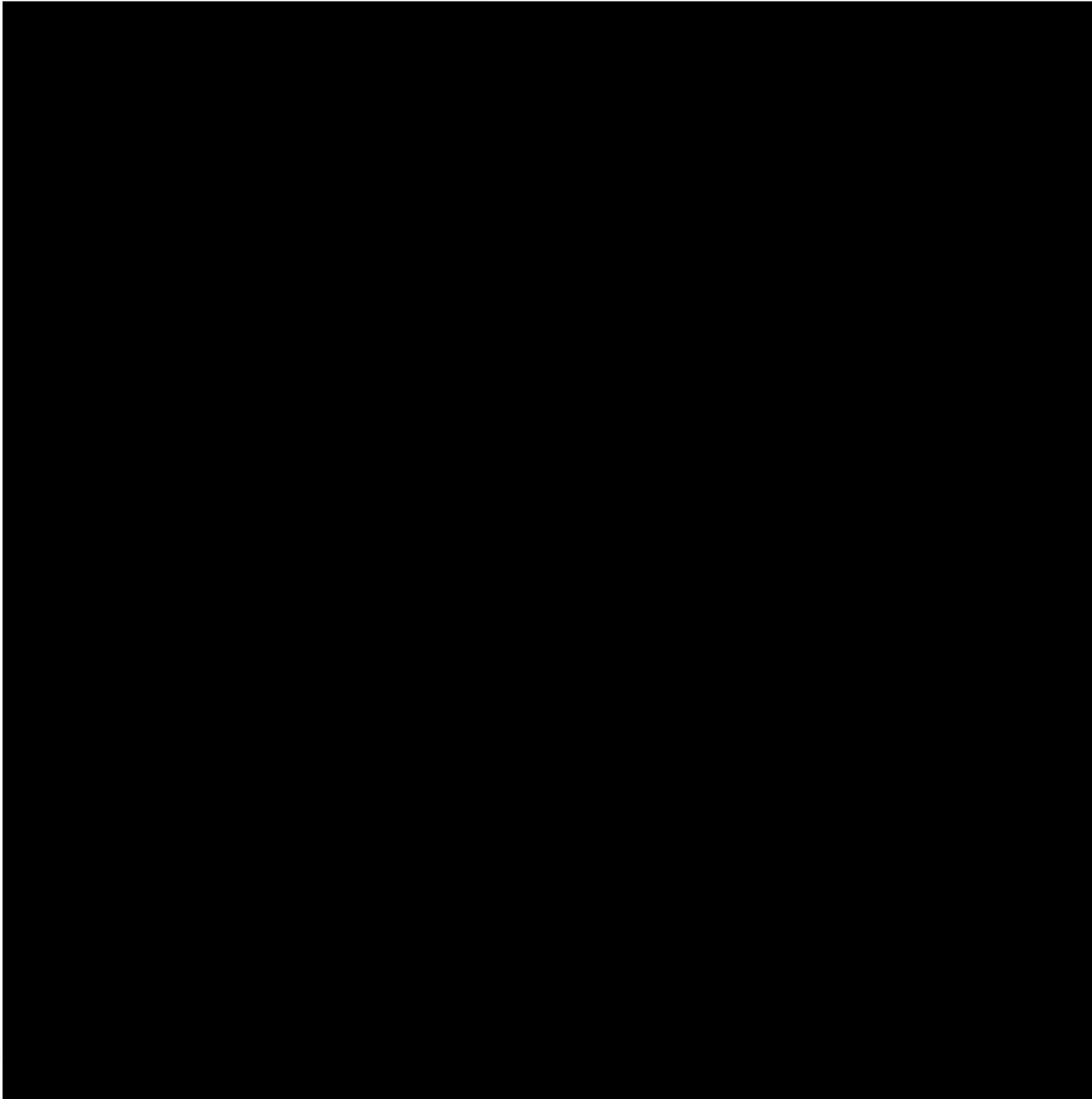

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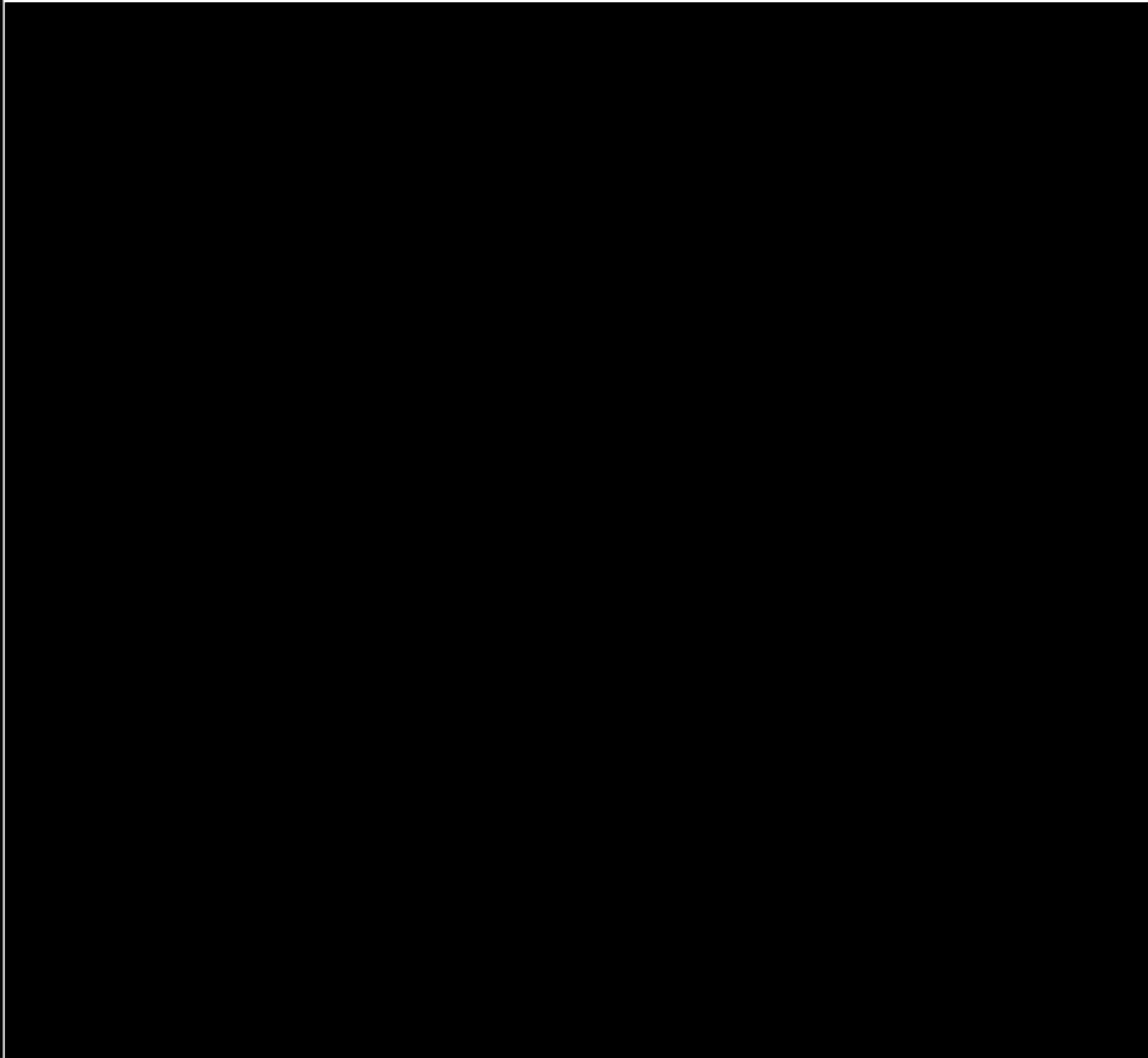


18 **BY MR. ESFANDIARI:**

19 **Q.** All right. Dr. Swartz, this was an e-mail between you and

20 Dr. Abrams concerning the drafting of the disclaimer that we

21 looked at. Correct?

22 **A.** Yeah.

23 **Q.** Can you keep your voice up, please?

24 **A.** Yes.

25 **Q.** And this is the one you were informing the jury that you

1 thought this was going to be a private discussion not to be
2 shared publicly. Correct?
3 **A.** Yes.
4 **Q.** All right. So I want to show you -- draw your attention
5 to a couple parts of this. First, you say, "The goals of the
6 warning statement we need to make are, one, to prevent lawsuits
7 and not alienate psychiatrists."
8 Do you see that, Doctor?
9 **A.** Yes.
10 **Q.** Do you believe those are the only two goals of a warning
11 statement?
12 **A.** No.
13 **Q.** What are the other goals? Is one of the other goals of
14 the warning statement to inform the users of the risks
15 associated with the product?
16 **A.** Yes.
17 **Q.** When you say we need to make sure we're not alienating
18 psychiatrists, the psychiatrists are your customers. Correct?
19 **A.** Yeah.
20 **Q.** So you didn't want to alienate them by putting a warning
21 in the manual?
22 **A.** That's not exactly correct. We didn't want to alienate
23 them by reminding them repeatedly of what they already knew.
24 **Q.** So you felt -- did you believe that psychiatrists knew
25 that ECT causes memory -- brain damage?

