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EXHIBITS: 1016-1016

UNITED STATES PATENT & TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD
CASE IPR 2023-00180

LULULEMON ATHLETICA CANADA, INC.)
AND LULULEMON ATHLETICA USA, INC.)
Petitioner,)
vs.)
NIKE, INC.,)
Patent Owner.)
_____)

VIDEOTAPED DEPOSITION OF BRYAN P. BERGERON, MD, called as a witness by and on behalf of the Petitioner, pursuant to the applicable provisions of Rules of the United States Patent and Trademark Trial and Appeal Board, before P. Jodi Ohnemus (remotely), RPR, RMR, CRR, CA-CSR #13192, NH-LSR #91, MA-CSR #123193, and Notary Public, within and for the Commonwealth of Massachusetts, at Morrison Foerster, 200 Clarendon Street, Boston, Massachusetts, on Thursday, December 21, 2023, commencing at 9:07 a.m.

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24 ALSO PRESENT:

25 Bob Giannini, Video Operator

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I N D E X

TESTIMONY OF:

PAGE

BRYAN P. BERGERON, MD

(By Mr. Arjomand)

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(By Ms. Nguyen)

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E X H I B I T S

EXHIBIT	DESCRIPTION	PAGE
Exhibit 2008	previously marked	7
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1 VIDEO OPERATOR: Okay. Good morning. We
2 are on the record. This is the videographer 09:06:26
3 speaking, Bob Giannini. I'm with court reporter 09:06:28
4 Jodi Ohnemus with Veritext Legal Solutions. 09:06:34
5 Today's date is December 21st, 2023. The time is 09:06:36
6 9:07 a.m. 09:06:41
7 We are here at Morrison & Foerster LLP 09:06:43
8 located in Boston, Massachusetts, to take the video 09:06:49
9 deposition of Dr. Bryan Bergeron in the matter of 09:06:51
10 Lululemon Athletica Canada, Inc. versus Nike, Inc. 09:06:58
11 Will counsel please introduce themselves 09:07:01
12 for the record. 09:07:03
13 MR. ARJOMAND: Mehran Arjomand of Morrison 09:07:04
14 Foerster for petitioner, Lululemon. With me here 09:07:08
15 is Jean Nguyen also of Morrison Foerster. 09:07:10
16 MR. SWISHER: And Jonathan Swisher of 09:07:14
17 Arnold & Porter on behalf of patent owner Nike, 09:07:17
18 Inc. 09:07:19
19 VIDEO OPERATOR: Okay. Thank you. Will 09:07:21
20 the court reporter please swear in the witness. 09:07:21
21 BRYAN P. BERGERON, MD, having
22 satisfactorily been identified by
23 the production of a driver's license,
24 and being first duly sworn by the Notary
25 Public, was examined and testified as

1	follows to interrogatories	
2	BY MR. ARJOMAND:	09:07:33
3	A. Good morning.	09:07:33
4	Q. Good morning. Could you please state and	09:07:34
5	spell your name for the record.	09:07:37
6	A. Sure. It's Bryan, B-r-y-a-n, P., as in	09:07:38
7	"Patrick," Bergeron, B-e-r-g-e-r-o-n.	09:07:42
8	Q. Do you understand that you have taken an	09:07:49
9	oath to tell the truth?	09:07:51
10	A. I do.	09:07:52
11	Q. Is there any reason that you cannot give	09:07:54
12	complete and accurate testimony today?	09:07:56
13	A. No.	09:07:57
14	Q. Have you served as an expert on any prior	09:08:00
15	cases?	09:08:02
16	A. Yes.	09:08:03
17	Q. How many?	09:08:04
18	A. A hundred, about a hundred.	09:08:04
19	Q. Okay. To your knowledge, has a court ever	09:08:13
20	excluded an opinion that you offered?	09:08:15
21	A. Not to my knowledge.	09:08:17
22	Q. To your knowledge, has a court ever	09:08:17
23	criticized an opinion that you've offered?	09:08:21
24	A. Not that I'm aware of, no.	09:08:25
25	Q. Now, Doctor Bergeron, you're an expert	09:08:25

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1	that's been hired by Nike; correct?	09:08:38
2	A. Correct.	09:08:40
3	Q. How many times have you represented Nike?	09:08:40
4	A. This is it.	09:08:45
5	Q. How many times have you worked with the	09:08:47
6	law firm of Arnold & Porter before this proceeding?	09:08:49
7	A. I think this is the first time.	09:08:54
8	Q. All right. Let me place in front of you	09:08:57
9	what's been marked as Exhibit 2008.	09:09:15
10	(Exhibit 2008, previously marked.)	09:09:26
11	MR. SWISHER: Thank you.	09:09:41
12	Q. Doctor Bergeron, do you recognize Exhibit	09:09:50
13	2008?	09:09:53
14	A. I do.	09:09:53
15	Q. What is it?	09:09:57
16	A. It's my supplemental declaration for this	09:09:57
17	case.	09:10:04
18	Q. And let me direct you to page 97.	09:10:07
19	A. Okay.	09:10:22
20	Q. Is that your signature on page 97?	09:10:24
21	A. It is.	09:10:28
22	Q. Is there anything that you'd like to	09:10:30
23	change in your declaration that's been marked as	09:10:32
24	Exhibit 2008?	09:10:35
25	MR. SWISHER: Object to form.	09:10:37

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1	A. No.	09:10:40
2	Q. Doctor Bergeron, when did you begin	09:10:45
3	working on this matter?	09:10:47
4	A. About a year ago.	09:10:54
5	Q. And how many hours would you estimate that	09:10:58
6	you've worked on this matter from when you started	09:11:02
7	to in preparation for today's deposition?	09:11:04
8	A. Couple of dozen hours.	09:11:13
9	Q. Somewhere between 30 to 50 hours?	09:11:19
10	MR. SWISHER: Object to form.	09:11:22
11	A. Around there maybe. About.	09:11:26
12	Q. And what did you do to prepare for your	09:11:30
13	deposition today?	09:11:32
14	A. For today I spent -- well, I did a Zoom	09:11:36
15	call with counsel last week or week before last;	09:11:41
16	and then we had a meeting the past two days here in	09:11:47
17	Boston. So the last two days. We met upstairs --	09:11:51
18	or downstairs -- wherever it is -- upstairs. And a	09:11:56
19	review of the material.	09:12:02
20	Q. Okay. And how many times -- strike that.	09:12:05
21	In your call last week with counsel, who	09:12:09
22	was on that call with you?	09:12:12
23	MR. SWISHER: I'm just going to object and	09:12:14
24	just caution the witness not to reveal the contents	09:12:16
25	of any privileged communications.	09:12:19

1	But that instruction, you can answer the	09:12:20
2	question.	09:12:22
3	THE WITNESS: Sure.	09:12:22
4	A. Mr. Swisher.	09:12:22
5	Q. Okay. And then you indicated that you had	09:12:25
6	couple of meetings this week with counsel; is that	09:12:30
7	correct?	09:12:33
8	A. Correct.	09:12:33
9	Q. And whom did you meet in those meetings?	09:12:33
10	A. Mr. Swisher.	09:12:37
11	Q. Was there anyone else present in those	09:12:37
12	meetings?	09:12:40
13	A. No.	09:12:40
14	Q. And was anyone present in your Zoom call	09:12:40
15	other than Mr. Swisher?	09:12:46
16	A. No.	09:12:47
17	Q. Did you review any documents in	09:13:02
18	preparation for today's deposition?	09:13:03
19	A. I did.	09:13:05
20	Q. What were those documents that you	09:13:06
21	reviewed?	09:13:08
22	A. Well, it included this document you just	09:13:11
23	gave me, my supplemental; I looked at the patent,	09:13:13
24	the '413 patent. I looked at the -- the patents	09:13:17
25	that were mentioned in this report for the prior	09:13:25

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1 art patents; I looked at the file history. I 09:13:28
2 looked at the -- some of the references, the book, 09:13:34
3 the physiology book, textbook, and a couple of 09:13:40
4 other references that are noted in the -- in this 09:13:44
5 document. 09:13:48
6 Q. "This document" being -- 09:13:50
7 A. I'm sorry. 09:13:51
8 Q. -- Exhibit 2008? 09:13:51
9 A. Yes. 09:13:53
10 Q. Were there any documents that you reviewed 09:13:53
11 that were not cited in your supplemental 09:13:57
12 declaration, Exhibit 2008? 09:14:00
13 A. Unless -- I don't -- I don't know if the 09:14:02
14 file history was cited or not, but I reviewed that 09:14:08
15 as well. 09:14:10
16 Q. Okay. But, as you sit here today, you 09:14:12
17 don't recall reviewing anything beyond what was 09:14:13
18 cited in your supplemental -- 09:14:16
19 A. Correct. 09:14:18
20 Q. -- declaration beyond the -- the file 09:14:18
21 history; that's correct? 09:14:20
22 A. Right. 09:14:21
23 Q. Okay. You had mentioned that you reviewed 09:14:29
24 patents that were mentioned in this report. 09:14:30
25 Do you recall what those patents were? 09:14:32

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1 A. I can give you the names if you -- if you 09:14:33
2 flip open and review those. 09:14:36
3 Q. Sure. 09:14:36
4 A. Sure. It was -- Amano, A-m-a-n-o; 09:14:37
5 Matsumoto; Lubell; Ceci, C-e-c-i; and Flach, 09:14:49
6 F-l-a-c-h; and Gorman, G-o-r-m-a-n. 09:14:59
7 I think that's it. 09:15:06
8 Q. And you testified that you looked at a 09:15:17
9 physiology book. 09:15:18
10 Do you recall what book that was? 09:15:20
11 A. I want to say Morrison or -- let's see. 09:15:23
12 (Witness reviews document.) 09:15:28
13 I know I referenced it in this document. 09:16:12
14 I just can't recall exactly where I do, but I'll -- 09:16:14
15 I'll find it. It's -- Exercise Physiology by 09:16:17
16 William D. McArdle, M-c-A-r-d-l-e. 09:16:41
17 Q. Thank you. 09:16:47
18 You also mentioned that you reviewed a 09:16:52
19 couple of other references. 09:16:53
20 Do you recall what those other references 09:16:54
21 were? 09:16:56
22 A. Hopefully find those too. 09:16:59
23 I believe the first one is a Caspersen, 09:17:04
24 C-a-s-p-e-r-s-e-n, Caspersen -- article. The other 09:17:07
25 was the Surgeon General report, 1996. There's no 09:17:28

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1	author. Just a Surgeon General report.	09:17:36
2	I think that's it.	09:17:44
3	Q. Okay. Thank you.	09:17:46
4	Let me now place in front of you what has	09:17:48
5	been previously marked as Exhibit 2001.	09:17:51
6	(Exhibit 2001, previously marked.)	09:17:55
7	A. Thank you.	09:18:00
8	MR. SWISHER: Thanks.	09:18:05
9	Q. Do you recognize this document?	09:18:07
10	A. I do.	09:18:07
11	Q. What is it?	09:18:08
12	A. This is my original declaration.	09:18:09
13	Q. And let me direct you to page 99.	09:18:15
14	A. 99. Okay.	09:18:32
15	Q. Is that your signature --	09:18:36
16	A. It is. Yes.	09:18:39
17	Q. -- on -- on page 99?	09:18:41
18	A. Yes.	09:18:43
19	Q. Okay. Did you draft Exhibit 2001?	09:18:45
20	A. Did I draft it?	09:18:50
21	You mean the first draft?	09:18:54
22	What -- what do you mean by "draft"?	09:18:57
23	Q. I mean did you -- did you put pen to paper	09:18:59
24	and write this document from start to finish?	09:19:01
25	A. I did not.	09:19:04

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1	Q. Okay. Can you explain the process in	09:19:06
2	which you prepared Exhibit 2001?	09:19:09
3	A. Sure.	09:19:11
4	I think I did -- I did the first draft,	09:19:13
5	meaning the first version of the document. I	09:19:16
6	then -- I worked with counsel iteratively back and	09:19:19
7	forth to finish it. I believe most of the -- most	09:19:24
8	of the typing was done by the -- by counsel, but	09:19:27
9	the words are all mine, with the exception of the	09:19:31
10	legal section, which of course I'm not a lawyer,	09:19:36
11	but...	09:19:40
12	Q. And how many hours would you say you	09:19:41
13	worked with counsel to prepare Exhibit 2001?	09:19:43
14	A. I don't recall exactly. A dozen hours.	09:19:46
15	Q. Okay. And let me turn you back to Exhibit	09:19:59
16	2008, your supplemental declaration.	09:20:01
17	Would it be fair to say that the process	09:20:05
18	in preparing that declaration was the same as	09:20:07
19	the -- the process that you utilized in preparing	09:20:11
20	Exhibit 2001?	09:20:14
21	MR. SWISHER: Object to form.	09:20:16
22	A. It was an iterative process, just as the	09:20:18
23	original, yes.	09:20:24
24	(Court Reporter comment.)	09:20:24
25	THE WITNESS: I'm sorry. I'm trainable.	09:20:30

