Abrams, Richard 2018-08-02

Designation List Report

Abrams, Richard	**2018-08-02**

Plaintiff Affirmatives	00:57:48
TOTAL RUN TIME	**00:57:48**

DESIGNATION	SOURCE	DURATION	ID
5:13 - 5:17	**Abrams, Richard 2018-08-02**	00:00:10	ABRA1.1

5:13 Q. Good morning. Would you state your full name for
5:14 us for the record.
5:15 A. Richard Abrams, A-B-R-A-M-S.
5:16 Q. And I understand it's Dr. Abrams, correct?
5:17 A. Yes, M.D.

19:22 - 19:24	**Abrams, Richard 2018-08-02**	00:00:11	ABRA1.2

19:22 Q. When did you graduate med school?
19:23 A. H'm, '62, perhaps. Now, you're going back, I'm
19:24 81 years old.

20:10 - 21:11	**Abrams, Richard 2018-08-02**	00:01:50	ABRA1.3

20:10 Q. All right. And what was next evolution in your
20:11 career?
20:12 A. And then I entered the residency program of
20:13 New York Medical College, Flower and 5th Avenue hospitals.
20:14 Q. And approximately what year was that?
20:15 A. Approximately 1964.
20:16 Q. And for how long did you maintain that capacity?
20:17 A. I was drafted out of my residency at the end of
20:18 the first year and was sent to the Air Force for two
20:19 years, 1965 through 1967, where I was in charge of a
20:20 psychiatric ward and in charge of administering ECT for
20:21 that hospital.
20:22 Q. Was that the first approximate time frame of
20:23 exposure to ECT?
20:24 A. No, not at all.
20:25 Q. So you'd been exposed in school prior?
21:01 A. Yes.
21:02 Q. All right. Had you participated at the New York
21:03 Medical hospital --
21:04 A. New York Medical College.
21:05 Q. -- sorry, College; had you participated in the
21:06 New York Medical College with ECT in that era?
21:07 A. Yes, in my first year, let's say 1964 to 1965,
21:08 that's when I was first introduced to ECT by the man who
21:09 brought ECT to the United States in 1939,
21:10 Lothar Kalinowsky. And he was one of my teachers and was
21:11 a primary influence on me to go into the field of ECT.

30:19 - 31:05	**Abrams, Richard 2018-08-02**	00:00:40	ABRA1.4

DESIGNATION	SOURCE	DURATION	ID
	30:19 Q. Up to this point in time had you reached any 30:20 conclusions as to how ECT was working in terms of its 30:21 effectiveness? 30:22 A. No. 30:23 Q. And to the present, do you have any understanding 30:24 as to the mechanics of how ECT works? 30:25 A. I do not. 31:01 Q. All right. Would you agree that that's the 31:02 general state of the industry still today, that the 31:03 practitioners of ECT don't have an understanding of how it 31:04 works? 31:05 A. That's correct.		ABRA1.4
33:10 - 37:25	**Abrams, Richard 2018-08-02**	00:09:45	ABRA1.5
	33:10 Q. Is it fair to say that you would attribute the 33:11 amount of electricity as the most variable cause of 33:12 significance in potential risks and side effects 33:13 associated with ECT? 33:14 A. Well, it is the amount and type of the electrical 33:15 stimulus because, as you will recall, the sign wave 33:16 stimulus which produced much more memory disturbance than 33:17 the brief pulse stimulus, which replaced it, but the 33:18 amount and type of stimulation, and then a third factor is 33:19 the laterality or bilaterality of the placement of the 33:20 stimulus, that is either bilateral ECT on both sides of the head 33:21 or unilateral ECT administered to one side of the head. 33:22 So, if I may just summarize. The first 33:23 thing was sign wave versus brief pulse, brief pulse caused 33:24 less memory loss; then the next thing was unilateral 33:25 versus bilateral, unilateral caused less memory loss; and 34:01 then finally, ultra brief pulse versus standard brief 34:02 pulse in which the ultra brief caused less memory loss. 34:03 And I'd have to say those differences were equally 34:04 important. 34:05 Q. In terms of this evolution in time, I believe you 34:06 identified the ultra brief pulse became available in the 34:07 '80s to '90s. 34:08 Did I get that right? 34:09 A. Correct -- correct. 34:10 Q. Approximately when did you first recognize a		

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	34:11		difference in the potential side effects and risks	
	34:12		associated with ECT with regard to the positioning of the	
	34:13		electrodes?	
	34:14	A.	That was when I -- same year that I returned to	
	34:15		New York Medical College residency after leaving the	
	34:16		Air Force, and at that time I came back especially to work	
	34:17		with the other leading expert in ECT who was also at	
	34:18		New York Medical College and that was Dr. Max Fink and --	
	34:19	Q.	And I'm to interrupt.	
	34:20		Approximately what year was your first	
	34:21		involvement with Dr. Fink?	
	34:22	A.	That would have been --	
	34:23	Q.	Was that also --	
	34:24	A.	-- it was '68 when I returned to New York Medical	
	34:25		College after the Air Force, immediately afterwards, and I	
	35:01		became aware of Dr. Fink's work while I was in the	
	35:02		Air Force -- and as much as I subscribed to a number of	
	35:03		journals and I read his research -- and I came back	
	35:04		especially to research with him, which I did for many	
	35:05		years.	
	35:06		And the first study we did together had to	
	35:07		do with unilateral versus bilateral ECT, primarily the	
	35:08		effects, the clinical effects, the improvement in, let's	
	35:09		say, depression, and then also the side effects, the	
	35:10		memory and other cognitive functions.	
	35:11	Q.	Had you reached any understanding of the reason	
	35:12		why there was a difference in those side effects between	
	35:13		the electrode placement of bilateral versus unilateral at	
	35:14		that point in time?	
	35:15	A.	That was a question that we never resolved in a	
	35:16		definitive research fashion. We looked at various aspects	
	35:17		but could not reach a definitive conclusion as to the	
	35:18		differential effects of unilateral versus bilateral ECT,	
	35:19		the differential clinical effects.	
	35:20	Q.	And how about to the present, had you ever	
	35:21		reached any conclusion as to why unilateral caused less	
	35:22		potential side effects following ECT than bilateral?	
	35:23	A.	Other than the fact that the two hemispheres have	
	35:24		different functions when you apply the electrical stimulus	
	35:25		only to one hemisphere, you are avoiding, let's say,	
	36:01		impairing functions of the other hemisphere; however, in	