1 **A.** Not brain damage.
2 **Q.** Okay.
3 **A.** It causes memory problems.
4 **Q.** Okay.
5 **A.** Temporarily.
6 **Q.** You felt that all psychiatrists knew that ECT could cause
7 permanent memory loss, lifelong?
8 **A.** We felt they knew what was in the APA Task Force Report,
9 which is not that it can cause it, but that patients complain
10 of it. Big difference.
11 **Q.** Okay. Big difference. Because we don't want to listen to
12 what patients complain. That doesn't count?
13 **MR. BENKNER:** Objection, argumentative.
14 **THE COURT:** Sustained.
15 **BY MR. ESFANDIARI:**
16 **Q.** And that same APA Task Force we looked at said don't warn
17 about brain damage. You recall that. Right?
18 **A.** Yes.
19 **Q.** You go on to say, "All warnings that are written are
20 stated in the form that this product can or may cause XX. We
21 should conform to this. Cigarette companies cannot use a
22 statement such as nothing in this advertisement should be
23 regarded as a statement that cigarettes do not cause cancer.
24 This is not a warning."
25 Did I read that correctly?

1 **A.** Yes. It's a disclaimer.

2 **Q.** So contemporaneous with drafting this disclaimer, it was

3 your belief that it was not a warning. True?

4 **A.** It's what I said in the course of an argument.

5 **Q.** And then you go on to say, "Loss of memories is more

6 accurate than memory loss, which smells of dementia. Loss of

7 memories is subjective and does not reflect brain damage."

8 Did I read that correctly?

9 **A.** Yes.

10 **Q.** Okay. So you wanted to make sure that whatever you were

11 warning about in this disclaimer, that it didn't infer that

12 it's causing dementia, and it didn't infer that it's causing

13 brain damage. True?

14 **A.** True.

15 **Q.** Doctor, you -- machine, you made a reference that your --

16 it's -- you contract out to who manufactures the machine.

17 True?

18 **A.** Who manufactures and assembles the electronic components,

19 yeah.

20 **Q.** And you referenced a company in New York. Correct?

21 **A.** Yes.

22 **Q.** Okay. Is -- have you ever visited that facility?

23 **A.** No.

24 **Q.** Do you agree with me that the machines that your company

25 makes are made in a basement?

1 **MR. BENKNER:** Objection, Your Honor.
2 **THE COURT:** What's --
3 **MR. BENKNER:** Irrelevant, 403.
4 **THE COURT:** Overruled.
5 **THE WITNESS:** I agree they're made in a facility that
6 passes inspections.
7 **BY MR. ESFANDIARI:**
8 **Q.** The question was, do you agree with me that the machine is
9 made in the basement of a residence?
10 **A.** I neither agree nor disagree, because I don't know.
11 **Q.** You don't know. You mentioned that there are -- the
12 manufacturers of ECT are simply you and MECTA. Correct?
13 **A.** Yes.
14 **Q.** In the United States, there's two --
15 **A.** In the United States.
16 **Q.** Two manufacturers.
17 **MR. ESFANDIARI:** And -- may I consult with my team
18 for one second, Your Honor? And that will probably be my last
19 question.
20 **BY MR. ESFANDIARI:**
21 **Q.** Dr. Swartz, your company makes, in terms of revenue,
22 approximately $6 million a year?
23 **MR. BENKNER:** Objection, Your Honor, wealth of the
24 party.
25 (Bench conference begins.)

1 **MR. BENKNER:** Financial revenue of the company with
2 this question. It's not relevant to any issue in this case.
3 Punitive damage claim.
4 **THE COURT:** Well, absolutely, categorically relevant
5 if a witness has a bias. And if he's making a lot of money off
6 of this business, how is that not relevant?
7 **MS. COLE:** Your Honor, the amount of money that the
8 company makes was relevant on the punitive damages. Showing
9 the wealth of a party versus the nonwealth of another party is
10 absolutely prejudicial and should be stricken.
11 **THE COURT:** I cannot even believe that you march up
12 here and make that argument. Absolutely frivolous. You're
13 stating that a witness making money off of a product on a
14 product liability case is only relevant for punitive damages
15 and wouldn't be relevant to the bias he might have? That's
16 your argument?
17 **MS. COLE:** Yes, sir.
18 **THE COURT:** Overruled.
19 (Bench conference concluded.)
20 **BY MR. ESFANDIARI:**
21 **Q.** Do you recall my question?
22 **A.** You asked me how much Somatics' revenue is per year.
23 **Q.** Correct. And my understanding was it's about 6 million a
24 year. Is that true?
25 **A.** Well, that happened for one year. And it has been less

1 than that post years.

2 **Q**. How much, 5 million?

3 **A**. 5 million, 4 million. Between 4 and 6 million, revenue.

4 This is not income. This is total cash collected.

5 **Q**. And I think you testified that in terms of what you end up

6 with is approximately a million dollars -- 2 million, a million

7 to you and a million to Dr. Abrams?

8 **A**. Yes.

9 **Q**. Each year?

10 **A**. Yeah.

11 **MR. ESFANDIARI:** No further questions, Your Honor.

12 **THE COURT:** All right. It's a good time to break for

13 lunch. Leave your tablets on your chairs. We'll see you back

14 at 1:30. Thank you.