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1	Just hit me.	09:20:31
2	Q. And how many hours would you say that you	09:20:32
3	spent in preparing Exhibit 2008?	09:20:34
4	A. Another dozen hours or so.	09:20:35
5	Q. Okay. All right. Now, let me turn you	09:20:38
6	back to Exhibit 2001. And I'd like to direct your	09:20:45
7	attention to page 101.	09:20:52
8	A. It's page of the exhibit or page of the	09:21:00
9	document?	09:21:03
10	Q. It's page of the document.	09:21:03
11	A. Okay. 101. That's my CV.	09:21:04
12	Q. Correct. I believe, beginning on page 101	09:21:17
13	all the way continuing to page 142 is your CV and	09:21:24
14	is marked as Exhibit A to your declaration, Exhibit	09:21:27
15	2001.	09:21:33
16	A. Yes.	09:21:34
17	Q. So turning back to page 101, I'd like to	09:21:40
18	direct your attention to the top of the page.	09:21:44
19	A. Okay.	09:21:47
20	Q. Right after your name there are five	09:21:48
21	letters, F-A-C-M-I. What do those stand for?	09:21:53
22	A. Oh, that's a Fellow of the American	09:21:58
23	College of Medical Informatics.	09:22:01
24	Q. What is medical informatics?	09:22:07
25	A. Medical informatics is the application of	09:22:09

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1 computer methods to the practice and teaching of 09:22:12
2 medicine. 09:22:15

3 Q. Okay. And have you done work in the field 09:22:19
4 of medical informatics? 09:22:21

5 A. Yes, I have. 09:22:22

6 Q. And what work is it that you've done? 09:22:23

7 A. Well, first I did a -- first did a 09:22:26
8 postdoc -- postdoctoral fellowship in medical 09:22:27
9 informatics at Harvard; then I was on various 09:22:31
10 levels of faculty for a number of years. So I 09:22:34
11 taught it. 09:22:37

12 I've worked in informatics with -- medical 09:22:39
13 informatics with EMR companies, electronic medical 09:22:42
14 record companies, developing teaching materials for 09:22:46
15 Harvard, MIT students' training. I've worked with 09:22:49
16 the DOD developing AI-based intelligent tutoring 09:22:55
17 systems to train their medics and their first 09:23:03
18 responders. I've written books and papers on 09:23:05
19 informatics, given lectures, taught, developed 09:23:13
20 software. 09:23:20

21 I think that's about that -- about it. 09:23:26

22 Q. So would you say that the field of medical 09:23:29
23 informatics has been a major focus in your career? 09:23:32

24 A. Yes. 09:23:36

25 Q. Now turning back to page 101 of -- of 09:23:40

1	Exhibit 2001, it indicates that you received your	09:23:44
2	medical degree in 1984; is that correct?	09:23:51
3	A. Correct, yes.	09:23:56
4	Q. And were -- were you a resident -- strike	09:23:58
5	that.	09:24:02
6	Were you a medical resident after 1984?	09:24:03
7	A. Medical resident -- no, I was not.	09:24:09
8	Q. Did you practice as a physician?	09:24:12
9	A. I did.	09:24:14
10	Q. Okay. So once you finished medical school	09:24:16
11	in 1984, you immediately started to practice as a	09:24:21
12	physician?	09:24:26
13	A. Yes.	09:24:26
14	Q. Okay. And in what field did you work as a	09:24:27
15	physician?	09:24:30
16	A. I worked in high risk OB and in -- what	09:24:31
17	you call -- it's basically preop.	09:24:42
18	Q. I don't think I caught what you said.	09:24:44
19	A. Pre -- preop.	09:24:44
20	Q. Preop. But before that you said "I worked	09:24:46
21	in" --	09:24:49
22	A. High risk OB.	09:24:49
23	Q. High risk OB?	09:24:51
24	A. Yes, obstetrics.	09:24:52
25	Q. Obstetrics, okay.	09:24:54

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1	So did you work in any other -- strike	09:25:01
2	that.	09:25:02
3	So how long did you practice as a	09:25:03
4	physician?	09:25:05
5	A. About a year.	09:25:05
6	Q. About a year. Okay.	09:25:06
7	And so you stopped practicing as a	09:25:13
8	physician in 1995; would that be fair to say?	09:25:15
9	A. Yes.	09:25:21
10	Q. Doctor Bergeron, are you a cardiologist?	09:25:31
11	A. No, I'm not.	09:25:34
12	Q. Outside of medical school and the year	09:25:35
13	that you practiced as a physician, have you ever	09:25:40
14	performed an invasive cardiology procedure?	09:25:44
15	A. No, I've not.	09:25:46
16	Q. Have you ever performed an invasive	09:25:48
17	cardiology procedure?	09:25:52
18	A. No.	09:25:52
19	Q. Okay. Outside of medical school and the	09:25:55
20	year that you practiced as a physician, have you	09:26:00
21	ever counseled patients on noninvasive heart	09:26:02
22	procedures?	09:26:07
23	A. No, I've not.	09:26:08
24	Q. Have you ever counseled patients on	09:26:09
25	noninvasive heart procedures?	09:26:14

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1	A. No, I've not.	09:26:16
2	Q. Have you ever performed any heart stress	09:26:17
3	tests on a patient as a physician?	09:26:23
4	MR. SWISHER: Object to form.	09:26:27
5	A. As a physician...	09:26:29
6	No, I've not.	09:26:31
7	Q. Have you ever performed an exercise	09:26:32
8	electrocardiography as a patient -- strike that.	09:26:44
9	Have you ever performed an exercise	09:26:49
10	electrocardiography as a physician for a patient?	09:26:51
11	A. No, I've not.	09:26:55
12	MR. SWISHER: Objection.	09:26:57
13	Q. Have you ever interpreted cardiac nuclear	09:26:59
14	stress tests as a physician?	09:27:02
15	A. No, I've not.	09:27:13
16	Q. Have you ever interpreted stress	09:27:16
17	echocardiograms as a physician?	09:27:18
18	A. As a physician...	09:27:24
19	No, I've not.	09:27:28
20	Q. As a physician, have you ever tested a	09:27:35
21	patient for oxygen uptake such as to determine V02	09:27:38
22	max?	09:27:44
23	A. No, I've not.	09:27:44
24	Q. Have you ever tested a patient for oxygen	09:27:47
25	uptake such as to determine V02 max?	09:27:49

1 MR. SWISHER: Object to form. 09:27:55

2 Q. Have you ever tested a patient for oxygen 09:27:56

3 uptake such as to determine V02 max, whether as a 09:27:59

4 physician or not as a physician? 09:28:04

5 MR. SWISHER: Object to the form. 09:28:06

6 A. So that -- was it as a physician or not as 09:28:07

7 a physician? 09:28:10

8 Q. That's correct. 09:28:10

9 A. Yes, I have. 09:28:10

10 Q. When have you done that? 09:28:11

11 A. The year? 19 -- early '90s. 09:28:17

12 Q. Early... 09:28:28

13 So in early '90s, after you stopped 09:28:31

14 practicing as a physician, you tested a patient for 09:28:33

15 oxygen uptake? 09:28:36

16 A. Well, it wasn't a patient. It was a 09:28:38

17 person. 09:28:40

18 Q. Okay. And can you explain the 09:28:42

19 circumstance. 09:28:44

20 A. Sure. 09:28:45

21 So I was a -- I've been certified as a 09:28:46

22 personal trainer by the American College of Sports 09:28:53

23 Medicine, by the American College of Exercise -- or 09:28:56

24 Council of Exercise, and a couple of other 09:28:59

25 agencies, but in that capacity I tested -- part of 09:29:06

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1 evaluating -- not patients but people, clients, I 09:29:11
2 used a stress test; and also as part of the 09:29:17
3 training I had to perform stress tests on -- not 09:29:19
4 patients but -- but people -- clients or other 09:29:24
5 training -- people who are training. 09:29:28
6 Q. So when were you certified as a personal 09:29:30
7 trainer? 09:29:35
8 A. In the '90s. 09:29:36
9 Q. Do you recall the exact year? 09:29:38
10 A. It's 1990 through '95. 09:29:41
11 Q. Okay. And so in 1995 you -- 09:29:44
12 A. Is it on here? 09:29:51
13 Q. Strike that. 09:29:53
14 A. (Witness reviews document.) 09:29:53
15 Q. So 1995 was when you stopped being a 09:29:54
16 personal trainer? 09:29:59
17 A. (Witness reviews document.) 1995... 09:30:01
18 That's when I stopped -- yes. 09:30:10
19 Q. Okay. So between 1990 to 1995 did you 09:30:15
20 ever counsel the individuals that you were training 09:30:22
21 on noninvasive heart procedures? 09:30:27
22 A. No, did not. 09:30:29
23 Q. And between 1990 to 1995, did you perform 09:30:30
24 any heart stress tests on the individuals that you 09:30:34
25 were training? 09:30:38

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1	A. One more time, please?	09:30:42
2	MR. ARJOMAND: Do you want to read the	09:30:44
3	question back.	09:30:45
4	(Question read back.)	09:30:45
5	A. Heart stress tests -- if you mean by V02	09:30:56
6	max tests, yes.	09:30:59
7	Q. Any other tests?	09:31:00
8	A. Any other tests...	09:31:04
9	Well, there's tests like flexibility and	09:31:09
10	other things that -- that probably aren't relevant,	09:31:12
11	but the standard tests.	09:31:14
12	Q. Well, I guess to -- to be a little bit	09:31:15
13	more precise, any other cardio tests?	09:31:18
14	A. No.	09:31:23
15	Q. Any other pulmonary tests?	09:31:23
16	A. No.	09:31:32
17	Also, just -- just to be clear, there's a	09:31:51
18	five-year window there, maybe '91 to '96 -- maybe	09:31:54
19	'89 to '94, but it's around there, yeah. I'm not	09:31:57
20	sure of the exact date I started.	09:32:01
21	Q. Okay. Have you ever treated a	09:32:09
22	professional athlete as a physician?	09:32:10
23	A. No.	09:32:12
24	Q. Have you ever treated a professional	09:32:12
25	athlete as a trainer?	09:32:15

1	A.	And by "professional athlete," you mean	09:32:25
2		someone who works full time as an athlete?	09:32:27
3	Q.	(Nods.)	09:32:27
4	A.	No.	09:32:31
5	Q.	So you mentioned that in preparation for	09:32:41
6		today's deposition you looked at an article by	09:32:43
7		Caspersen.	09:32:47
8		Do you recall that?	09:32:49
9	A.	Yes.	09:32:50
10	Q.	Were you aware of the Caspersen article	09:32:50
11		before this proceeding?	09:32:58
12	A.	I don't think so, no.	09:33:02
13	Q.	Do you recall how you became aware of the	09:33:07
14		Caspersen article?	09:33:09
15	A.	Through this proceeding.	09:33:09
16	Q.	Did you find the Caspersen article by	09:33:10
17		yourself?	09:33:12
18	A.	No, did not.	09:33:13
19	Q.	It was provided to you by counsel?	09:33:15
20	A.	Correct.	09:33:16
21	Q.	And you indicated that you had reviewed	09:33:17
22		the Surgeon General report in preparation for	09:33:23
23		today's deposition.	09:33:28
24		Do you recall that?	09:33:29
25	A.	Yes.	09:33:30