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36:02 any case, a convulsion is produced, a brain seizure, and
36:03 that also by itself has generalized effects. And we were
36:04 never able to separate out in our minds -- I was never
36:05 able to separate out in our mind -- my mind, the why it
36:06 ended up being a difference. In other words, why
36:07 stimulating one side of the head even though a convulsion
36:08 was produced, had less memory loss than stimulating both
36:09 sides of the head with presumably the same convulsion.
36:10 That was -- never resolved that in a research setting.
36:11 Q. And does that stand true in terms of your
36:12 perspective of the industry today?
36:13 A. Correct.
36:14 Q. In terms of your perspective of the effectiveness
36:15 of the seizure induced by ECT when comparing a unilateral
36:16 placement versus a bilateral placement, have you formed a
36:17 conclusion if there's a difference?
36:18 A. That is something that I have studied with
36:19 several different individuals from several different
36:20 perspectives including electroencephalographic and other
36:21 aspects but we never reached a definitive conclusion and I
36:22 do not even today have a definitive understanding of that.
36:23 Q. How would you describe the difference, if at all,
36:24 between the seizure that's induced unilaterally by
36:25 electrode placement versus the seizure that's induced
37:01 bilaterally?
37:02 A. That was one of the items that was studied but
37:03 could not come to a definitive conclusion. There's --
37:04 obviously, there seemed to be something different about
37:05 them. There might have been different
37:06 electroencephalographic features as shown on computer
37:07 analysis, which we did, but we could not come up with a
37:08 final definitive statement as to exactly what was the
37:09 difference.
37:10 Q. In terms of any understanding that you've reached
37:11 over time as to the potential side effects associated with
37:12 ECT in comparing seizure efficacy, have you reached any
37:13 conclusions?
37:14 A. Well, the main conclusion is that you really must
37:15 have a seizure in order to have efficacy.
37:16 Q. All right. So how about a duration of seizure,
37:17 was there ever a period of time over your exposure to ECT

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	37:18 that the duration of the seizure measurement became a 37:19 factor to control as to potential side effects or risks 37:20 associated with ECT? 37:21 A. We could never link seizure duration to any 37:22 specific side effect of ECT; however, if the question 37:23 about controlling the duration, if the seizure is very 37:24 short, you do not get a therapeutic effect and you do not 37:25 get also any memory disturbance or confusion.		
38:10 - 38:24	**Abrams, Richard 2018-08-02**	00:00:52	ABRA1.6
	38:10 Q. In terms of your first exposure to ECT, was there 38:11 a measurement of time associated with inducing seizure 38:12 that you adopted as necessary to promote the therapeutic 38:13 effects you were seeking with ECT? 38:14 A. It was a rule-of-thumb that was not based on any 38:15 specific evidence in the literature and that was, it 38:16 should last at least 30 seconds. 38:17 Q. All right. Why don't -- 38:18 A. But that, we never published or anything like 38:19 that. It was just a clinical rule-of-thumb. 38:20 Q. And do you know where that rule-of-thumb came 38:21 from? 38:22 A. Plucked it out of the air, as far as I know. 38:23 There is no research data that I was aware of at that 38:24 time.		
43:21 - 44:09	**Abrams, Richard 2018-08-02**	00:01:18	ABRA1.7
	43:21 Q. Thank you, inducing seizure from ECT, other than 43:22 the rule-of-thumb of at least thirty seconds, when did you 43:23 first form an opinion, if you ever did, that there might 43:24 be a seizure that could last too long as a risk associated 43:25 with potentially causing more side effects from ECT? 44:01 A. Very early in my exposure to ECT we -- I became 44:02 aware that a prolonged seizure, which had really not been 44:03 specifically defined yet, could be associated with 44:04 significantly more memory loss and over time the seizure 44:05 duration of two minutes was deemed -- the maximum that 44:06 would be useful and had become the practice of many ECT 44:07 doctors primarily, let us say, the '70s, late '60s, to 44:08 terminate a seizure artificially if it went more than two 44:09 or three minutes.		
48:12 - 48:20	**Abrams, Richard 2018-08-02**	00:00:45	ABRA1.8