15 **THE COURT SECURITY OFFICER:** All rise for the jury.

16 (Jury out at 12:11 p.m.)

17 **THE COURT:** All right. You can step out. Go ahead

18 for me, again, and articulate the basis for the last objection

19 when a witness is testifying who's one of two people who owns

20 the company, that product and the warnings associated with it

21 are the subject of the trial, and the witness testifies about

22 lengthy personal involvement with the product, the warnings,

23 and the business, and the fact that he's making money off of

24 that is -- shouldn't be admissible as possible bias of a

25 witness similar to the way we would admit how much an expert is

1 being paid or anybody that's being paid? Explain that again.
2 Because I did not understand that.
3 **MS. COLE:** Yes, Your Honor.
4 An expert is different, because an expert is
5 extraneous to the cause of action and is retained for a cause
6 of action. The bias of an expert can be challenged. Here,
7 asking an owner of a company in a nonpunitive damages context
8 is raising the specter of the relative wealth of the parties.
9 And the relative wealth of the parties is inadmissible and
10 prejudicial.
11 **THE COURT:** Well, agreed if that was all that it was.
12 But is it not evidence that the jury could consider that the
13 witness has a personal financial stake in the outcome of the
14 case?
15 **MS. COLE:** It's obvious that both parties, both the
16 plaintiff and the defendant, have a stake in the outcome of the
17 case, and that is something that is expected to be assumed by a
18 jury. Naming dollars and the amount of money that -- of a
19 certain amount, which I expect may come up in Mr. Esfandiari's
20 closing argument in asking for damages in the case, is not
21 relevant to bias, but rather is a steppingstone to something
22 else. The bias of a owner of a business, such as it is, is
23 obvious to the jury, need not be proven with the amount of
24 money that a company brings in on an annual basis.
25 **THE COURT:** Okay. Thank you.

1 **MS. COLE:** I don't have a case with me, because I
2 didn't expect to have to have one, but I believe there is case
3 law in support, Your Honor.
4 **THE COURT:** Okay. Thank you. We'll see you at 1:30.
5 **MR. ESFANDIARI:** Thank you, Your Honor.
6 (Recess from 12:14 p.m. to 1:28 p.m.)
7 **THE COURT:** Where's the good doctor?
8 **MS. COLE:** We'll get him.
9 **THE COURT:** Jason, what are you doing, redirect,
10 cross? I think you can do it however you want, the way this is
11 turning out. In other words, if you wanted to use leading
12 questions, you could. You have a lot of leeway.
13 **MR. BENKNER:** I appreciate that. I'm not going to be
14 very much longer with the doctor. He's been here a while.
15 **THE COURT:** Everybody good?
16 **MR. BENKNER:** Good.
17 **MR. ESFANDIARI:** So I shouldn't be objecting to
18 leading questions, Your Honor.
19 **THE COURT:** No.
20 **MR. ESFANDIARI:** Is that what you're saying? Okay.
21 **THE COURT:** Bring out the jury, please.
22 **MS. COLE:** Our videos after this are going to run
23 about an hour and a half to hour and 45.
24 **THE COURT:** Then you've got a live guy?
25 **MS. COLE:** Tomorrow.

1 **THE COURT SECURITY OFFICER:** All rise for the jury.
2 (Jury in at 1:30 p.m.)
3 **THE COURT:** Okay. Welcome back, everybody. By now,
4 you've figured out where the good restaurants are or everything
5 like that, where the snack bar is located. And we're ready to
6 roll. We still have a little bit more with this witness. So
7 go ahead whenever you're ready.
8 **MR. BENKNER:** Thank you, Your Honor.
9 **REDIRECT EXAMINATION**
10 **BY MR. BENKNER:**
11 **Q.** Doctor, can you still hear me okay?
12 **A.** Just fine. Thank you.
13 **Q.** Great. Before we broke, Mr. Esfandiari was asking you
14 whether you -- whether tardive seizures could cause brain
15 injury or brain damage. Do you remember that testimony?
16 **A.** Yeah.
17 **Q.** You said, sure, it could cause brain damage, the tardive
18 seizure. Right?
19 **A.** Yes.
20 **Q.** Were you talking about structural brain damage?
21 **A.** I'm talking about it can cause anoxia and then anoxic
22 brain damage.
23 **Q.** Is that structural brain damage the actual effect that a
24 tardive seizure can create?
25 **A.** Anoxia is structural brain damage.