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1 Q. Were you aware of the Surgeon General 09:33:30
2 report before today's -- strike that -- before this 09:33:33
3 proceeding? 09:33:38
4 A. Of the particular document, no. 09:33:40
5 Q. And you -- would it be fair to say that 09:33:41
6 counsel provided that document to you as well? 09:33:45
7 A. He did. 09:33:47
8 Q. Okay. You also mentioned a physiology 09:33:51
9 textbook by McArdle? 09:33:53
10 A. Yes. 09:33:55
11 Q. Were you aware of the McArdle textbook 09:33:55
12 before this proceeding? 09:34:02
13 A. Was I aware of it? Yes. 09:34:04
14 Q. And were you -- strike that. 09:34:06
15 Was the McArdle textbook provided to you 09:34:16
16 by counsel for this proceeding? 09:34:19
17 A. Yes, it was. 09:34:21
18 Q. Would you say you're knowledgeable about 09:34:22
19 wireless communications? 09:34:35
20 MR. SWISHER: Object to form. 09:34:38
21 A. Knowledgeable, yes. 09:34:40
22 Q. Would it be fair to say that wireless 09:34:41
23 heart rate sensors were known as of 2003? 09:34:45
24 MR. SWISHER: Object to form. 09:34:49
25 A. Sensors. That's fair. 09:34:56

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1	Q. And would it be also fair to say that	09:34:59
2	TDMA -- time-division multiple access -- protocol	09:35:03
3	was known as of 2003?	09:35:07
4	MR. SWISHER: Object to form.	09:35:09
5	A. That's fair, yes.	09:35:11
6	Q. Would it be fair to say that you're	09:35:26
7	knowledgeable about wired communications?	09:35:28
8	A. Wired communications? Yes.	09:35:32
9	Q. And would it be fair to say that wired	09:35:40
10	heart rate sensors were known as of 2003?	09:35:46
11	MR. SWISHER: Object to form.	09:35:49
12	A. That would be fair, yes.	09:35:51
13	Q. There were only two options for heart rate	09:35:55
14	sensors as of 2003 in terms of communication:	09:35:57
15	wired and wireless; correct?	09:36:04
16	MR. SWISHER: Object to form.	09:36:06
17	A. Wired and wireless.	09:36:07
18	I believe the third option -- there might	09:36:26
19	be a third option.	09:36:29
20	Q. And what would that be?	09:36:30
21	A. Well, if you have a -- if you're talking	09:36:32
22	about the sensor to the unit being wired or	09:36:35
23	wireless, the third option would be to have the --	09:36:38
24	the sensor as part of the unit itself. So there'd	09:36:41
25	be no -- it would be a direct connect to the CPU,	09:36:43

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1 to the sensor. So it would be a direct connection. 09:36:47
2 Q. Okay. Thank you. 09:36:50
3 Do you -- do you have a bachelor's degree 09:36:55
4 in engineering? 09:37:00
5 A. No, I do not. 09:37:01
6 Q. Do you have a bachelor's degree in 09:37:01
7 computer science? 09:37:04
8 A. No, I do not. 09:37:05
9 Q. Do you have a bachelor's degree in 09:37:05
10 industrial design? 09:37:08
11 A. No. 09:37:09
12 Q. You were a psychology major in college; 09:37:09
13 correct? 09:37:13
14 A. Correct. 09:37:14
15 Q. Doctor Bergeron, what is your definition 09:37:48
16 of cardiorespiratory endurance? 09:37:51
17 MR. SWISHER: Object to form. 09:37:55
18 A. My definition. 09:37:58
19 Are you referring to a specific spot in my 09:38:05
20 report, or are you just saying in general? 09:38:08
21 Q. Just in general for now. 09:38:09
22 MR. SWISHER: Object to form. 09:38:13
23 A. It's -- it would be the ability to sustain 09:38:19
24 effort at a certain level for a certain period of 09:38:23
25 time -- meaning exertion, muscular exertion. 09:38:29

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1	Q. So let me direct you to Exhibit 2008.	09:38:36
2	Specifically page 14.	09:38:53
3	A. 14. This would be page 14 of 100; right?	09:38:54
4	Not -- not 14...	09:39:12
5	Q. Strike that. It's a native page 14 marked	09:39:16
6	page 17.	09:39:21
7	A. Okay.	09:39:21
8	Q. Do you see paragraph 27 on that page?	09:39:25
9	A. Yes.	09:39:31
10	Q. Take a moment to read that paragraph to	09:39:32
11	yourself.	09:39:35
12	A. (Witness reviews document.) Okay.	09:39:36
13	Q. So do you see how the last two words in	09:39:57
14	that paragraph state (as read):	09:40:00
15	"Cardiorespiratory endurance"?	09:40:03
16	A. Yes, I do, yeah.	09:40:06
17	Q. And just a -- a minute or so ago you	09:40:07
18	provided a definition of cardiorespiratory	09:40:13
19	endurance?	09:40:16
20	MR. SWISHER: Object to form.	09:40:17
21	A. In general, yes.	09:40:18
22	Q. Is the definition that you provided, would	09:40:25
23	that apply to your use of "cardiorespiratory	09:40:26
24	endurance" in paragraph 27 of Exhibit 2008?	09:40:31
25	MR. SWISHER: Object to form.	09:40:33

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1	A. I think it would.	09:40:39
2	Q. Doctor Bergeron, is breathing an indicator	09:40:55
3	of cardiorespiratory endurance?	09:40:57
4	MR. SWISHER: Object to form.	09:41:02
5	A. Breathing?	09:41:02
6	As opposed to not breathing? I'm not sure	09:41:08
7	what you mean, breathing versus or -- can you try	09:41:10
8	that again?	09:41:13
9	Q. So -- so you defined cardiorespiratory	09:41:18
10	endurance to be the ability to sustain effort at a	09:41:37
11	certain level for a certain period of time; is that	09:41:41
12	correct?	09:41:41
13	A. Yes, I did.	09:41:46
14	MR. SWISHER: Object to form.	09:41:46
15	A. Yes, I did.	09:41:48
16	Q. So would breathing be an indicator in	09:41:49
17	determining the ability to sustain effort at a	09:41:55
18	certain level of -- for a certain period of time?	09:41:57
19	MR. SWISHER: Object to form.	09:42:02
20	A. Just having trouble with the term	09:42:06
21	"breathing." I think it would be correct to say	09:42:07
22	the -- maybe the effort of breathing would be an	09:42:10
23	indicator. So if it's difficult to breathe versus	09:42:13
24	easy to breathe would be an indicator. But	09:42:16
25	breathing itself is -- I'm not sure how much you	09:42:18

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1 get there, but it would be the effort involved in 09:42:22
2 breathing. 09:42:25

3 Q. And would sitting heart rate be an 09:42:28
4 indicator of cardiorespiratory endurance? 09:42:31

5 MR. SWISHER: Object to form. 09:42:35

6 A. Heart rate -- resting heart -- if you mean 09:42:48
7 by resting heart rate could be an indicator of -- 09:42:50
8 it could be an indicator of -- of cardiovascular 09:42:53
9 endurance. It could be. 09:42:58

10 Q. Is there a difference between resting 09:43:04
11 heart rate and sitting heart rate? 09:43:06

12 A. Usually it's referred to as -- as resting 09:43:12
13 heart rate. I'm not sure what -- what you mean by 09:43:14
14 "sitting heart rate." 09:43:16

15 Q. You've never heard of the term "sitting 09:43:22
16 heart rate"? 09:43:24

17 A. Not in the context of -- of exercise, no. 09:43:26

18 Q. So if a document mentioned "sitting heart 09:43:34
19 rate," you wouldn't know what that word meant? 09:43:38

20 MR. SWISHER: Object to form. 09:43:40

21 A. Well, I would assume that they meant 09:43:41
22 resting heart rate. 09:43:44

23 Q. Is there a numerical value for 09:43:46
24 cardiorespiratory endurance? 09:43:51

25 MR. SWISHER: Object to form. 09:43:53

1 A. Well, it depends on how you measure it; 09:43:58
2 but, I mean, it can be measured through something 09:44:00
3 called V02 max, and that -- that has a numerical 09:44:02
4 value associated with it. 09:44:07
5 Q. What is your definition of V02 max? 09:44:08
6 A. In general? It's the -- the maximum 09:44:18
7 uptake of oxygen by -- by a -- by a user, by a 09:44:22
8 person during exercise. 09:44:26
9 Q. And that definition would apply as of 2003 09:44:30
10 as well? 09:44:34
11 MR. SWISHER: Object to form. 09:44:35
12 A. Should, yes. 09:44:36
13 Q. And do you know what the dimensions of V02 09:44:43
14 max are? 09:44:44
15 MR. SWISHER: Object to form. 09:44:45
16 A. It's got to be oxygen uptake -- oxygen on 09:44:57
17 the top, numerator, over minutes, that's over 09:45:00
18 time -- that'd be liters per -- could be -- I'm not 09:45:03
19 sure, but it's some sort of measure of quantity of 09:45:12
20 oxygen over -- over time. 09:45:15
21 Q. What's the difference between V02 and V02 09:45:25
22 max? 09:45:29
23 A. Well, V02 is the volume of oxygen being 09:45:31
24 taken up by the mitochondria in the cells overall, 09:45:35
25 and V02 max is the maximum amount that can be 09:45:39

1	taken, extracted from the air by the user, by the	09:45:43
2	exerciser.	09:45:45
3	So V02 is equal to V02 max -- well, I'm	09:45:46
4	sorry. V02 max -- V02 maximum is a -- the maximum	09:45:54
5	value of V02 is V02 max. So it's the same number,	09:46:00
6	but at a certain point in exercise, the uptake of	09:46:04
7	oxygen diminishes with exercise or -- either	09:46:08
8	diminishes or it doesn't improve; and so that's the	09:46:13
9	maximum value you can attain. So that's when	09:46:16
10	maximum V02 becomes V02 max.	09:46:19
11	Q. Does V02 depend on a user's weight?	09:46:22
12	MR. SWISHER: Object to form.	09:46:30
13	A. A user's weight?	09:46:31
14	It could.	09:46:33
15	Q. Does V02 max depend on a user's weight?	09:46:34
16	MR. SWISHER: Object to form.	09:46:39
17	A. Well, because of the same -- you're	09:46:41
18	talking about the same value, it could, yes.	09:46:43
19	By "depend on" meaning it could be	09:46:49
20	influenced by the weight, yes.	09:46:52
21	Q. Doctor Bergeron, do you know how V02 max	09:47:00
22	is determined?	09:47:02
23	A. I know how it can be determined, yes.	09:47:08
24	Q. What tests are used to determine V02 max?	09:47:10
25	MR. SWISHER: Object to form.	09:47:17

1 A. Well, if we're talking about running, we 09:47:19
2 could put someone on a treadmill, have them 09:47:21
3 increase the angle on the treadmill every minute or 09:47:24
4 so to increase the intensity of the exercise and 09:47:28
5 measure the oxygen uptake of the user who's 09:47:31
6 breathing oxygen through a mouthpiece, and then 09:47:37
7 identify when increasing the angle of the treadmill 09:47:41
8 doesn't increase the V02 increase -- uptake. So 09:47:47
9 that's the V02 max. 09:47:52
10 Q. Does it have to be measured while the 09:48:12
11 person is running? 09:48:20
12 A. It would have to be -- well, I mean, it 09:48:26
13 could be -- could be biking, could be other things 09:48:30
14 too, but I assume we're talking about -- about 09:48:32
15 running. 09:48:34
16 My understanding is it's -- it's while 09:48:40
17 they're in motion, yes. 09:48:42
18 Q. Other than running, what are the types of 09:48:50
19 exercises that can be used to measure V02 max for a 09:48:54
20 given person? 09:48:59
21 A. Could be almost anything, any exertion. 09:49:01
22 Could be biking. It could be swimming. It could 09:49:03
23 be mountain climbing. It could be any sort of 09:49:09
24 endurance or sport. I'm trying to think of what 09:49:18
25 wouldn't -- if I've seen -- seen a Nordic track 09:49:21

1 system set up before and cross-country skiing sort 09:49:24
2 of set up. So -- so yeah. So there are others 09:49:28
3 than running. 09:49:31
4 Q. So when you were a trainer in the -- the 09:49:32
5 1990s, what types of exercise were you utilizing to 09:49:39
6 measure V02 max for your clients? 09:49:46
7 A. Running. Treadmill. 09:49:49
8 Q. Have you seen V02 max being measured in 09:49:59
9 the other types of exercise that you just 09:50:03
10 mentioned? 09:50:06
11 A. Yes. 09:50:06
12 Q. Which ones have you seen? 09:50:08
13 A. Biking. 09:50:09
14 Q. Anything else? 09:50:11
15 A. Once I saw a -- I didn't do it myself. I 09:50:15
16 saw a Nordic track set up -- I mean, a 09:50:17
17 cross-country skiing. The -- the biking was -- 09:50:19
18 was -- I was being tested myself in medical school. 09:50:22
19 Q. So let me place in front of you Exhibit 09:50:43
20 2010. 09:50:48
21 A. Thank you. 09:50:51
22 Q. Doctor Bergeron, do you exhibit -- do you 09:51:03
23 recognize Exhibit 2010? 09:51:06
24 A. I do. It's the report I spoke of earlier, 09:51:07
25 the Surgeon General's Report. It was one of the 09:51:09