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	48:12 Q. And, generally, how would you describe your ECT		ABRA1.8
	48:13 practice in that window of time, 1976 to 1996? Had it		
	48:14 stayed relatively the same in terms of the variables that		
	48:15 we've already discussed or had there been any evolution in		
	48:16 your mind in how ECT was practiced in that window?		
	48:17 A. Well, I'll tell you what the most significant		
	48:18 thing that happened in my mind during that period was --		
	48:19 you'll have to decide how it refers to your question --		
	48:20 after -- soon after I got to Chicago Medical School in		
48:21 - 50:04	**Abrams, Richard 2018-08-02**	00:03:08	ABRA1.9
	48:21 1976, it entered my mind that it would be possible to		
	48:22 construct a more efficient or more advantaged, more		
	48:23 advantageous ECT device than the Mecta, which was what we		
	48:24 were using when I first got to the hospital.		
	48:25 And that was -- at that time we were		
	49:01 recruiting physicians, psychiatrists for the department at		
	49:02 the professorial level, I was in charge of recruitment at		
	49:03 that time. And the chairman of the department at the		
	49:04 University of Iowa Medical School recommended		
	49:05 Dr. Conrad Swartz as somebody to join our department,		
	49:06 which he did, as a professor.		
	49:07 And shortly after he got there, it became		
	49:08 obvious that he had an extensive knowledge of electricity		
	49:09 and electronics because of his Ph.D. in engineering that		
	49:10 he had in addition to his MD. And so, we decided to		
	49:11 collaborate on the development of what became the		
	49:12 Thymatron which we actually introduced into commercial		
	49:13 production in 1984, as I recall.		
	49:14 Q. And when did Dr. Swartz join you in Chicago?		
	49:15 A. I would say '81/'82.		
	49:16 Q. Fair to say that other than yourself and		
	49:17 Dr. Swartz, there were no other principal contributors to		
	49:18 the creation of the Thymatron?		
	49:19 A. There were none, other than an individual that we		
	49:20 chose to manufacture or to -- let me, first of all, to		
	49:21 help in the design and the construction and the production		
	49:22 of the Thymatron, that was somebody I had known from		
	49:23 New York Medical College, John Pavel, P-A-V-E-L. He		
	49:24 worked for Dr. Max Fink as an electronics expert and I		
	49:25 knew him well. He had actually made some equipment for me		

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	50:01 for one of my ECT studies at Metropolitan Hospital. And 50:02 so, the three of us, Dr. Swartz, myself, and 50:03 John Pavel collaborated in the design and plan of the very 50:04 first Thymatron.		
50:15 - 51:03	**Abrams, Richard 2018-08-02**	00:00:43	ABRA1.10
	50:15 Q. All right. As I understand it, the Thymatron was 50:16 first produced by the company Somatics, LLC, is that correct? 50:17 A. Correct. Dr. Swartz and I formed that company in 50:18 1983, I think was the year we formed it. 50:19 Q. And was the purpose of forming Somatics expressly 50:20 to market the Thymatron? 50:21 A. Correct. 50:22 Q. As opposed to any other purpose? 50:23 A. That is correct. 50:24 Q. And that remains its purpose today? 50:25 A. That is correct. 51:01 Q. Any other business other than ECT devices of 51:02 Somatics today? 51:03 A. There are not.		
78:11 - 79:11	**Abrams, Richard 2018-08-02**	00:01:25	ABRA1.11
	78:11 When did you first form an opinion that that 78:12 was something that some patients complained of from ECT? 78:13 A. There were some studies done by 78:14 Dr. Richard Weiner, W-E-I-N-E-R, of Duke University, which 78:15 he presented at an American Academy of Sciences meeting in 78:16 which he reported that some patients had very long-term 78:17 memory effects. 78:18 Q. Approximately when was that that you first became 78:19 aware of Dr. Weiner's perspective of a long-term memory 78:20 effect from ECT? 78:21 MR. POOLE: Well, I'm not sure that 78:22 accurately states his statement. I don't know what 78:23 Dr. Weiner said -- 78:24 THE WITNESS: He published a book. 78:25 MR. POOLE: (To Witness) Okay, let me 79:01 finish my statement. 79:02 I don't know whether he said these are what 79:03 the patients reported or I have determined that but -- 79:04 THE WITNESS: He studied that and said he 79:05 determined that.		

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	79:06 MR. POOLE: Okay. 79:07 THE WITNESS: He did a study. 79:08 BY MR. KAREN: 79:09 Q. Approximately when was that? 79:10 A. And the year of that study, let me say late '80s, 79:11 very rough.		
79:18 - 80:05	**Abrams, Richard 2018-08-02**	00:01:04	ABRA1.12
	79:18 Q. The point of my question was -- the point in time 79:19 where you first became aware that Dr. Weiner determined 79:20 that patients had complained of long-term memory effects 79:21 associated as a side effect of ECT. 79:22 Late '80s after Somatics was formed? 79:23 A. But that's not an exact representation of what 79:24 happened with Dr. Weiner. Dr. Weiner did a study that 79:25 showed that some patients had long-term difficulty with 80:01 personal memory -- what he called autobiographical 80:02 memory -- and that there was a long-term effect that he 80:03 actually found and reported at this meeting which I 80:04 attended. And I believe that would have been late '80s, I 80:05 just don't know.		
80:12 - 80:21	**Abrams, Richard 2018-08-02**	00:00:27	ABRA1.13
	80:12 Q. All right. Let me see if I can phrase it a 80:13 little differently. 80:14 Other than how you've defined Dr. Weiner's 80:15 determination -- 80:16 A. Right. 80:17 Q. -- that he made in that time frame of the late 80:18 '80s as to the long-term memory effects associated with 80:19 ECT, had you heard of that perspective before that point 80:20 in time? 80:21 A. No.		
80:22 - 80:25	**Abrams, Richard 2018-08-02**	00:00:07	ABRA1.35
	80:22 Q. All right. By this point in time Somatics had 80:23 already been marketing its Thymatron devices. 80:24 A. Device. 80:25 Q. Device, thank you.		
81:01 - 81:07	**Abrams, Richard 2018-08-02**	00:00:24	ABRA1.36
	81:01 Are you aware of any changes that Somatics 81:02 undertook with regard to its marketing or disclosures		