1 **Q.** Which means that it would be observable on a CT or MRI
2 scan. Correct?
3 **A.** Yes.
4 **Q.** What is a tardive seizure?
5 **A.** Oh, that's a seizure that is unexpected and appears at an
6 unexpected time after the ECT. So the patient has his ECT
7 session, and then sometime later, usually refers to during the
8 succeeding half hour or hour, the patient has -- goes into a
9 seizure state, which can be a single seizure or it can be a
10 series of seizures that are then hard to interrupt.
11 **Q.** So this is not what's happening when a patient is
12 undergoing a typical session of ECT? This is not the expected
13 or anticipated result of the treatment?
14 **A.** No, it is not. During the ECT, the patient, of course, is
15 well oxygenated and relaxed, so the muscles don't use up
16 oxygen. So the anesthetist pumps oxygen into the body, and it
17 goes also to the body, but the muscles aren't using it. But
18 during a tardive seizure, there's no oxygen and there's no
19 ventilation, and the patient can fall and experience
20 arrhythmias that are not controlled by an anesthesiologist.
21 And there's all of that, those risk us. Could fall down the
22 stairs.
23 **Q.** Thank you, Doctor. Can we pull up Plaintiff Exhibit
24 Number 1, the 2013 manual, Page 1.
25 **A.** Tardive means late onset.

1 **Q.** Thank you. Can we highlight the second paragraph there,
2 please. Now, do you remember when Mr. Esfandiari was asking
3 you about this paragraph during your prior testimony?
4 **A.** Yes.
5 **Q.** And you had mentioned that certain conditions in this
6 paragraph could also lead to brain injury or brain damage. Do
7 you remember that?
8 **A.** Yes.
9 **Q.** And I believe you mentioned hypoxia, prolonged apnea, and
10 tardive seizures, which we just talked about.
11 **A.** Yes. And nonconvulsive status epilepsy.
12 **Q.** What is hypoxia?
13 **A.** Lack of oxygen, low oxygen levels.
14 **Q.** How would that come about in the context of ECT?
15 **A.** It could come about if the patient is -- if the
16 anesthesiologist or anesthetist hasn't kept up with pumping the
17 oxygen into the patient, he hasn't paid attention, or there is
18 an obstruction, such as mentioned, laryngospasms, spasm of the
19 larynx, so that the oxygen just can't get through the larynx
20 into the lungs.
21 **Q.** And with that condition, if it were to actually occur
22 during an ECT treatment, would it be apparent to the doctor and
23 the nurses in the room with the patient?
24 **A.** Oh, yes. The patient is monitored for oxygen levels with
25 a pulse oximeter on the finger or the -- it could be somewhere

1 else. So the oxygen levels are displayed on a screen, and also
2 the patient turns blue.
3 **Q.** And the possible brain injury that could happen from these
4 conditions that we're talking about, would those also be
5 structural brain changes, that is, things you would see on a CT
6 or MRI scan?
7 **A.** You mean from nonconvulsive status epilepsy or tardive
8 seizure or hypoxia? Yes, those are things you see on MRI scan.
9 **Q.** Somatics is giving warnings of this on the first page of
10 the report. Right?
11 **A.** Yes.
12 **Q.** Would you expect a licensed and trained medical doctor to
13 know the possible consequences of hypoxia, tardive seizure,
14 nonconvulsive status epilepticus?
15 **THE COURT:** Can you repeat the question, please?
16 **MR. BENKNER:** Sure.
17 **THE COURT:** Sorry. That was a bad attempt as a joke
18 by the judge.
19 **MR. BENKNER:** Thank you. Mercifully, thank you.
20 **BY MR. BENKNER:**
21 **Q.** Before the break, you were also asked by counsel about an
22 e-mail you had wrote criticizing the APA Task Force Report. Do
23 you remember that testimony?
24 **A.** Yeah.
25 **Q.** And I believe you said, specifically, that you disagreed

1 with how the Task Force was informing doctors on how to select
2 patients for treatment. Is that right?
3 **A.** Yes. That's right.
4 **Q.** Okay. But what about the APA's disclosures of the risks
5 and side effects of treatment? You didn't disagree with any of
6 those, did you?
7 **A.** I did not.
8 **Q.** Okay. And do you still believe that the APA book still
9 reflects the most recent knowledge about the risks and side
10 effects of treatment?
11 **A.** Yes, I do.
12 **Q.** You were also asked before the break about certain autopsy
13 studies in animal -- animal studies that showed signs of brain
14 damage. Do you remember that?
15 **A.** Yeah.
16 **Q.** Okay. And those studies were actually showing structural
17 brain damage; they showed up on CT and MRI scans. Right?
18 **A.** Autopsy, wasn't it, for animals?
19 **Q.** It was -- it might have been autopsy, but there was
20 actually evidence of structural brain damage, is what I'm
21 asking?
22 **A.** Yes.
23 **Q.** Okay. Do you know how long those seizures lasted in those
24 animal studies?
25 **A.** Well, I know that some of them, the seizures lasted for