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1	references that I looked at.	09:51:13
2	Q. So let me first direct you to page 42	09:52:17
3	that's been marked on the document. It's native	09:52:23
4	page 20 --	09:52:26
5	A. Native page 20.	09:52:27
6	Q. -- of Exhibit 2010.	09:52:29
7	A. Give me a second here.	09:52:36
8	So page 20, the colored area, highlighted	09:52:50
9	area?	09:52:55
10	Q. Yes.	09:52:55
11	A. Okay. I see it.	09:52:56
12	Q. Is that highlighting yours, Doctor	09:52:57
13	Bergeron?	09:52:59
14	A. No.	09:52:59
15	Q. All right. Now let me direct you to page	09:53:02
16	33 of the document. It's marked page 55.	09:53:22
17	A. Okay.	09:53:32
18	Q. Now, can you take a minute or so or	09:53:33
19	however long it takes for you to read this section	09:53:38
20	that's -- begins with "Endurance" on page 33 and it	09:53:42
21	continues to -- up to "Muscular Fitness" on page 34	09:53:46
22	of Exhibit 2010.	09:53:54
23	A. Sure. (Witness reviews document.) Okay.	09:53:55
24	Q. Okay. Great. So let me ask you a few	09:55:57
25	questions about this section of Exhibit 2010.	09:55:59

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1	So the first sentence right after the	09:56:02
2	heading "Endurance" on page 33. It states that (as	09:56:05
3	read):	09:56:05
4	"Cardiorespiratory fitness, also referred	09:56:11
5	to as cardiorespiratory capacity, aerobic power, or	09:56:13
6	endurance fitness, is largely determined by	09:56:20
7	habitual physical activity."	09:56:22
8	Do you see that?	09:56:26
9	A. I do.	09:56:26
10	Q. Would you agree with that statement?	09:56:26
11	A. Yes.	09:56:32
12	Q. All right. Now, let me turn you to the	09:56:34
13	next page, page 34. In the first paragraph on the	09:56:38
14	left column it says (as read):	09:56:46
15	"VO2 max is most accurately determined by	09:56:51
16	measuring expired air composition and respiratory	09:56:56
17	volume during maximal exertion. This procedure	09:57:01
18	requires relatively expensive equipment, highly	09:57:06
19	trained technicians, and time for -- and time and	09:57:10
20	cooperation from the participant, all of which	09:57:15
21	usually -- usually limit its use in large	09:57:18
22	epidemiological studies."	09:57:22
23	And then it provides a citation to	09:57:24
24	Montoye, M-o-n-t-o-y-e, and King, et al.	09:57:29
25	Do you see that --	09:57:35

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1	A. I do.	09:57:36
2	Q. -- passage?	09:57:36
3	A. I do.	09:57:37
4	Q. Do you agree with that passage?	09:57:37
5	MR. SWISHER: Object to form.	09:57:40
6	A. Yes.	09:57:45
7	Q. All right. Now, turning you to the next	09:57:47
8	paragraph on the left column in the middle, it says	09:57:50
9	(as read):	09:57:56
10	"...thus, V02 max can be estimated from	09:57:57
11	the peak exercise workload during a maximal	09:57:59
12	exercise test without measuring respiratory gases."	09:58:04
13	Do you see that sentence?	09:58:10
14	A. Oh, I see it now, yes. Yeah, I see it.	09:58:15
15	Q. Do you agree with that sentence, Doctor	09:58:18
16	Bergeron?	09:58:22
17	MR. SWISHER: Object to form.	09:58:22
18	A. Yes. Sure.	09:58:27
19	Q. All right. Now turning to the next	09:58:29
20	paragraph on the left column on page 34 of Exhibit	09:58:32
21	2010, the first sentence provides (as read):	09:58:37
22	"Any maximal test to assess	09:58:42
23	cardiorespiratory fitness imposes a burden on both	09:58:46
24	the participant and the examiner. To reduce this	09:58:49
25	burden, several submaximal exercise testing	09:58:55

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1	protocols have been developed."	09:58:59
2	Do you see that passage, Doctor Bergeron?	09:59:02
3	A. I do, yes.	09:59:04
4	Q. And do you agree with that?	09:59:04
5	MR. SWISHER: Object to form.	09:59:06
6	A. Sure.	09:59:07
7	Q. Finally, turning to the last paragraph in	09:59:15
8	this subsection, it's the first paragraph in the	09:59:19
9	right column of page 34 of Exhibit 2010, it	09:59:24
10	provides (as read):	09:59:30
11	"In another approach to assessing	09:59:32
12	cardiorespiratory fitness, participants usually	09:59:34
13	walk, jog, or run a specified time or distance and	09:59:38
14	their performance is converted to an estimate of	09:59:43
15	V02 max, citing Cooper, 1968."	09:59:46
16	Do you see that sentence --	09:59:52
17	A. I do.	09:59:53
18	Q. -- Doctor Bergeron?	09:59:53
19	A. Yes.	09:59:55
20	Q. And do you agree with that statement?	09:59:55
21	MR. SWISHER: Object to form.	09:59:58
22	A. Sure.	09:59:59
23	Q. So would it be fair to say, Doctor	10:00:07
24	Bergeron, that V02 max can be estimated via a	10:00:09
25	number of different procedures or protocols?	10:00:16

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1 MR. SWISHER: Object to form. 10:00:24

2 A. Well, that's -- that's what the first 10:00:30

3 sentence says. 10:00:32

4 Q. Okay. And some protocols are based on 10:00:40

5 maximal exercise and some protocols are based on 10:00:48

6 submaximal exercise; is that correct? 10:00:52

7 MR. SWISHER: Object to form. 10:00:55

8 A. I think that's what we've been saying. 10:00:59

9 Yes, those are the paragraphs you've pointed out in 10:01:01

10 this section, yes. 10:01:03

11 Q. What would be the benefits of a submaximal 10:01:14

12 exercise testing protocol for determining or 10:01:18

13 estimating VO2 max? 10:01:21

14 MR. SWISHER: Object to the form. 10:01:24

15 A. Well, if -- in the same paragraph it says 10:01:26

16 (as read): 10:01:26

17 "In many cases these tests require maximal 10:01:31

18 or near maximal effort by the participant and thus 10:01:33

19 have not been used for an older person or those at 10:01:36

20 risk for CVD --" or cardiovascular disease. "The 10:01:39

21 advantage is that large numbers of participants can 10:01:44

22 now be tested rapidly at low cost." 10:01:48

23 So the ability to, for example, test older 10:01:50

24 persons and those with cardiovascular disease 10:01:52

25 without causing them to have an MI -- heart attack. 10:01:54

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1 Q. Are there any other benefits, as you sit 10:01:59
2 here today, with respect to using the submaximal 10:02:03
3 exercise protocol for estimating V02 max? 10:02:08
4 MR. SWISHER: Object to form. 10:02:11
5 A. It's quicker. It's less -- puts less 10:02:13
6 stress on the user, on the persons -- participants. 10:02:19
7 Q. Any other advantages? 10:02:25
8 MR. SWISHER: Object to form. 10:02:28
9 A. Those two come to mind. That's it. 10:02:29
10 Q. So can V02 max be determined using 10:02:36
11 experimentally derived coefficients? 10:02:40
12 A. Well, I think we're talking about having 10:02:46
13 V02 max being estimated, I don't know about being 10:02:48
14 determined, but I think that's the -- it's like a 10:02:51
15 correlation or a way to estimate V02 max, but it 10:02:56
16 can be measured directly or estimated. 10:02:59
17 Q. Well -- can a submaximal exercise protocol 10:04:27
18 for estimating V02 max be used for cycling? 10:04:31
19 MR. SWISHER: Object to form. 10:04:39
20 A. Should be able to, yes. 10:04:40
21 Q. Swimming? 10:04:41
22 A. Should be. 10:04:41
23 Q. Other exercises? 10:04:42
24 A. Running, walking. 10:04:48
25 Q. So let me direct you to Exhibit 2001, your 10:05:02

1	initial declaration.	10:05:06
2	A. Okay.	10:05:06
3	Q. Specifically native page 20, marked page	10:05:15
4	24.	10:05:22
5	A. So native 20. Okay. I'm there.	10:05:22
6	Q. So do you see the sentence that begins	10:05:37
7	with (as read):	10:05:42
8	"This is because Lubell's disclosed method	10:05:43
9	for estimating V02 max involves a so-called Van der	10:05:47
10	Walt relationship, which uses experimentally	10:05:52
11	derived coefficients to calculate a subject's V02	10:05:55
12	max?"	10:05:59
13	A. I do see that.	10:06:03
14	Q. Okay. So are you aware of methods for	10:06:05
15	estimating V02 max using experimentally derived	10:06:10
16	coefficients?	10:06:14
17	A. Yes, such as this Van der Walt	10:06:17
18	relationship; yes.	10:06:19
19	Q. Are you aware of any other relationships,	10:06:20
20	Doctor Bergeron?	10:06:22
21	A. Any relationships.	10:06:27
22	MR. SWISHER: Object to form.	10:06:28
23	A. Like relationships...	10:06:43
24	(Witness reviews document.) Do you mean	10:06:48
25	other -- you mean parallels to the Van der Walt,	10:06:53

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1 other -- other -- I can't think of any offhand. 10:06:57

2 Q. Okay. Do you know if there's a way of 10:07:02

3 estimating V02 max based on experimentally derived 10:07:12

4 coefficients that are associated with weight? 10:07:18

5 A. With weight. Just weight? Just weight, 10:07:24

6 or... 10:07:29

7 Q. No, including weight. 10:07:30

8 A. Including weight. 10:07:31

9 MR. SWISHER: Object to form. 10:07:32

10 A. Including weight. 10:07:37

11 (Witness reviews document.) I can't think 10:07:43

12 of any name I can give you, but it would make sense 10:07:49

13 that weight could be a variable in estimating V02 10:07:53

14 max, 'cause an increased body mass, increased 10:07:57

15 muscular mass, would mean increased oxygen uptake. 10:08:00

16 Q. Would age be a variable in estimating V02 10:08:05

17 max? 10:08:12

18 MR. SWISHER: Object to form. 10:08:13

19 A. It could be. 10:08:15

20 Q. Would gender be a variable in estimating 10:08:17

21 V02 max? 10:08:20

22 MR. SWISHER: Object to form. 10:08:23

23 A. When you say "in estimating V02 max" -- 10:08:24

24 estimating V02 max... 10:08:31

25 It could be a variable. The issue is how 10:08:32

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1	much weight to put on that variable; but, yes, it	10:08:45
2	could be -- could be a variable.	10:08:47
3	Q. Would heart rate be a variable -- strike	10:08:49
4	that.	10:08:53
5	Would -- could high rate be a variable in	10:08:54
6	measuring V02 max?	10:08:56
7	MR. SWISHER: Object to form.	10:08:57
8	A. Just heart rate?	10:08:59
9	Q. Well, yes.	10:09:03
10	A. Just heart rate itself, I don't know how	10:09:15
11	that would affect it. I imagine some type of heart	10:09:18
12	rate, resting or maximum, or some other specific	10:09:23
13	heart rate.	10:09:25
14	Q. Would -- could heart rate be used with	10:09:28
15	another variable to measure V02 max?	10:09:32
16	MR. SWISHER: Object to form.	10:09:36
17	A. To measure V02 max? Well, it could be	10:09:37
18	used to perhaps estimate.	10:09:39
19	Q. Strike that. Let me ask the -- the	10:09:40
20	question again.	10:09:42
21	Could heart rate be used with another	10:09:43
22	variable to estimate V02 max?	10:09:45
23	MR. SWISHER: Object to form.	10:09:47
24	A. Could be.	10:09:48
25	Q. What other variables could be used with	10:09:54