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	81:03 associated with the purchases of its device that addressed 81:04 Dr. Weiner's perspective that you had learned in the late 81:05 '80s? 81:06 A. No. 81:07 Q. Any reason why not?		
81:08 - 82:17	**Abrams, Richard 2018-08-02**	00:02:13	ABRA1.37
	81:08 A. I didn't agree with his study and it was one of 81:09 the reasons that it was only published in the proceedings 81:10 of the American Academy of Science, in the proceedings 81:11 which is a little book form and it was never published in 81:12 the peer-review journal. And even years afterwards it 81:13 never appeared in the peer-review journal which led me to 81:14 believe that the results could not be confirmed. 81:15 Q. At any time to the present has Somatics initiated 81:16 any studies or tests with regard to this issue of 81:17 long-term side effects associated with ECT? 81:18 A. No. 81:19 Q. Any reason why not? 81:20 A. That's not our business. 81:21 Q. Whose business do you believe it is? 81:22 A. Can you rephrase that, could you repeat that 81:23 question to me? 81:24 Q. I'll rephrase. 81:25 I believe I asked whether or not Somatics 82:01 initiated any studies or tests to the present to assess 82:02 the long-term side effects associated with ECT. 82:03 I believe your answer was Somatics has not, 82:04 correct? 82:05 A. Correct. 82:06 Q. And my followup question was why not, and I 82:07 believe you said because it's not your business. 82:08 A. Correct. 82:09 Q. And then, my question is, who do you believe that 82:10 business responsibility falls upon? 82:11 A. Academic psychiatrists. 82:12 Q. Is there any reason that you're aware of that 82:13 Somatics has not enlisted the academic psychiatrists to 82:14 perform such studies? 82:15 A. Somatics doesn't enlist anyone to do studies. 82:16 Q. Any reason?		

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	82:17 A. That's not our business.		
82:18 - 82:18	**Abrams, Richard 2018-08-02**	00:00:06	ABRA1.38
	82:18 Q. So other than -- let me rephrase.		
82:19 - 84:07	**Abrams, Richard 2018-08-02**	00:03:20	ABRA1.39
	82:19 Was there a period of time between 82:20 Dr. Weiner's findings or conclusions about long-term 82:21 effects associated with ECT and the present where your 82:22 perspective has ever changed that long-term side effects 82:23 are associated with ECT? 82:24 A. No, my perspective on that has never changed. 82:25 Q. Are you aware of any others in the field of ECT, 83:01 besides Dr. Weiner, that have ever reached a conclusion 83:02 that long-term side effects are associated with ECT? 83:03 A. Yes, Dr. Harold Sackeim, S-A-C-K-E-I-M, when he 83:04 was at Columbia University published one or two articles 83:05 or studies -- I'm not sure if they were formal research 83:06 studies or if they were opinion pieces, I don't recall -- 83:07 but he did reach the conclusion that long-term or 83:08 permanent memory loss could occur in some rare patients 83:09 who received ECT. 83:10 Q. And do you recall, approximately, when that was? 83:11 A. That could well have been in the early '90s. 83:12 Q. And what, if anything, do you recall as to the 83:13 variables, if any, that were identified by Dr. Sackeim as 83:14 attributing to the long-term or permanent side effects 83:15 associated with ECT in the early '90s? 83:16 A. As I said, I'm unclear as to whether he reached 83:17 his conclusion because of a formal study of patients 83:18 assessed before and long -- and years after ECT or if he 83:19 just based it on discussions that he had with patients who 83:20 had ECT, I'm not sure. But I did object, in writing, to 83:21 his conclusions and my objection was published in the 83:22 Journal of ECT, and I cannot give you the year. It would 83:23 have been in the '90s. 83:24 Q. And your objection was because you disagreed with 83:25 his conclusions? 84:01 A. Correct. 84:02 Q. All right. Fair to say that after Dr. Sackeim's 84:03 publications in the approximate early '90s, Somatics did 84:04 not change its marketings or disclosures in any way with		

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	84:05 regard to identifying any potential long-term or permanent 84:06 side effects with ECT? 84:07 A. That's correct.		
90:17 - 90:20	**Abrams, Richard 2018-08-02**	00:00:19	ABRA1.14
	90:17 Q. Was there ever a time that Somatics initiated any 90:18 inquiry or effort anywhere to further any investigation as 90:19 to whether long-term side effects were caused by ECT? 90:20 A. No, Somatics did not do such.		
106:21 - 107:11	**Abrams, Richard 2018-08-02**	00:01:10	ABRA1.16
	106:21 Q. Shifting gears a little bit. 106:22 Over the course of the years that Somatics 106:23 has sold its Thymatron ECT devices, do you have an 106:24 understanding as to how many different owner's manual 106:25 editions have been generated? 107:01 A. From the very beginning? Oh, let me see if I can 107:02 come up -- 107:03 Q. I don't want you to guess but if you have some 107:04 awareness. 107:05 A. No, I'm going to give you my best estimate. I 107:06 never guess. At least 12 to 15. 107:07 Q. And what, if anything, is the triggering event 107:08 that would cause a new edition of the owner's manual to be 107:09 generated? 107:10 A. Almost always the introduction of some new 107:11 special feature.		
107:21 - 107:25	**Abrams, Richard 2018-08-02**	00:00:18	ABRA1.17
	107:21 Q. Is any aspect, as far as you're aware of, the 107:22 updating of an owner's manual, intended to address any new 107:23 or different awareness of risks or long-term side effects 107:24 associated with ECT? 107:25 A. No.		
108:01 - 108:05	**Abrams, Richard 2018-08-02**	00:00:27	ABRA1.42
	108:01 Q. Are you aware of any practice within Somatics 108:02 that anyone at Somatics affirmatively accomplishes to 108:03 advise past purchasers of any new awareness of any 108:04 permanent or long-term risks associated with ECT? 108:05 A. No, I am not.		
108:06 - 108:10	**Abrams, Richard 2018-08-02**	00:00:21	ABRA1.43
	108:06 Q. At some point in time I think on the web page of		