1 three to six hours.
2 **Q.** And is that what happens when somebody goes in for a
3 typical session of ECT?
4 **A.** I hope not, no. The usual ECT seizure length is between
5 20 seconds and 45 seconds, less than a minute.
6 **Q.** Okay. And can the doctor interrupt or cut off the seizure
7 if he felt it was going too long?
8 **A.** Yes, there are many medications that can do that.
9 **Q.** Okay. And what is the -- do you have a view on how long a
10 typical seizure should last before it's interrupted?
11 **A.** My personal opinion is that seizures, it's best if the
12 seizure is one minute or less. But the standard of practice,
13 as indicated by the old APA Task Force Report, is that after
14 two to three minutes, the doctor should strongly consider
15 terminating the seizure.
16 **Q.** Certainly not often 30 minutes. Right?
17 **A.** Oh, no, that's -- that would be -- after three minutes,
18 the doctor should get nervous. And the Thymatron has a
19 built-in alarm, so that if a seizure goes longer than the time
20 the doctor selects, such as two minutes or three minutes, an
21 alarm starts sounding.
22 **Q.** Okay. To alert the doctor that they need to be aware,
23 potentially, to interrupt the seizure and wake up the patient?
24 **A.** That's correct.
25 **Q.** At the very beginning of your testimony, you were shown a

1 study from Alpers. Do you remember that testimony?
2 **A.** I remember the name, and I remember seeing it here, yes.
3 **Q.** And it was a study that was from the 1940s. Right?
4 **A.** Yes.
5 **Q.** Okay. And it looked at brain tissue under a microscope.
6 Right?
7 **A.** Yes.
8 **Q.** And that's called a histological study?
9 **A.** Yes.
10 **Q.** Correct? Are you familiar with any modern studies that
11 have done -- that have looked at brain tissue under a
12 microscope in the context of ECT?
13 **A.** Yes. There are -- I'm aware of a couple of studies on
14 patients who received hundreds of ECTs and then died of natural
15 causes.
16 **Q.** Are you familiar with the Anderson study that was
17 published in September of 2014?
18 **A.** Yes, I think that's one of them.
19 **MR. ESFANDIARI:** Your Honor, I would object to the
20 publication of studies of someone's own witness.
21 **THE REPORTER:** I can't hear you. Will you pull the
22 mic down?
23 **THE COURT:** I think this has already been covered, so
24 you can go through it briefly, like last time.
25 **MR. BENKNER:** Okay. Thank you, Your Honor.

1 Permission to publish briefly?

2 **THE COURT:** Yes.

3 **BY MR. BENKNER:**

4 **Q.** Okay. Doctor, is this the article that you were referring

5 to by Dr. Anderson?

6 **A.** Yes.

7 **Q.** And you've read this article before?

8 **A.** Oh, yes, several times.

9 **Q.** What is this article about this?

10 **A.** Is about an 84-year-old man, as the title says, who had a

11 total of 422 ECT treatments over his life.

12 **Q.** And after he died, his brain, a piece of his brain tissue

13 was examined under a microscope. Correct?

14 **A.** Yes.

15 **Q.** And do you remember -- do you know the conclusions of the

16 study?

17 **A.** No injury was found. He was normal for age.

18 **Q.** So after 422 sessions of ECT treatment, they still found

19 no evidence of structural brain damage from ECT from the study.

20 Right?

21 **A.** That's right.

22 **Q.** You can take it down.

23 I believe you had also offered to explain how the

24 literature had evolved during the 1960s through the 1980s and

25 how that contributed to the understanding of modern ECT. Do

1 you remember that testimony?

2 **A.** Yes.

3 **Q.** Before you were able to elaborate on that, I believe you
4 were cut off by Mr. Esfandiari. Would you like to explain
5 further now?

6 **A.** Yes. In the 1960s, sine wave ECT was common. And some
7 places were not vigorously hyperventilating patients with pure
8 oxygen. They were occasionally ventilating, or they were just
9 using room air. And it was not -- it was not widely understood
10 that hyperventilation, not just ventilation, but
11 hyperventilation is a wise idea. Keeping the patients pink.
12 It used to be said during the old days of ECT, the bluer, the
13 better. And that's rather appalling, because blue means
14 hypoxia, anoxia.

15 So that -- the standard of ventilation had changed, and
16 the standard of the ECT stimulus had changed, from sine wave to
17 brief pulse, so that in the APA Task Force Report of 2001, they
18 recommend against sine wave and for brief pulse. But when the
19 Thymatron came out in -- first Thymatron in '85, sine wave was
20 in far wider use than brief pulse.

21 **Q.** Thank you, Doctor. Have you ever seen any study of good
22 quality and reliability in terms of the methodology they use
23 and the ultimate results that they've obtained that has shown
24 that brain damage is a possible risk of ECT?

25 **MR. ESFANDIARI:** Objection to form.

1 **THE COURT:** Overruled.

2 **THE WITNESS:** I have not seen such a study.

3 **BY MR. BENKNER:**

4 **Q.** Have you ever seen a study of good quality and reliability

5 that has ever created even a debate over whether ECT causes

6 brain damage?