1	heart rate to estimate V02 max?	10:09:57
2	MR. SWISHER: Object to form.	10:10:07
3	A. For example, we talked earlier about the	10:10:16
4	body mass could be used potentially and the issue	10:10:18
5	is how much weight to give the variables in the	10:10:22
6	estimation.	10:10:28
7	Q. That would be where the experimentally	10:10:28
8	derived coefficients would come into play?	10:10:30
9	A. If -- if weight were experimentally	10:10:35
10	derived, yes.	10:10:37
11	MR. ARJOMAND: All right. We've been	10:10:46
12	going for about an hour. Let's take a short break.	10:10:48
13	THE WITNESS: Sure.	10:10:51
14	VIDEO OPERATOR: The time's 10:11. We're	10:10:51
15	off the record.	10:10:53
16	(Recess was taken.)	10:10:53
17	VIDEO OPERATOR: The time's 10:24. We're	10:23:40
18	back on the record.	10:23:46
19	Q. So during the break, Doctor Bergeron, did	10:23:47
20	you speak with your counsel?	10:23:49
21	A. Not about the case.	10:23:52
22	(Court Reporter comment)?	10:23:52
23	THE WITNESS: Do you want me to move this	10:24:16
24	mic up? No?	10:24:17
25	Q. So before the break, Doctor Bergeron, we	10:24:24

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1	were discussing some of the benefits for a	10:24:27
2	submaximal testing protocol to estimate V02 max.	10:24:31
3	Do you recall that?	10:24:34
4	A. I do.	10:24:35
5	Q. And I asked you what were the benefits for	10:24:37
6	such a protocol.	10:24:48
7	Do you recall that?	10:24:50
8	A. I do.	10:24:51
9	Q. And you testified among other benefits it	10:24:52
10	puts less stress on the users.	10:24:57
11	Do you recall that?	10:25:03
12	A. I do. I think in the context of it could	10:25:04
13	be used on someone who's older or who has	10:25:11
14	cardiovascular disease.	10:25:15
15	Q. Right. And would a person of ordinary	10:25:18
16	skill in the art be aware of those benefits of a	10:25:23
17	submaximal testing protocol as of 2003?	10:25:29
18	MR. SWISHER: Object to form.	10:25:34
19	A. They should be, yes.	10:25:34
20	Q. All right. Let me place in front of you	10:26:23
21	Exhibit 2009.	10:26:25
22	(Exhibit 2009, previously marked.)	10:26:29
23	A. Thank you.	10:26:34
24	Can I put the physical activity away for	10:26:37
25	now?	10:26:39

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1 Q. Yes, you can put it to the side. 10:26:40
2 A. Let me clip it. 10:26:41
3 Q. Do you recognize previously marked Exhibit 10:26:59
4 2009, Doctor Bergeron? 10:27:01
5 A. I do, yes. 10:27:03
6 Q. What is it? 10:27:05
7 A. It's a document we referred to earlier or 10:27:07
8 I referred to earlier as the Caspersen reference. 10:27:09
9 Q. Okay. Let me now direct you to stamped 10:27:15
10 page 4 of Exhibit 2009. 10:27:18
11 A. Page 4 of 6 on the bottom? 10:27:34
12 Q. That's right; correct. 10:27:37
13 Do you see a section entitled "Glossary of 10:27:42
14 Terms"? 10:27:45
15 A. I do, yes, on the bottom. 10:27:45
16 Q. All right. Let me first direct you to the 10:27:47
17 term "Physical activity." The glossary provides a 10:27:51
18 definition, specifically (as read): 10:27:56
19 "Any bodily movement produced by skeletal 10:27:58
20 muscles that result in energy expenditure." 10:28:01
21 Do you see that definition? 10:28:07
22 A. I do, yes. 10:28:07
23 Q. Do you agree with that definition of 10:28:08
24 physical activity as set forth in Exhibit 2009? 10:28:10
25 MR. SWISHER: Object to form. 10:28:16

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1	A. Seems a reasonable definition.	10:28:18
2	Q. Now let me direct you to the term	10:28:31
3	"Exercise" in the glossary of terms.	10:28:43
4	A. Okay.	10:28:46
5	Q. The glossary provides the following	10:28:47
6	definition for "exercise." (As read):	10:28:49
7	"Planned, structured, and repetitive	10:28:53
8	bodily movement done to improve or maintain one or	10:28:56
9	more components of physical fitness."	10:29:00
10	Do you see that definition?	10:29:05
11	A. I do.	10:29:07
12	Q. And do you agree with that definition of	10:29:09
13	exercise as set forth in Exhibit 2009?	10:29:13
14	MR. SWISHER: Object to form.	10:29:16
15	A. I guess I have issues with the first --	10:29:25
16	the first three adjectives, but overall it's okay,	10:29:31
17	but I have -- it's not in my favorite definition.	10:29:40
18	Q. What issues do you have with "planned,	10:29:46
19	structured, and repetitive" in the definition of	10:29:53
20	exercise as set forth in Exhibit 2009?	10:29:56
21	A. Well, it could be nonstructured, for	10:30:00
22	example. So say example of fartlek, which is for,	10:30:02
23	say, training for distance running.	10:30:02
24	(Court Reporter comment.)	10:30:02
25	A. F-a-r-t-l-e-k, fartlek, which is a	10:30:02

1 nonstructured, sort of spontaneous running over a 10:30:18
2 period of time, which that's not -- it's not 10:30:18
3 predefined. It's basically random, for example. 10:30:22
4 There is forms of -- but -- but in general 10:30:28
5 it's okay other than those -- there are exceptions 10:30:31
6 to these -- the structure. I don't think -- 10:30:35
7 doesn't have to be necessarily repetitive. It can 10:30:37
8 be nonrepetitive depending on -- on the exercise, 10:30:39
9 for example. 10:30:43
10 Q. And I guess you would say it could also be 10:30:51
11 nonplanned? 10:30:55
12 A. Could be, sure. 10:30:55
13 Q. Do you have any other issues with the 10:31:00
14 definition of "exercise" as set forth in the 10:31:02
15 glossary of terms in Exhibit 2009? 10:31:04
16 A. For exercise? No. 10:31:08
17 Q. Okay. Now, let me direct you to the term 10:31:13
18 "Physical fitness" in the glossary of terms. 10:31:16
19 A. Okay. 10:31:19
20 Q. The glossary provides the following 10:31:20
21 definition: (As read): 10:31:22
22 "A set of attributes that people have or 10:31:24
23 achieve that relates to the ability to perform 10:31:27
24 physical activity." 10:31:31
25 Do you see that definition? 10:31:34

1	A. I do, yes.	10:31:34
2	Q. And do you agree with that definition of	10:31:40
3	physical fitness as set forth in Exhibit 2009?	10:31:43
4	MR. SWISHER: Object to form.	10:31:48
5	A. Seems reasonable.	10:31:56
6	Q. All right. Let me direct you now to the	10:32:10
7	term "Body composition."	10:32:12
8	A. Okay.	10:32:17
9	Q. The glossary provides the following	10:32:18
10	definition: (As read):	10:32:21
11	"A health-related component of physical	10:32:24
12	fitness that relates to the relative amounts of	10:32:27
13	muscle, fat, bone, and other vital parts of the	10:32:30
14	body."	10:32:33
15	Do you see that definition?	10:32:35
16	A. I do.	10:32:37
17	Q. And do you agree with that definition of	10:32:38
18	physical fitness as set forth in Exhibit 2009?	10:32:41
19	MR. SWISHER: Object to form.	10:32:45
20	MR. ARJOMAND: Strike that.	10:32:46
21	Q. And do you agree with that definition of	10:32:47
22	body composition as set forth in Exhibit 2009?	10:32:49
23	MR. SWISHER: Object to form.	10:32:53
24	A. (Witness reviews document.) Seems	10:32:59
25	reasonable.	10:33:02

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1	Q. Doctor Bergeron, would a person of	10:33:04
2	ordinary skill in the art as of 2003 be aware of	10:33:14
3	the definition of "Physical activity"?	10:33:19
4	MR. SWISHER: Object to form.	10:33:23
5	A. "Physical activity"? Should be, yes.	10:33:24
6	Q. I -- strike that.	10:33:26
7	Let me ask you the question again.	10:33:28
8	Would a person of ordinary skill in the	10:33:30
9	art as of 2003 be aware of the definition of	10:33:31
10	"Physical activity" as set forth in Exhibit 2009?	10:33:34
11	MR. SWISHER: Object to form.	10:33:39
12	A. They should be, yes.	10:33:44
13	Q. Would a person of ordinary skill in the	10:33:48
14	art as of 2003 be aware of the definition of	10:33:50
15	"Exercise" as set forth in Exhibit 2009?	10:33:54
16	MR. SWISHER: Object to form.	10:33:58
17	A. Well, with those exceptions I noted, yes.	10:33:59
18	Q. And would a person of ordinary skill in	10:34:03
19	the art as of 2003 be aware of the definition of	10:34:06
20	"Physical fitness" as set forth in Exhibit 2009?	10:34:10
21	MR. SWISHER: Object to form.	10:34:13
22	A. Should be, yes.	10:34:18
23	Q. And, finally, would a person of ordinary	10:34:20
24	skill in the art as of 2003 be aware of the	10:34:23
25	definition of "Body composition" as set forth in	10:34:25

1	Exhibit 2009?	10:34:29
2	MR. SWISHER: Object to form.	10:34:31
3	A. Yes.	10:34:36
4	Q. All right. Doctor Bergeron, let me direct	10:34:39
5	you to the next page of Caspersen, stamped page 5.	10:34:41
6	A. Okay.	10:34:47
7	Q. Can you take a moment to read the first	10:34:51
8	two sentences in the left column of Exhibit 2009.	10:34:53
9	A. At the very top?	10:34:59
10	Q. Yes.	10:35:00
11	A. (Witness reviews document.) The first two	10:35:00
12	sentences. Okay.	10:35:18
13	Q. Have you had a chance to read those	10:35:20
14	sentences?	10:35:22
15	A. I did, yes.	10:35:23
16	Q. Okay. Do you agree with Caspersen,	10:35:25
17	Exhibit 2009, that physical fitness is a matter of	10:35:29
18	degree?	10:35:33
19	MR. SWISHER: Object to form.	10:35:36
20	A. Degree. (Witness reviews document.) I'm	10:35:53
21	not sure how he's using "degree" here, but...	10:36:09
22	(Witness reviews document.) If he's	10:36:17
23	saying -- if he's saying going from low to high is	10:36:37
24	a -- is a matter of degree, then yes.	10:36:41
25	Q. Going from low to high fitness?	10:36:45

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1	MR. SWISHER: Object to form.	10:36:50
2	A. It applies to fitness and physical	10:36:51
3	activity; so yes.	10:36:53
4	Q. So let me focus you on that second	10:37:10
5	sentence on page -- stamped page 5 of Exhibit 2009.	10:37:13
6	It provides (as read):	10:37:21
7	"No member has no activity, just as no	10:37:22
8	person has no fitness. All are active or fit to	10:37:26
9	greater or lesser degrees."	10:37:30
10	As you sit here today, Doctor Bergeron,	10:37:34
11	how would a person of ordinary skill in the art in	10:37:37
12	2003 understand that sentence?	10:37:39
13	MR. SWISHER: Object to form.	10:37:42
14	A. (Witness reviews document.)	10:38:00
15	If I understand your question, I think	10:38:20
16	we're just -- I think we just answered it, but it's	10:38:23
17	that individuals have varying degrees of fitness or	10:38:25
18	varying levels of physical activity and -- and	10:38:32
19	activity.	10:38:37
20	That's what it says.	10:38:42
21	Q. All right. Now, let me direct you to	10:38:49
22	stamped page 3 of Caspersen, Exhibit 2009.	10:38:53
23	A. Okay.	10:39:02
24	Q. Let me specifically direct you to figure	10:39:12
25	2.	10:39:16

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1	A. Got it.	10:39:18
2	Q. It's entitled "Components of physical	10:39:19
3	fitness."	10:39:22
4	A. Got it.	10:39:27
5	Q. Do you agree with figure 2 of Caspersen,	10:39:28
6	Exhibit 2009?	10:39:35
7	MR. SWISHER: Object to form.	10:39:38
8	A. (Witness reviews document.) Seems	10:40:10
9	correct.	10:40:11
10	Q. So figure 2 divides physical fitness into	10:40:19
11	two subcategories: "Health-related fitness" and	10:40:21
12	"Skill-related fitness."	10:40:27
13	Do you see that?	10:40:29
14	A. I do, yes.	10:40:29
15	Q. Do you agree with that definition?	10:40:31
16	MR. SWISHER: Object to form.	10:40:34
17	Q. Let me ask you it slightly differently.	10:40:38
18	Do you agree with that division?	10:40:43
19	MR. SWISHER: Object to form.	10:40:45
20	A. (Witness reviews document.)	10:40:50
21	The way I understand it, if they -- I'm	10:40:59
22	sure there are other ways to -- to divide or to	10:41:02
23	bifurcate or trifurcate physical fitness with those	10:41:08
24	two categories -- I understand them. It makes	10:41:13
25	sense.	10:41:16