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	108:07 Somatics a disclosure was -- or disclaimer, I think, was 108:08 adopted by Somatics. 108:09 Are you familiar with what I'm referring to? 108:10 A. Not yet.		
108:11 - 108:23	**Abrams, Richard 2018-08-02**	00:00:50	ABRA1.44
	108:11 Q. Okay. This was on your web page as of July of 108:12 this year, a disclaimer: "Please note, that nothing in 108:13 this website constitutes or should be construed as a claim 108:14 by Somatics, LLC. That confusion, cognitive impairment, 108:15 or memory loss (short-term, long-term, recent, remote, 108:16 transient, or persistent) cannot occur as a result of 108:17 ECT." 108:18 Are you familiar with that disclaimer? 108:19 A. I wrote it. 108:20 Q. All right. When did you first write that 108:21 disclaimer? 108:22 A. I do not recall, within the last decade, 108:23 certainly.		
108:24 - 109:05	**Abrams, Richard 2018-08-02**	00:00:43	ABRA1.45
	108:24 Q. And what, in your mind, was the purpose of you 108:25 including this disclaimer on your web page? 109:01 A. My recollection is that it was at the suggestion 109:02 of Dr. Swartz, who at some time decided that that would be 109:03 an appropriate statement to include in the manual. We had 109:04 never discussed it before. He suggested it, I agreed, and 109:05 wrote it, and thereafter, it appeared in the manual.		
110:14 - 110:23	**Abrams, Richard 2018-08-02**	00:00:32	ABRA1.18
	110:14 Q. Do you have any reason to believe that this 110:15 disclaimer would have been retroactively distributed to 110:16 prior purchasers of Somatics ECT devices? 110:17 A. I do not believe there was. 110:18 Q. No reason to believe it would have been? 110:19 A. No. 110:20 Q. No efforts that you're aware of that were 110:21 undertaken by anyone at Somatics to share this new 110:22 disclaimer with old purchasers of Somatics's devices? 110:23 A. I'm not aware of any such effort.		
110:24 - 111:20	**Abrams, Richard 2018-08-02**	00:01:09	ABRA1.46
	110:24 Q. The way this disclaimer was drafted is in a		

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	110:25 negative in that it says "nothing in this website 111:01 constitutes or should be construed that these listed 111:02 long-term effects cannot occur as a result of ECT." 111:03 That's drafted in the negative. 111:04 Do you agree? 111:05 A. I agree that it is. 111:06 Q. Would you agree that that's a different statement 111:07 than one that would have said, more or less, please be 111:08 advised that long-term permanent memory losses can result 111:09 as a side effect of ECT? 111:10 A. Are you asking me if that's a different 111:11 statement? 111:12 Q. Correct. 111:13 A. It is a different statement. 111:14 Q. All right. Was there any conversations that you 111:15 had with Dr. Swartz about drafting this disclaimer in the 111:16 negative versus drafting a disclaimer more in the 111:17 affirmative that, Hey, World, these are long-term side 111:18 effects? 111:19 A. We had no such discussion. Dr. Swartz has his 111:20 own way of writing.		
112:10 - 112:15	**Abrams, Richard 2018-08-02** 112:10 Q. As you sit here today, do you have any reason to 112:11 believe that anyone at Somatics has ever affirmatively 112:12 generated anything to its purchasers at any time that 112:13 permanent long-term memory loss is a risk associated with 112:14 ECT? 112:15 A. I do not recall any such statement.	00:00:20	ABRA1.19
113:02 - 113:17	**Abrams, Richard 2018-08-02** 113:02 Q. Had you ever heard, other than what you've 113:03 already testified to this morning, which I think were two 113:04 published perspectives from Drs. Weiner and Sackeim. 113:05 A. Correct. 113:06 Q. Separating from published writings now to any 113:07 shared perspective that you had ever been privy to that 113:08 long-term or permanent memory loss is a risk associated 113:09 with ECT, had you ever heard that before? 113:10 A. We're not talking about scientific publications, 113:11 correct? 113:12 Q. Correct.	00:01:14	ABRA1.20

DESIGNATION	SOURCE	DURATION	ID
	113:13 A. Well, yes, of course I read all the comments from 113:14 the public in response to the 1995, and later 2011, 113:15 requests for commentary on their down classification from 113:16 Class III to Class II, and I read many, many, many dozens 113:17 of ECT recipients' claims of their experiences with ECT.		
113:24 - 115:01	**Abrams, Richard 2018-08-02**	00:01:39	ABRA1.21
	113:24 Q. So would those be the original sources of 113:25 information where you first learned that others were 114:01 claiming that permanent long-term memory loss was a risk 114:02 associated with ECT? 114:03 A. Oh, no. Probably at the very first American 114:04 Psychiatric -- American Psychiatric Association meeting I 114:05 attended back in 1967 that there were groups picketing 114:06 against ECT and they were allowed to present some of their 114:07 opinions at some aspect of the meeting, as I recall. I 114:08 don't remember the details but I certainly remember the 114:09 fact that there were a number of people complaining about 114:10 ECT, lay people. 114:11 Q. And my question is a little more focused -- 114:12 A. Okay. 114:13 Q. -- I appreciate that but it's the approximate 114:14 first point in time -- and maybe that's still it -- where 114:15 you first heard of a perspective of anybody complaining 114:16 that long-term or permanent memory loss was a risk 114:17 associated with ECT. 114:18 Would that have been the '67 first meeting? 114:19 A. That would have been. 114:20 Q. All right. So fair to say from that point in 114:21 time to the present, there has always been -- that you're 114:22 aware of -- complaints that permanent long-term memory 114:23 loss is a risk associated with ECT. 114:24 A. Correct. 114:25 Q. Fair to say that you just disagree with it. 115:01 A. I do.		
126:03 - 127:03	**Abrams, Richard 2018-08-02**	00:01:26	ABRA1.22
	126:03 Q. I had a question about seizure activity. 126:04 One of the notes in the owner's manual says: 126:05 "It is possible for seizure activity to continue in the 126:06 brain after any or all the computer reports indicate 126:07 seizure determination."		