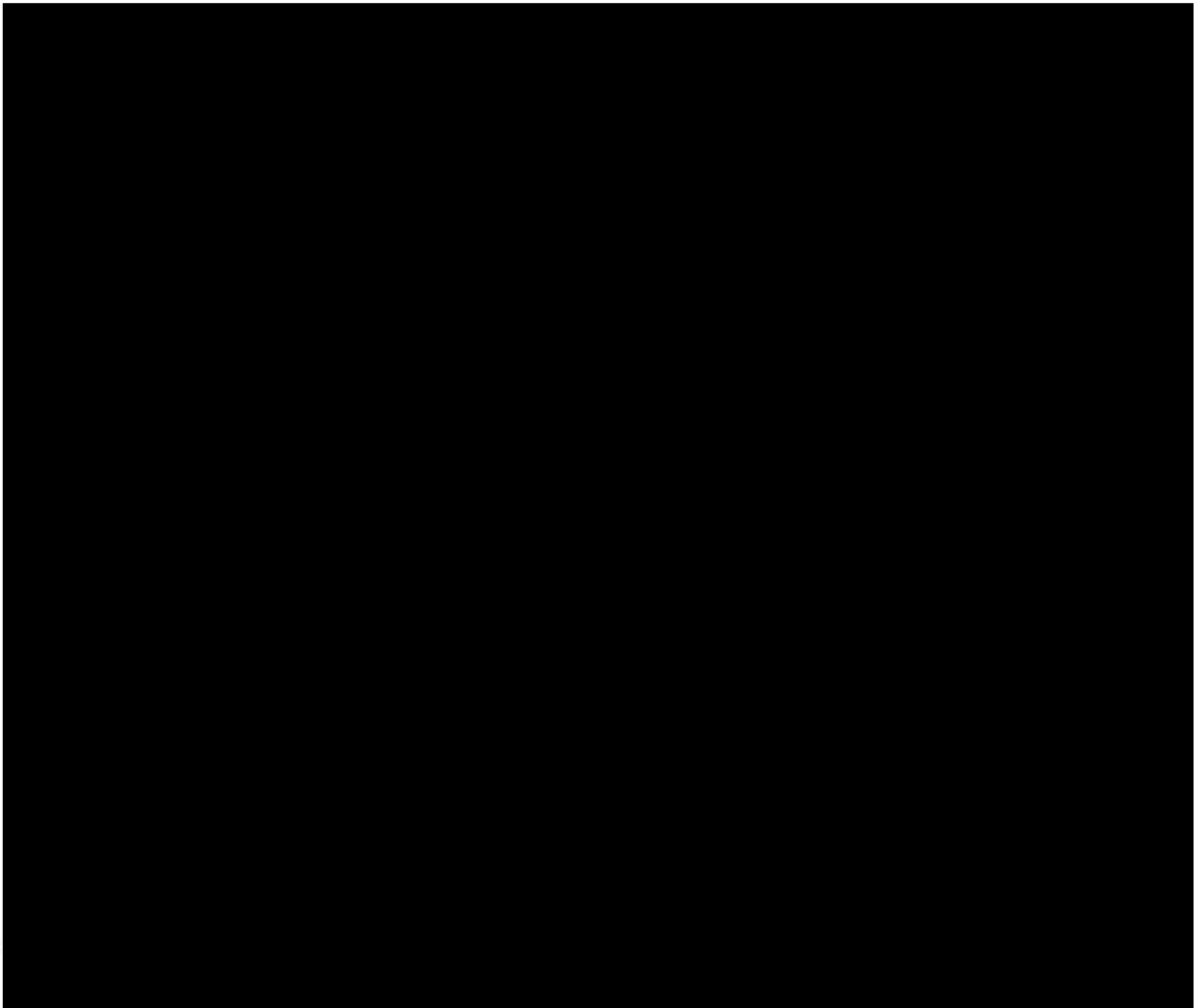
7 **A.** I have not seen such a study.

8 **Q.** Thank you, Doctor. That's all my questions.

9 **THE COURT:** All right. Thank you very much. You're

10 now free to go. Make sure you unhook from the mic before you

11 get up there.



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23 **THE COURT:** Okay. So we're good. I'm going to read
24 this stipulation, and then we're going to send everybody home.
25 Tomorrow we're going to do Dr.?

1 **MS. COLE:** Coffey.