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1 Q. Okay. And so directing you to the top 10:41:17
2 category, "Health-related fitness." It refers to, 10:41:20
3 in figure 2 (as read): 10:41:25
4 "Cardiorespiratory endurance, Muscular 10:41:27
5 endurance, Muscular strength, Body composition" and 10:41:30
6 "Flexibility." 10:41:34
7 Do you see that? 10:41:35
8 A. I do. 10:41:35
9 Q. Do you agree that cardiorespiratory 10:41:42
10 endurance, muscular endurance, muscular strength, 10:41:43
11 body composition, and flexibility are components of 10:41:46
12 physical fitness? 10:41:52
13 A. Yes. 10:42:10
14 Q. Okay. And would a person of ordinary 10:42:12
15 skill in the art in 2003 understand that 10:42:15
16 cardiorespiratory endurance, muscular endurance, 10:42:19
17 muscular strength, body composition, and 10:42:22
18 flexibility are components of physical fitness? 10:42:26
19 MR. SWISHER: Object to form. 10:42:29
20 A. They should. 10:42:30
21 Q. All right. Let me now direct you back to 10:42:35
22 stamped page 4 of Caspersen, Exhibit 2009. 10:42:38
23 Now, in the middle of that page there's a 10:42:50
24 table entitled "Health-related physical fitness 10:42:52
25 measures." 10:42:56

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1 Do you see that? 10:42:57

2 A. I do, yes. 10:42:58

3 Q. So in the top row it refers to the 10:43:10

4 "Fitness component" and then several columns 10:43:17

5 associated with evaluation procedures. 10:43:23

6 Do you see that? 10:43:26

7 A. You mean in the middle of the page? 10:43:29

8 Q. Yes. 10:43:31

9 A. That table? 10:43:32

10 Q. Yes. 10:43:32

11 A. Yes. 10:43:33

12 Q. So the table provides -- for example, in 10:43:34

13 the column "Fitness Components," it lists the -- 10:43:36

14 the different fitness components in rows, and then 10:43:40

15 for each fitness component it provides, in multiple 10:43:48

16 columns, evaluation procedures. 10:43:52

17 Do you see that? 10:43:56

18 A. I do, yes. 10:43:56

19 Q. Okay. So let me direct you to the fitness 10:43:58

20 component that's entitled "Body composition." 10:44:02

21 A. Okay. 10:44:06

22 Q. Do you agree that body composition can be 10:44:09

23 tested by a laboratory procedure such as underwater 10:44:11

24 weighing? 10:44:15

25 A. That's what it says here, yes. 10:44:24

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1 Q. Do you agree with that? 10:44:26
2 A. Yes. 10:44:27
3 Q. And what is underwater weighing, to your 10:44:27
4 knowledge? 10:44:30
5 A. Underwater weighing is a procedure where 10:44:30
6 the subject is placed in a tank of water that has 10:44:36
7 a -- say, sitting on a seat which has a scale on it 10:44:40
8 to measure the weight of the person, and the tank 10:44:45
9 is filled with water up -- over his or her head for 10:44:49
10 a few seconds, and then the weight is then 10:44:52
11 measured, and the difference is used to determine 10:44:55
12 the density or specific gravity of the user -- of 10:44:58
13 the -- of the patient -- the subject. 10:45:03
14 Q. Okay. And do you see that right after 10:45:07
15 under -- "Underwater weighing" in the table there's 10:45:12
16 a reference to "potassium-40"? 10:45:16
17 A. I do, yeah. 10:45:20
18 Q. Do you know what that refers to? 10:45:21
19 A. I'm not sure, no. 10:45:22
20 Q. Now, moving one column over, do you agree 10:45:26
21 that body composition can be tested by a skinfold 10:45:33
22 test? 10:45:40
23 A. Well, it can be estimated based on -- can 10:45:44
24 be estimated, yes. 10:45:53
25 Q. Can body composition be measured by body 10:45:55

1	mass index or BMI?	10:45:59
2	A. Body composition?	10:46:05
3	That there would be -- that's a very loose	10:46:08
4	estimation.	10:46:13
5	Q. BMI is a loose estimation of --	10:46:18
6	A. Body composition.	10:46:21
7	Q. -- body composition?	10:46:23
8	A. Yes.	10:46:24
9	Q. But you would agree that a person of	10:46:24
10	ordinary skill in the art in 2003 would understand	10:46:27
11	that BMI can be a measure of body composition?	10:46:29
12	MR. SWISHER: Object to form.	10:46:34
13	A. Well, it's not a measure of body	10:46:35
14	composition. It's a -- it's not a measure. It's	10:46:36
15	-- it would be, at best, an estimation.	10:46:40
16	Q. Okay. So --	10:46:40
17	A. Loose -- loose estimation. Sorry.	10:46:46
18	Q. Sorry. Didn't mean to interrupt.	10:46:48
19	So you would agree that a person of	10:46:49
20	ordinary skill in the art in 2003 would understand	10:46:51
21	that BMI can be an estimate or estimation of body	10:46:54
22	composition?	10:46:59
23	MR. SWISHER: Object to form.	10:47:00
24	A. Again, it would be, you know, a loose	10:47:02
25	estimation.	10:47:06

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1 Q. So the answer is yes? 10:47:08
2 MR. SWISHER: Object to form. 10:47:11
3 A. If you put "loose" in there. 10:47:12
4 Q. Okay. Doctor Bergeron, what is body mass 10:47:14
5 index or BMI? 10:47:37
6 A. BMI is a loose estimation of body 10:47:39
7 composition calculated by the -- dividing the 10:47:43
8 weight or the mass of the person over their height 10:47:51
9 squared -- so it could be kilograms over meters 10:47:54
10 squared -- to give a -- basically it's a ratio of, 10:47:57
11 sort of, the height, width of the patient, sort of 10:48:00
12 the -- if someone's tall and thin versus sort of 10:48:03
13 wide and squat kind of estimation, but it breaks 10:48:11
14 down -- well, that's what it does. 10:48:17
15 Q. So in 2003 were physicians and trainers 10:48:19
16 utilizing BMI as an estimation or an estimate for 10:48:30
17 body composition? 10:48:37
18 MR. SWISHER: Object to form. 10:48:39
19 A. That was still sort of the last -- the 10:48:45
20 least -- put it this -- if that's all there was, 10:48:49
21 then yes. If there was no other method -- if there 10:48:57
22 were no other means available, yes. 10:49:00
23 Q. So were you personally aware in 2003 of 10:49:02
24 physicians or trainers using BMI as an estimate for 10:49:06
25 body composition? 10:49:10

1	A. Yes.	10:49:10
2	Q. Is BMI based on the gender of a person?	10:49:18
3	A. No.	10:49:22
4	Q. Is BMI based on the age of a person?	10:49:23
5	A. No.	10:49:25
6	Q. Doctor Bergeron, can weight influence a	10:49:42
7	person's cardiorespiratory endurance?	10:49:45
8	MR. SWISHER: Object to form.	10:49:49
9	A. As we described -- or discussed earlier,	10:49:50
10	yes, it could.	10:49:52
11	Q. And, Doctor Bergeron, can weight influence	10:49:53
12	the level of fitness of a person?	10:49:56
13	MR. SWISHER: Object to form.	10:50:00
14	A. Fitness...	10:50:01
15	To the extent that it alters V02 max, yes.	10:50:05
16	Q. All right. Let me direct you now back to	10:50:25
17	Exhibit 2008, your supplemental declaration.	10:50:28
18	All right. I'd like to direct you to	10:50:57
19	native page 14, stamped page 17, of Exhibit 2008.	10:51:01
20	A. Native 14?	10:51:14
21	Q. Yes.	10:51:15
22	A. Got it. Okay.	10:51:16
23	Q. So I wanted to direct you again to	10:51:18
24	paragraph 27. Take a moment to read that to	10:51:21
25	yourself.	10:51:27

1	A. (Witness reviews document.) Okay.	10:51:42
2	Q. So you provide in paragraph 27 that (as	10:51:42
3	read):	10:51:42
4	"...the plain and ordinary meaning of	10:51:47
5	wherein an exertion level is based on the level of	10:51:49
6	physical fitness of a user to be to a person of	10:51:52
7	ordinary skill in the art, an exertion level that	10:52:01
8	takes into account an individual user's particular	10:52:03
9	physical fitness condition, as assessed by fitness	10:52:08
10	condition criteria such as cardiorespiratory	10:52:11
11	endurance."	10:52:14
12	Do you see that?	10:52:17
13	A. I do.	10:52:17
14	Q. So I'm going to ask you a -- a few	10:52:18
15	questions about the plain and ordinary meaning that	10:52:24
16	you've provided in paragraph 27.	10:52:27
17	A. Okay.	10:52:30
18	Q. So the plain and ordinary meaning utilizes	10:52:32
19	the word "condition."	10:52:37
20	Do you see that?	10:52:39
21	A. (Witness reviews document.) That's -- in	10:52:50
22	the last part of the paragraph?	10:52:51
23	Q. Yes.	10:52:52
24	A. Yes.	10:52:52
25	Q. And the claim language utilizes the word	10:52:53

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1	"level."	10:52:57
2	Do you see that?	10:52:58
3	A. Yes.	10:52:58
4	Q. Is there a difference in meaning between	10:53:03
5	the word "level" and the word "condition"?	10:53:08
6	MR. SWISHER: Object to form.	10:53:14
7	A. Yes -- yes.	10:53:19
8	Q. Okay. So what would be the difference in	10:53:24
9	meaning between the word "level" and the word	10:53:25
10	"condition" to a person of ordinary skill in the	10:53:28
11	art as of 2003?	10:53:31
12	MR. SWISHER: Object to form.	10:53:33
13	A. Well, the -- an exertion level is, sort	10:53:43
14	of, sterile -- just say a -- a value, a number; and	10:53:52
15	the point is that it doesn't capture the -- the	10:53:57
16	preferred definition which we offer; that it's	10:54:04
17	actually not just a -- a number or value, but it's	10:54:08
18	actually directly tied to the particular user, to	10:54:11
19	their particular -- their specific condition,	10:54:15
20	specific level of fitness.	10:54:19
21	It's not just an arbitrary level, an	10:54:21
22	arbitrary -- arbitrary -- or, again, sterile is	10:54:23
23	probably the word I want to use, not tied to any	10:54:29
24	particular person, but -- so based on statistics or	10:54:32
25	some other -- other means versus a particular	10:54:36

1 user's level of fitness. 10:54:39

2 Q. All right. So let me try to ask the 10:54:43

3 question slightly differently. 10:54:45

4 A. Sure. 10:54:47

5 Q. I'm -- I'm not talking about the exertion 10:54:48

6 level, per se. I'm just talking about the -- the 10:54:52

7 word "level" with respect to the word "condition." 10:54:57

8 So the claim language says "a level of 10:55:03

9 physical fitness," and you posit that a person of 10:55:07

10 ordinary skill in the art in 2003 would understand 10:55:14

11 the plain and ordinary meaning to include "physical 10:55:16

12 fitness condition." 10:55:20

13 So what I'm trying to understand is what's 10:55:24

14 the difference, in your mind, between a "level of 10:55:25

15 physical fitness" and a "physical fitness 10:55:31

16 condition"? 10:55:34

17 MR. SWISHER: Object to form. 10:55:35

18 A. And are you asking me about the "wherein 10:55:35

19 an exertion level" that level? The first three 10:55:51

20 words in that sentence, whereas -- I'm sorry -- 10:55:56

21 "wherein an exertion level." That's the level 10:55:59

22 you're talking about? 10:56:03

23 Q. No, Doctor Bergeron. The -- the next 10:56:05

24 level. 10:56:07

25 A. Okay. 10:56:07

1	Q.	"Based on a level of physical fitness."	10:56:08
2	A.	Okay. That's clearer. Okay. Thank you.	10:56:10
3	Q.	Sorry.	10:56:12
4	A.	(Witness reviews document.) Well, I think	10:56:49
5		you have to take the -- the word "level," "physical	10:56:51
6		fitness" and "condition" in the context that	10:56:56
7		they're provided. So just -- just the words in	10:57:00
8		space, it's hard to define the difference or	10:57:03
9		similarity, but the -- you know, the point is if	10:57:11
10		you look at "condition," condition has a -- the	10:57:13
11		phrase following it, "as assessed by fitness	10:57:18
12		condition criteria such as cardiorespiratory	10:57:22
13		endurance," whereas the -- again, that level of	10:57:25
14		physical fitness is -- is sort of sterile. It's	10:57:28
15		not tied to any particular person or user. It's	10:57:31
16		just a -- it's just a level.	10:57:34
17	Q.	So you understand "wherein exertion level	10:57:43
18		is based on a level of physical fitness of a user"	10:57:47
19		to be sterile and not tied to any particular person	10:57:51
20		or user?	10:57:54
21	A.	Yes.	10:57:55
22	Q.	So what is your understanding -- strike	10:57:58
23		that.	10:58:22
24		How would a person of ordinary skill in	10:58:26
25		the art in 2003 understand the term "fitness	10:58:28