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126:08 Did you write that?
126:09 A. I did.
126:10 Q. How is that possible?
126:11 A. It's the nature of the brain.
126:12 Q. Meaning?
126:13 A. Meaning that there can be localized seizure
126:14 activity in the brain that is not detectable from surface
126:15 electrodes.
126:16 Q. If it's not detectable on surface electrodes, how
126:17 do you conclude whether the seizure has concluded?
126:18 A. You're only left with the visible muscle activity
126:19 or I should add, or with an accelerated heart rate if it
126:20 did occur.
126:21 Q. Compared to baseline?
126:22 A. Correct.
126:23 Q. Do you have an opinion as to whether or not
126:24 seizure activity can continue that is not visible to the
126:25 naked eye regarding muscle activity?
127:01 A. Seizure activity in the brain?
127:02 Q. Correct.
127:03 A. Yes, I'm certain it can.

128:02 - 129:01 **Abrams, Richard 2018-08-02** 00:02:09 ABRA1.23

128:02 Q. Have you ever formed a conclusion as to what the
128:03 possible causes for memory loss associated with ECT are?
128:04 A. I have never actually studied that point but I
128:05 have formed the opinion that the memory losses that can be
128:06 observed in some patients who receive ECT are the result
128:07 of hippocampal malfunction or dysfunction temporarily.
128:08 The hippocampus essentially being a primary site of memory
128:09 storage.
128:10 Q. And what is it that has led you to reach that
128:11 conclusion?
128:12 A. All of the many, many studies of hippocampal
128:13 function in many different patients by many different
128:14 authors including, let's say, Brenda Milner was one of the
128:15 famous authors. Many people, way too many to cite, have
128:16 determined to their satisfaction and to the journal's
128:17 satisfaction that memory dysfunction is very often related
128:18 to hippocampal dysfunction or damage.
128:19 Q. And are you aware or have you reached an

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	128:20 understanding as to how that hippocampal malfunction or 128:21 dysfunction or damage occurs as a result of ECT? 128:22 A. No, that's something I have never studied and I'm 128:23 not aware of any definitive studies of that question. 128:24 Q. As you sit here today, are you aware of any 128:25 pending ECT studies at all? 129:01 A. None.		
130:11 - 131:08	**Abrams, Richard 2018-08-02**	00:01:36	ABRA1.24
	130:11 Q. All right. What is it about the seizure that 130:12 you've learned that is the most likely source for the 130:13 malfunction or dysfunction to the hippocampus following 130:14 the ECT as the likely source of memory loss that occurs? 130:15 A. In none of my studies or my review of the 130:16 literature have I ever been able to come up with an 130:17 explanation that satisfied me. 130:18 Q. Other than seizure as the source? 130:19 A. Well, seizure or the passage of electric current. 130:20 Remember, I mentioned the difference between unilateral 130:21 and bilateral ECT. Bilateral ECT, you're passing electric 130:22 current through both hippocampi, but with unilateral ECT 130:23 you're only passing it through one hippocampus. So there 130:24 is certainly a difference partially obscured by the fact 130:25 that after the electrical stimulus, then you have the 131:01 seizure which affects the whole brain. So that might 131:02 muddy the waters a little bit in being able to tell the 131:03 difference. But certainly the electrical stimulus itself 131:04 plays a role in the hippocampal dysfunction. 131:05 Q. And other than the hippocampal dysfunction, do 131:06 you have any reason to believe there's any other cause of 131:07 the memory loss associated with ECT? 131:08 A. No.		
131:09 - 132:02	**Abrams, Richard 2018-08-02**	00:01:19	ABRA1.47
	131:09 Q. Do you have a recollection of the longest seizure 131:10 that you were ever able to document that continued after 131:11 it no longer was evident on EEG and no longer visible by 131:12 muscle activity? 131:13 A. No, there would be no way I could tell. 131:14 Q. Because it would be a guess? 131:15 A. It wouldn't even be a guess. There would be no 131:16 way to even estimate. I mean -- go ahead, that's my		

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	131:17 answer. 131:18 Q. All right. How was it involved in terms of the 131:19 conclusion that a maximum duration of seizure was adopted 131:20 by Somatics as its recommendation? 131:21 A. It was a statement unsubstantiated by any 131:22 research by Dr. Max Fink, an authoritarian statement, an 131:23 authority statement, and that was it, and that became the 131:24 standard. 131:25 Q. And is still the standard today? 132:01 A. I don't know what the standard is today but I 132:02 don't imagine it's changed.		
145:21 - 145:25	**Abrams, Richard 2018-08-02**	00:00:17	ABRA1.25
	145:21 Q. Would you say that it's the electricity that 145:22 causes the desired effect or the seizure that causes the 145:23 desired effect with ECT? 145:24 A. That is definitely a question that has never been 145:25 perfectly resolved.		
146:03 - 146:19	**Abrams, Richard 2018-08-02**	00:01:23	ABRA1.26
	146:03 Q. Can't have a seizure without electricity, 146:04 can't -- 146:05 A. Well, you can. In the original days the original 146:06 introduction of let's call it convulsive therapy, a 146:07 compound called -- a chemical called Metrozole was 146:08 injected in the vein and it caused the seizure. And those 146:09 seizures were effective but nobody ever compared them with 146:10 the electrical stimulus, that just -- it just wasn't done. 146:11 So, we don't know. Soon thereafter an Italian introduced 146:12 electroconvulsive therapy and the world adopted it within 146:13 a year or two. 146:14 Q. What's your understanding, if any, as to what the 146:15 effect of the electricity is upon the brain cells? 146:16 A. It lowers dramatically and instantly the seizure 146:17 threshold and that induces widespread synchronous 146:18 discharge of virtually all of the neurons in the brain and 146:19 that is the definition of a seizure.		
147:08 - 149:15	**Abrams, Richard 2018-08-02**	00:03:44	ABRA1.27
	147:08 Q. What's your understanding, if any, as to the path 147:09 that the electricity takes through the brain during ECT? 147:10 A. It is primarily a reflection of where the 147:11 treatment electrodes are applied. Generally the path is		