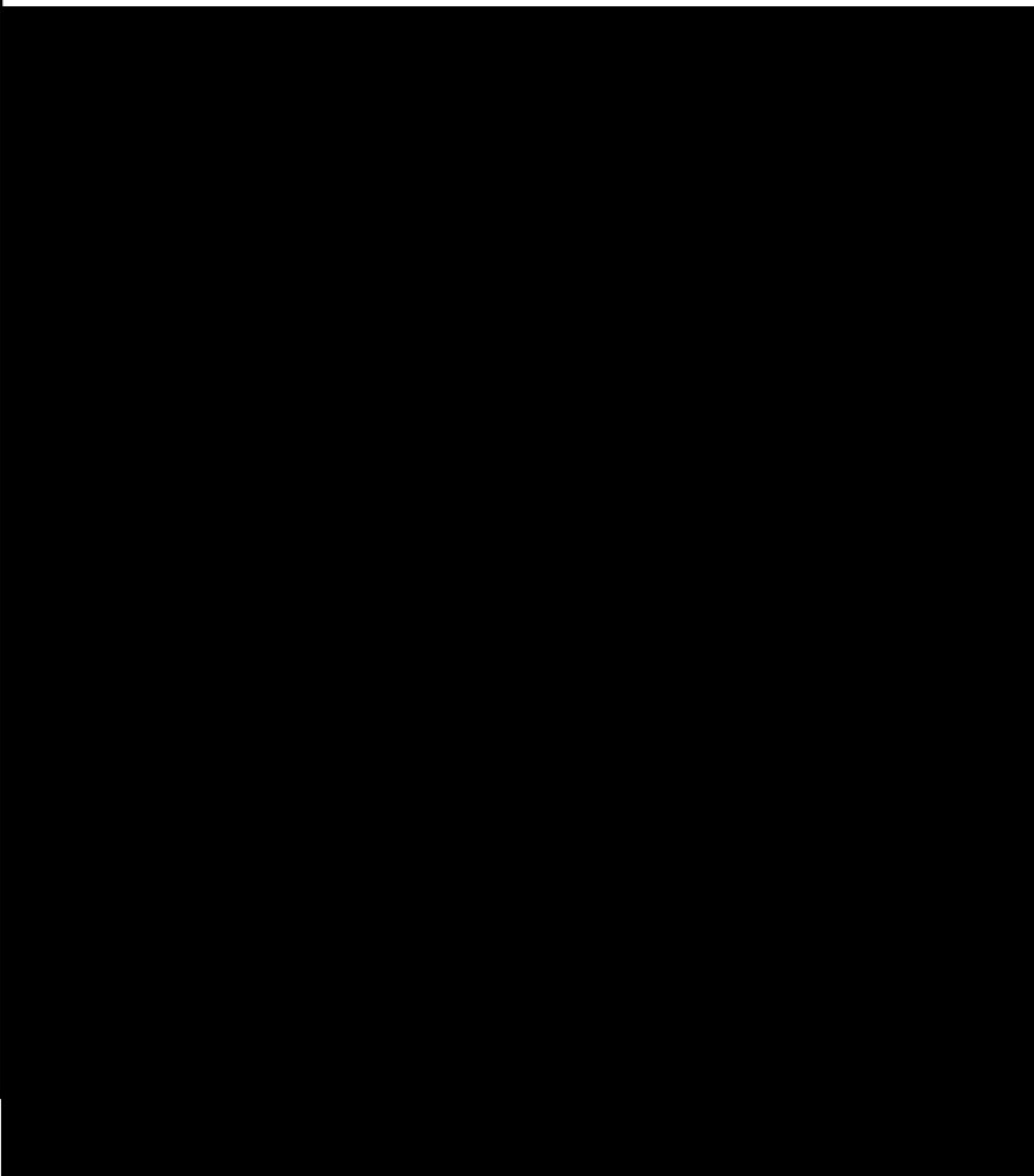
2 **THE COURT:** Dr. Coffey. All right. And then we're

3 done with testimony at that point.

4 **MS. COLE:** Yes, Your Honor. There's some pieces of

5 evidence that we'll have to put in, but other than that, that's

6 it.



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1 **CERTIFICATE OF REPORTER**

2 STATE OF FLORIDA

3 COUNTY OF HILLSBOROUGH

4 I, Rebekah M. Lockwood, RDR, CRR, do hereby certify

5 that I was authorized to and did stenographically report the

6 foregoing proceedings; and that the foregoing pages constitute

7 a true and complete computer-aided transcription of my original

8 stenographic notes to the best of my knowledge, skill, and

9 ability.

10 I further certify that I am not a relative, employee,

11 attorney, or counsel of any of the parties, nor am I a relative

12 or employee of any of the parties' attorneys or counsel

13 connected with the action, nor am I financially interested in

14 the action.

15 IN WITNESS WHEREOF, I have hereunto set my hand at Tampa,

16 Hillsborough County, Florida, this 15th day of June 2023.

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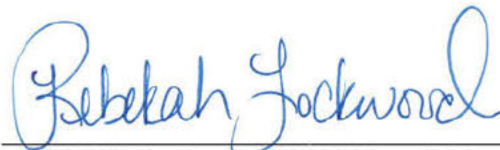

21 REBEKAH M. LOCKWOOD, RDR, CRR
Official Court Reporter

22 United States District Court
Middle District of Florida

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