1 condition criteria" that you provide in paragraph 10:58:34
2 27 of Exhibit 2008? 10:58:36
3 MR. SWISHER: Object to form. 10:58:40
4 A. Well, I mean as -- as the sentence says, 10:58:48
5 "as assessed by fitness criteria --" sorry. (As 10:58:55
6 read): 10:58:55
7 "...as assessed by fitness condition 10:58:58
8 criteria such as cardiorespiratory endurance." 10:59:00
9 So that sort of defines it right there. 10:59:04
10 So as an example. I would say that the fitness 10:59:06
11 condition criteria, an example, would be that the 10:59:09
12 user's -- an assessment would be required of the 10:59:12
13 user such as their cardiovascular -- or sorry -- 10:59:16
14 cardiorespiratory endurance. 10:59:24
15 Q. Is the criteria limited to 10:59:24
16 cardiorespiratory endurance? 10:59:27
17 MR. SWISHER: Object to form. 10:59:28
18 A. No. 10:59:30
19 Q. What are other criteria that would be 10:59:31
20 known to a person of ordinary skill in the art as 10:59:34
21 of 2003? 10:59:35
22 MR. SWISHER: Object to form. 10:59:40
23 A. Well, we just -- I think we just went over 10:59:45
24 in that previous -- the previous reference we cited 10:59:47
25 there was five -- I thought there were -- there's 10:59:55

1	five-or-so categories in the -- Caspersen?	10:59:57
2	Q. So you're referring to Exhibit 2009?	11:00:03
3	A. Exhibit 2000- -- yes, I am. So we just	11:00:07
4	went over --	11:00:11
5	Q. Are you --	11:00:14
6	A. -- figure 2 for example.	11:00:14
7	Q. Figure 2?	11:00:15
8	A. Yeah.	11:00:16
9	Q. So the other criteria beyond	11:00:17
10	cardiorespiratory endurance would be --	11:00:22
11	A. Could include muscular endurance, muscular	11:00:23
12	strength, body comp, and flexibility.	11:00:27
13	But in this -- in this -- in this case,	11:00:31
14	the "case" meaning this -- this proceeding,	11:00:38
15	whatever, cardiovascular -- cardiorespiratory	11:00:42
16	endurance is the most obvious to use.	11:00:47
17	Q. But the other four that you listed --	11:00:55
18	muscular endurance, muscular strength, body	11:00:58
19	composition, and flexibility -- could also be used	11:01:01
20	as fitness condition criteria?	11:01:05
21	MR. SWISHER: Object to form.	11:01:09
22	A. Well, with the -- with the -- putting the	11:01:11
23	least amount of weight on body composition, yes.	11:01:14
24	Q. Are there any other fitness condition	11:01:39
25	criteria that would be known to a person of	11:01:42

1	ordinary skill in the art as of 2003?	11:01:46
2	MR. SWISHER: Object to form.	11:01:48
3	A. None come to mind right now.	11:01:53
4	Q. So paragraph 27 of Exhibit 2008 provides	11:02:22
5	that (as read):	11:02:30
6	"...an exertion level that takes into	11:02:35
7	account an individual's -- individual user's	11:02:37
8	particular fitness condition as assessed by fitness	11:02:40
9	condition criteria such as cardiorespiratory	11:02:45
10	endurance."	11:02:48
11	I want to focus you on the language "as	11:02:50
12	assessed by."	11:02:53
13	A. Okay.	11:02:54
14	Q. What do you mean by "as assessed by"?	11:02:57
15	MR. SWISHER: Object to form.	11:03:01
16	A. Determined by. Determined by.	11:03:19
17	Q. As determined by.	11:03:21
18	So would it be fair to say that a criteria	11:03:29
19	such as cardiorespiratory endurance would indicate	11:03:34
20	the physical fitness condition of a user?	11:03:39
21	MR. SWISHER: Object to form.	11:03:47
22	A. I believe that's correct, yes.	11:03:50
23	I would add: As -- as a component of	11:04:07
24	fitness, yes.	11:04:10
25	Q. What do you mean by that, Doctor Bergeron?	11:04:18

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1 A. Well, I mean, we talked, for example -- 11:04:20
2 again, back to this reference, we talked about 11:04:22
3 other indicators such as the muscular strength. So 11:04:23
4 it's not -- so you could be fit cardiovascularly 11:04:27
5 but less fit in terms of strength. 11:04:31
6 Q. Uh-huh. 11:04:33
7 A. Whereas someone else -- someone else could 11:04:33
8 be -- another athlete could be cardiovascularly fit 11:04:36
9 and also muscularly, strength-wise. So there are 11:04:40
10 levels of fitness. I'm saying this is -- I'm not 11:04:43
11 saying this is the only way to assess fitness is by 11:04:46
12 cardiovascular -- or cardiovascular -- sorry. 11:04:50
13 That's all. 11:04:54
14 Q. That's -- would it be fair to say that's 11:04:56
15 why you provided "as assessed by fitness condition 11:04:59
16 criteria such as cardiorespiratory endurance"? 11:05:06
17 A. Yes. 11:05:09
18 Q. The "such as" allows for other criteria to 11:05:10
19 be utilized in assessing a person's particular 11:05:13
20 physical condition? 11:05:17
21 MR. SWISHER: Object to form. 11:05:19
22 A. Well, it allows me, for example, to use -- 11:05:20
23 to assess a -- to consider muscular strength, for 11:05:24
24 example. 11:05:27
25 Q. Okay. 11:05:27

1 THE WITNESS: It's actually easier for me 11:05:38
2 to read that way. Does it affect your camera? 11:05:40
3 VIDEO OPERATOR: (Nods.) 11:05:44
4 THE WITNESS: Oh, sorry. 11:05:46
5 Q. Doctor Bergeron, who is a person of 11:06:04
6 ordinary skill in the art as of 2003 that's 11:06:08
7 referenced in paragraph 27 of your declaration? 11:06:10
8 MR. SWISHER: Object to form -- apologies. 11:06:17
9 A. Who is? Well, we define the POSITA -- or 11:06:19
10 a person of ordinary skill in the art -- let's see. 11:06:22
11 Page -- page 8. Let's see. 11:06:31
12 Do you want to go to the original report? 11:06:46
13 Q. Yes. If you'd like to go there. 11:06:49
14 A. Sure. 11:06:51
15 Q. That would be Exhibit 2001. 11:06:52
16 A. Yes. So -- so page 15, paragraph 35. So 11:06:54
17 I'm just simply accepting the petitioner's 11:07:32
18 definition of a POSITA. 11:07:37
19 Q. This is paragraph 35 of -- 11:07:38
20 A. Of 2001. 11:07:43
21 Q. Of 2001. 11:07:44
22 And do you agree with that definition of a 11:07:46
23 POSITA set forth in paragraph 35 of Exhibit 2001? 11:07:51
24 MR. SWISHER: Object to form. 11:07:57
25 A. That's the one I used in my evaluation, 11:07:58

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1	yes.	11:08:01
2	Q. As you sit here today, you don't have any	11:08:01
3	objections to that definition as set forth in	11:08:03
4	paragraph 35 of Exhibit 2001?	11:08:05
5	MR. SWISHER: Object to form.	11:08:08
6	A. Correct.	11:08:12
7	Q. And turning back to paragraph 27 --	11:08:16
8	A. Yes.	11:08:23
9	Q. -- of Exhibit 2008 --	11:08:23
10	A. 27?	11:08:25
11	Q. Yes.	11:08:26
12	A. Okay.	11:08:26
13	Q. When you provided the plain and ordinary	11:08:32
14	meaning of "wherein exertion level is based on a	11:08:34
15	level of physical fitness of a user," you did that	11:08:39
16	from the perspective of a person of ordinary skill	11:08:45
17	in the art as defined in paragraph 35 of Exhibit	11:08:47
18	2001?	11:08:50
19	A. Yes.	11:08:54
20	MR. ARJOMAND: So -- put that to the side.	11:09:26
21	No worries.	11:09:33
22	MR. SWISHER: Keeping it tidy.	11:09:34
23	THE WITNESS: Don't want it to spread out.	11:09:37
24	Q. So let me ask you a hypothetical, Doctor	11:09:39
25	Bergeron.	11:09:41

1 It's, again, associated with paragraph 27 11:09:43
2 of Exhibit 2008; okay? 11:09:46
3 A. Okay. 11:09:53
4 Q. So let's say there's a system, an exercise 11:09:53
5 system, that uses a person's V02 max number to set 11:09:57
6 an exertion level; okay? 11:10:07
7 A. Okay. 11:10:11
8 Q. In that situation, would the system be a 11:10:13
9 system where an exertion level is based on a level 11:10:20
10 of physical fitness of a user? 11:10:24
11 MR. SWISHER: Object to form. 11:10:27
12 A. I believe so, if we measured the person's 11:10:33
13 V02 -- we measured a user's V02 max. 11:10:35
14 Q. Uh-huh. 11:10:39
15 A. Yes. 11:10:43
16 Q. So if the exertion level is set based on a 11:10:43
17 person's V02 max, then you would agree that that 11:10:51
18 exertion level is based on a level of physical 11:10:56
19 fitness of a user? 11:10:59
20 MR. SWISHER: Object to form. 11:11:01
21 A. If it's the same user, the same person 11:11:05
22 being measured, yes. 11:11:07
23 Q. And if the system estimates V02 max in 11:11:43
24 setting the exertion level, would that system be 11:11:51
25 based on the level of physical fitness of a user? 11:11:54

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1 MR. SWISHER: Object to form. 11:11:56

2 A. When you say "estimate," it depends. You 11:12:01

3 know, what's -- what's being estimated? 11:12:03

4 I guess who's being estimated? 11:12:07

5 Q. So let me ask the question again. 11:12:11

6 And if the system estimates V02 max of a 11:12:12

7 user in setting the exertion level, would that 11:12:18

8 system be based on a level of physical fitness of 11:12:22

9 that user? 11:12:24

10 MR. SWISHER: Object to form. 11:12:25

11 A. If I'm understanding your question 11:12:37

12 correctly, so if the -- if the user is evaluated, 11:12:38

13 somebody -- the V02 max is estimated of that 11:12:45

14 particular user and it's used on them -- and that 11:12:50

15 same value is used to determine 11:12:53

16 cardiorespiratory -- cardiorespiratory endurance, 11:13:00

17 then yes. 11:13:01

18 Q. Well, I think it's a -- let me ask you 11:13:18

19 again to make sure that the record is clear. 11:13:20

20 So if a system estimates the V02 max of a 11:13:22

21 user to set an exertion level, would that exertion 11:13:28

22 level be based on a level of physical fitness for 11:13:37

23 that user? 11:13:39

24 MR. SWISHER: Object to form. 11:13:42

25 A. Are we still -- who now -- are we back to 11:13:43

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1 here? Or where are we? 11:13:46