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147:12 between, primarily, the treatment electrodes. So if it's
147:13 bilateral ECT, then it goes transversely through the head
147:14 or if it's unilateral ECT, the path will be primarily
147:15 between two electrodes.
147:16 Q. Do you have an understanding as to whether or not
147:17 it travels to any other location within the brain other
147:18 than between the placement of the electrodes?
147:19 A. Well, the brain is what is called a volume
147:20 conductor, so, yes, it concentrates a large part between
147:21 the two electrodes but it spreads out like ripples of a
147:22 pebble thrown in a pond. So at some point some amount of
147:23 electricity will always reach other distant parts of the
147:24 brain, although it may be very small.
147:25 Q. Are you aware of any way to control within the
148:01 brain the other portions of the brain being touched by the
148:02 electricity induced by ECT?
148:03 A. I am not.
148:04 Q. Are you aware of the amount of energy that's used
148:05 in the brain outside of ECT?
148:06 A. That's used in the brain, I'm not sure what you
148:07 mean.
148:08 Q. Any measure of electrical energy within the brain
148:09 not including ECT application in its natural state.
148:10 A. Oh, well, certainly. I can't give you a figure
148:11 but there are numerous studies, electroencephalographic
148:12 computer studies that measure -- that have measured in
148:13 great detail the electrical output of the resting brain.
148:14 Q. And how does that compare to the electrical
148:15 energy used by ECT?
148:16 A. The electrical energy used by ECT?
148:17 Q. Correct.
148:18 A. Well, there's no comparison in the sense that the
148:19 electrical energy used by ECT is many, many multiples of
148:20 the spontaneous electrical energy of the resting brain.
148:21 Q. And what is the maximum energy that the ECT
148:22 sematic devices utilize?
148:23 A. 99.4 joules.
148:24 Q. And how does that compare to the energy of the
148:25 resting brain?
149:01 A. I don't know. I have no idea.
149:02 Q. It's not even 1 percent of that; is it?

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	149:03 A. I have no idea what the energy of the resting 149:04 brain is. That is not my field. 149:05 Q. Do you have any understanding that anyone at 149:06 Somatics has ever incorporated studies of traumatic brain 149:07 injury with ECT in any way? 149:08 A. Certainly not. 149:09 Q. Do you know why? 149:10 A. There would be no reason to. 149:11 Q. Is that because you don't believe that there 149:12 could be a correlation between TBI, traumatic brain 149:13 injury, and ECT? 149:14 A. Well, we're not in the business of doing studies 149:15 of traumatic brain injury. We sell Thymatrons.		
150:12 - 151:16	**Abrams, Richard 2018-08-02**	00:01:35	ABRA1.28
	150:12 Q. Right. I'm referring to the 2011 executive 150:13 summary. 150:14 A. Correct -- correct. 150:15 Q. In that there were that many reports of memory 150:16 loss, permanent, associated with ECT, how do you explain 150:17 that as not being a potential risk associated with ECT? 150:18 MR. POOLE: Can I ask a clarifying question, 150:19 David? 150:20 MR. KAREN: Sure. 150:21 MR. POOLE: Did all 529 reports identified 150:22 as (quote/unquote) "permanent memory loss"? That's 150:23 implied in the question. 150:24 MR. KAREN: It was, and let's just take out 150:25 the word "permanent." 151:01 BY MR. KAREN: 151:02 Q. How do you explain the 529 reports of memory 151:03 loss? 151:04 A. I can't explain them since they were not 151:05 objectively validated. 151:06 Q. And how did you reach that conclusion that they 151:07 were not objectively validated? 151:08 A. There were no objective evidence accompanying 151:09 those reports in terms of neuropsychological testing, 151:10 electroencephalogram, behavioral analysis, and so forth. 151:11 They were -- what exactly they were, individuals stating 151:12 that something had happened to them for which no evidence		

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	151:13 was presented. 151:14 Q. Fair to say that Somatics took no steps to 151:15 evaluate any of those reports? 151:16 A. Correct.		
152:14 - 153:06	**Abrams, Richard 2018-08-02**	00:00:53	ABRA1.29
	152:14 Q. In that same report there were -- excuse me, in 152:15 that same executive summary of 2011 there was 298 reports 152:16 of brain damage. 152:17 How do you explain that? 152:18 A. Those are again unsubstantiated claims -- 152:19 Q. And -- 152:20 A. -- and I have no idea of their validity. 152:21 Q. What steps, if any, did Somatics take to assess 152:22 the validity of those complaints? 152:23 A. No steps. 152:24 Q. The executive summary identified 103 reports of 152:25 death following ECT. 153:01 How do you explain that? 153:02 A. I have no way of explaining that. 153:03 Q. Do you have any reason to believe Somatics took 153:04 any steps to investigate or evaluate any of the deaths 153:05 that were identified in the 2011 executive summary? 153:06 A. No.		
154:05 - 154:14	**Abrams, Richard 2018-08-02**	00:00:35	ABRA1.30
	154:05 Q. Are you aware of whether or not Somatics has any 154:06 practice of investigating verbal complaints that it's 154:07 received as to adverse events associated with ECT? 154:08 A. From whom? 154:09 Q. Anybody. 154:10 A. No, I'm not aware of anything like that. 154:11 Q. Has Somatics ever conducted any studies to 154:12 determine whether any brain injury could be caused by ECT? 154:13 A. Somatics has never conducted any studies of any 154:14 kind.		
156:22 - 157:05	**Abrams, Richard 2018-08-02**	00:00:34	ABRA1.31
	156:22 Q. What's the maximum voltage, if you're aware, that 156:23 can be utilized by Thymatron? 156:24 A. The voltage is not controlled. It's a constant 156:25 current machine and I believe -- we don't adjust voltage 157:01 but I believe that it doesn't go over 220 volts, but		

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	157:02 that's just a recollection.		
	157:03 Q. And then, how about the maximum amperage that can		
	157:04 be delivered by a Thymatron?		
	157:05 A. Slightly less than one amp, perhaps .9 something.		
158:10 - 158:15	**Abrams, Richard 2018-08-02**	00:00:16	ABRA1.32
	158:10 Q. Has Somatics ever conducted any studies that		
	158:11 compared the potential side effects associated with single		
	158:12 dose versus double dose?		
	158:13 A. Somatics has never conducted any studies.		
	158:14 Q. Of any kind.		
	158:15 A. We're in the business of selling Thymatrons.		
166:17 - 167:16	**Abrams, Richard 2018-08-02**	00:01:59	ABRA1.33
	166:17 Q. Do you recall when Dr. Fink published that as a		
	166:18 result of ECT side effects such as disorientation,		
	166:19 amnesia, ad nauseam, confabulation, aphasia, apraxia, and		
	166:20 delirium were potential risks associated?		
	166:21 A. Do I recall the year?		
	166:22 Q. Do you recall that conclusion that he reached or		
	166:23 is that news to you?		
	166:24 A. It's not news to me. I don't know that I saw him		
	166:25 write that. I know that he -- several of those words were		
	167:01 used to me on many occasions in my conversations with		
	167:02 Dr. Fink. I don't know where they were written. He wrote		
	167:03 many papers before I became involved -- before I became a		
	167:04 psychiatrist. And he and I -- he was my mentor.		
	167:05 Q. Did you disagree with his conclusions?		
	167:06 A. Say that again.		
	167:07 Q. That as a result of ECT, side effects could		
	167:08 include disorientation, amnesia, ad nausea, confabulation,		
	167:09 aphasia, apraxia, and delirium.		
	167:10 A. Yes. I agree that all those could occur as side		
	167:11 effects of ECT, but we're not here talking about permanent		
	167:12 side effects, correct?		
	167:13 Q. Well, I'm asking -- next question is, do you		
	167:14 contend that none of those side effects could be lingering		
	167:15 as long-term or permanent?		
	167:16 A. I do so contend.		
167:17 - 169:09	**Abrams, Richard 2018-08-02**	00:02:14	ABRA1.48
	167:17 Q. In '78 Dr. Fink wrote for the psychopathological		
	167:18 association: "That the principle complications of ECT are		

DESIGNATION	SOURCE		DURATION	ID
	167:19		death, brain damage, memory impairment, and spontaneous	
	167:20		seizures. These complications are similar to head trauma	
	167:21		to which EST has been compared."	
	167:22		Had you ever heard that statement before?	
	167:23	A.	No.	
	167:24	Q.	Do you disagree with it?	
	167:25	A.	It is such a broad statement, would you mind	
	168:01		reading that once more?	
	168:02	Q.	Not at all. It's from a 1978 article that	
	168:03		Dr. Fink wrote.	
	168:04	A.	Right.	
	168:05	Q.	For the Journal of Psychopathological	
	168:06		Association.	
	168:07	A.	Right.	
	168:08	Q.	Quote: "The principle complications of EST or	
	168:09		ECT are death, brain damage, memory impairment, and	
	168:10		spontaneous seizures. These complications are similar to	
	168:11		head trauma to which EST has been compared."	
	168:12	A.	I disagree.	
	168:13	Q.	But you heard that phrase -- that statement	
	168:14		before, correct?	
	168:15	A.	That sounds like Max.	
	168:16	Q.	All right.	
	168:17	A.	That's all I can say.	
	168:18	Q.	Was there ever a period of time that Dr. Fink no	
	168:19		longer was seen as a mentor for you to rely upon or trust?	
	168:20		MR. POOLE: Objection, vague and ambiguous.	
	168:21		(To Witness) You can answer.	
	168:22		THE WITNESS: Well, after I had become an	
	168:23		authority in my own right, we had many discussions, but	
	168:24		after I published my first textbook on ECT, I no longer	
	168:25		had the need to ask him questions from his experience or	
	169:01		research because I already knew all that. But we had many	
	169:02		discussions.	
	169:03		BY MR. KAREN:	
	169:04	Q.	So it's to fair to say that you just disagree	
	169:05		with his conclusion.	
	169:06	A.	Yeah, especially the part about brain damage.	
	169:07	Q.	All right. But you'd agree he is an authority in	
	169:08		the field.	
	169:09	A.	He is an authority in the field.	

DESIGNATION	SOURCE	DURATION	ID
180:02 - 180:05	**Abrams, Richard 2018-08-02**	00:00:17	ABRA1.34
	180:02 Q. Right. Has anyone advised you that Somatics has 180:03 ever provided adequate warnings of risks of ECT to its 180:04 customers? 180:05 A. No.		

Plaintiff Affirmatives	00:57:48
TOTAL RUN TIME	**00:57:48**