2 Q. Yes. It's still the same -- still on a 11:13:47

3 hypothetical, yes. 11:13:51

4 A. So if I understand you, if that -- if 11:13:51

5 that -- if the measurement or the estimation is for 11:13:54

6 that particular user, then yes. 11:13:59

7 Q. So let me direct you back to paragraph 27 11:14:49

8 of Exhibit 2008. Your -- your definition of -- or 11:14:52

9 your meaning of "wherein exertion level is based on 11:15:03

10 a level of physical fitness of a user," utilizes 11:15:10

11 the phrase "that takes into account." 11:15:14

12 Do you see that? 11:15:16

13 A. I do, yes. 11:15:17

14 Q. What do you mean "that takes into 11:15:18

15 account"? 11:15:21

16 MR. SWISHER: Object to form. 11:15:22

17 A. It considers. 11:15:39

18 Q. So the -- strike that. 11:15:56

19 So paragraph 27 provides a plain and 11:16:01

20 ordinary meaning of "where an exertion level is 11:16:06

21 based on a level of physical fitness of a user." 11:16:10

22 Do you see that? 11:16:13

23 A. I do, yes. 11:16:13

24 Q. So the -- the language that I just quoted 11:16:14

25 utilizes the word "based on a level of physical 11:16:20

1 fitness." 11:16:24

2 A. Based on... 11:16:27

3 Q. Is the term "based on" different than the 11:16:28

4 term "that takes into account," in your view? 11:16:32

5 A. (Witness reviews document.) 11:16:39

6 Well, I think the "takes into account" is 11:16:48

7 less inclusive. "Based on" is more inclusive. 11:16:50

8 Q. How so? 11:16:56

9 A. Well, "based on" -- based on the level of 11:16:57

10 physical fitness. So that says -- so I mean, 11:17:00

11 that's the -- it's a function of the physical 11:17:02

12 fitness of a user whereas "takes into account" 11:17:05

13 means that there -- there's room for other -- other 11:17:10

14 factors. 11:17:13

15 Q. So "takes into account" is more inclusive 11:17:16

16 or less inclusive? 11:17:26

17 A. Less inclusive. 11:17:28

18 Q. How could it be less inclusive if it takes 11:17:29

19 into account -- 11:17:33

20 A. I'm sorry. I'm sorry. You're right. 11:17:33

21 Q. -- more factors? 11:17:34

22 A. So "based on" would be specific. Maybe 11:17:35

23 "inclusive" is the wrong word. So "based on" would 11:17:39

24 be more specific. And "takes into account" is less 11:17:44

25 specific. 11:17:50

1 Q. Can you explain that? 11:18:06
2 MR. SWISHER: Object to form. 11:18:10
3 A. Explain that. 11:18:12
4 So if I said -- in the first part, in the 11:18:12
5 first sentence, "wherein an exertion level is based 11:18:16
6 on a level of a physical fitness of a user" -- 11:18:19
7 Q. Uh-huh. 11:18:21
8 A. -- it's based on -- I said it's based on 11:18:23
9 that -- A is based on B. Whereas in the -- the 11:18:28
10 second sentence that offer "an exertion level that 11:18:32
11 takes into account an individual's -- user's -- an 11:18:37
12 individual user's particular physical fitness 11:18:41
13 condition," "takes into account" is -- it doesn't 11:18:43
14 say "based on." It's -- "based on" would be more 11:18:47
15 specific or more -- or narrower. 11:18:50
16 "Takes into account" includes "based on" 11:18:53
17 in it -- within it, but it could also be based on 11:18:57
18 other things 'cause it takes into account. 11:18:59
19 Q. Why did you utilize "takes into account" 11:19:09
20 when the phrase "wherein exertion level is based on 11:19:13
21 a level of physical fitness of a user" uses the 11:19:20
22 word "based on"? 11:19:24
23 MR. SWISHER: Object to form. 11:19:26
24 A. Why? (Witness reviews document.) I'm not 11:19:36
25 sure why. 11:20:20

1 Q. Did you write -- strike that. 11:20:37
2 Did you... 11:20:45
3 All right. Let me -- let me ask you this 11:21:10
4 question now that we've focused on paragraph 27 of 11:21:12
5 Exhibit 2008 for a bit here. 11:21:16
6 What's the difference between level of 11:21:18
7 physical fitness and a physical fitness condition? 11:21:23
8 A. Well, again, back to the -- sort of, the 11:21:31
9 sterile nature of the first definition versus 11:21:33
10 the -- the particular user's condition in the 11:21:38
11 second -- second sentence or definition. 11:21:44
12 So that the point is whether this is 11:21:47
13 "based on" or "takes into account." The point is 11:21:50
14 the -- the -- trying to show that that -- it's -- 11:21:53
15 it's more -- more correct to look at the user's 11:21:59
16 fitness condition, a particular user's -- 11:22:05
17 particular condition of the specific user that's 11:22:08
18 being evaluated and not some predefined level based 11:22:12
19 on statistics or some other -- other measures, 11:22:17
20 other calculations, but it's based on something 11:22:20
21 that -- it takes into account that particular 11:22:23
22 user's condition. 11:22:27
23 Q. So your understanding of "wherein an 11:22:30
24 exertion level is based on a level of physical 11:22:46
25 fitness of a user" to not -- strike that. 11:22:50

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1 So your understanding of "wherein an 11:22:56
2 exertion level is based on a level of physical 11:22:58
3 fitness of a user" does not take into account a 11:23:00
4 particular user's condition? 11:23:03
5 MR. SWISHER: Object to form. 11:23:08
6 A. It doesn't necessarily do that; that's 11:23:09
7 correct. It can be read just as a -- can just be 11:23:10
8 as sterile level of fitness. 11:23:14
9 Q. Uh-huh. 11:23:19
10 A. And based on, for example, statistics of a 11:23:20
11 large population, for example. 11:23:22
12 Q. Do you understand the term "wherein 11:23:43
13 exertion level is based on a level of physical 11:23:46
14 fitness of a user" to be a term in a claim of the 11:23:48
15 '413 patent? 11:23:54
16 A. Do I understand it is? 11:23:58
17 Q. (Nods.) 11:23:58
18 A. I think it's the limitation of the, for 11:24:01
19 example, the first patent -- first independent 11:24:05
20 patent -- first independent claim. 11:24:06
21 Q. Uh-huh. 11:24:08
22 So going back to your -- the meaning that 11:24:16
23 you believe a person of ordinary skill in the art 11:24:23
24 would apply to "wherein exertion level is based on 11:24:25
25 a level of physical fitness of a user," you refer 11:24:29

1	to (as read):	11:24:32
2	"...an individual user's particular	11:24:33
3	physical fitness condition as assessed by fitness	11:24:39
4	condition criteria such as cardiorespiratory	11:24:42
5	endurance."	11:24:46
6	Do you see that?	11:24:47
7	A. I do.	11:24:47
8	Q. So does the criteria such as	11:24:47
9	cardiorespiratory endurance act as a proxy for a	11:24:54
10	person's physical fitness condition?	11:25:01
11	MR. SWISHER: Object to form.	11:25:06
12	A. A proxy.	11:25:12
13	I'm not sure I understand that one.	11:25:15
14	Q. Do you understand what the word "proxy"	11:25:19
15	means?	11:25:21
16	A. Something used in place of something else.	11:25:22
17	Q. Right.	11:25:24
18	A. That type -- placeholder.	11:25:24
19	Q. Right. So I'm trying to understand does	11:25:26
20	your meaning of an individual user's particular	11:25:29
21	physical fitness condition as assessed by fitness	11:25:34
22	condition criteria mean that the fitness condition	11:25:38
23	criteria is a proxy for a person's physical fitness	11:25:43
24	condition?	11:25:50
25	A. I think that -- that cardio -- in this	11:25:58

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1 case "cardiorespiratory endurance" is -- is the 11:26:02
2 criteria. Or maybe the proxy should be -- so 11:26:08
3 instead of saying, for example, if -- "an 11:26:11
4 individual user's particular physical condition -- 11:26:13
5 fitness condition" be put in "an individual user's 11:26:17
6 particular cardiorespiratory endurance"; it would 11:26:20
7 fit in so that the proxy would be actually the -- 11:26:24
8 the last word in that sentence, not the last two 11:26:27
9 words. 11:26:31
10 Q. So you think that the plain and ordinary 11:26:36
11 meaning of "wherein exertion level is based on a 11:26:38
12 level of physical fitness of a user" could also 11:26:42
13 mean "an exertion level that takes into account an 11:26:46
14 individual user's particular cardiorespiratory 11:26:50
15 endurance"? 11:26:55
16 MR. SWISHER: Object to form. 11:26:57
17 A. For example, yes. 11:26:58
18 Q. Do you think that the plain and ordinary 11:27:12
19 meaning of "wherein an exertion level is based on a 11:27:13
20 level of physical fitness of a user" could also 11:27:18
21 mean that the exertion level takes into account an 11:27:22
22 individual user's particular fitness criteria? 11:27:29
23 MR. SWISHER: Object to form. 11:27:35
24 A. Fitness criteria... 11:27:37
25 Q. Let me -- let me just ask you again in a 11:27:46

1 different way. 11:27:51

2 Do you think that the plain and ordinary 11:27:51

3 meaning of "wherein an exertion level is based on a 11:27:53

4 level of physical fitness of a user" could also 11:27:56

5 mean that the "exertion level takes into account an 11:28:00

6 individual user's fitness condition criteria such 11:28:04

7 as that user's cardiorespiratory endurance"? 11:28:08

8 MR. SWISHER: Object to form. 11:28:15

9 A. I think that's basically what it says, 11:28:16

10 yes. 11:28:17

11 Q. Okay. So, Doctor Bergeron, what is your 11:28:18

12 understanding of how one construes patent claims 11:28:36

13 under United States patent law? 11:28:46

14 MR. SWISHER: Object to form. 11:28:50

15 A. How one construes? You mean how one 11:28:53

16 understands? 11:28:55

17 Q. (Nods.) 11:28:57

18 A. So if I'm looking at a -- if I'm looking 11:28:58

19 at a claim in a patent, I read the -- I read the -- 11:29:02

20 assuming there's no definition put forth by the 11:29:10

21 court or by other agreement, I read the plain and 11:29:13

22 ordinary meaning of the -- the words as I read 11:29:16

23 through the different limitations, I look to the 11:29:18

24 specification to see if there's any sort of 11:29:23

25 specific way of interpreting the claim language. 11:29:26

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1 I'd look at the file history to see if 11:29:31
2 there was something that happened during the -- in 11:29:33
3 the past that might change the way something should 11:29:37
4 be interpreted; and then I might look to -- I'd 11:29:39
5 look to -- if there's a reason to look to extrinsic 11:29:46
6 references to clarify some -- some problems or some 11:29:52
7 issues that might not be clear in the claim 11:29:54
8 language and then use my own background to evaluate 11:29:56
9 the same material. 11:30:04
10 Is that what you're asking? 11:30:10
11 Q. Yes, that's -- that's helpful. 11:30:11
12 So are you doing that analysis from the 11:30:16
13 perspective of Doctor Bergeron as of 2023 in this 11:30:17
14 case or from the perspective of a person of 11:30:24
15 ordinary skill in the art as of 2003? 11:30:27
16 A. 2003. 11:30:28
17 Q. So you mentioned that you looked to the 11:30:37
18 specification in construing a patent claim; is that 11:30:43
19 correct? 11:30:46
20 A. That's correct. 11:30:46
21 Q. And so in this case did you look to the 11:30:50
22 '413 patent specification in construing the -- the 11:30:57
23 patent claims? 11:31:01
24 A. Yes, I did. 11:31:01
25 Q. Okay. And is it your understanding that 11:31:05

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1	if a patent specification describes an example of	11:31:09
2	an invention, then the claims must cover that	11:31:13
3	example?	11:31:17
4	MR. SWISHER: Object to form.	11:31:19
5	A. They should, yes.	11:31:24
6	Q. Okay. And is it your understanding that	11:31:27
7	if a patent specification describes an example of	11:31:29
8	an invention, then the claims are limited to that	11:31:33
9	example in the patent specification?	11:31:38
10	MR. SWISHER: Object to form.	11:31:41
11	A. ...an example.	11:31:49
12	Well, usually the -- well, my	11:31:54
13	understanding is that they can be -- that the	11:31:56
14	examples provided in the specification, there could	11:31:59
15	be multiple examples, all right, one, or -- but	11:32:02
16	they're examples and usually it has a -- typically	11:32:07
17	has a clause in the specification that says the --	11:32:10
18	you know, it's not limited to the examples provided	11:32:14
19	here, but there could be also other examples	11:32:16
20	created, other examples -- other ways of using the	11:32:21
21	invention.	11:32:27
22	Q. So if the patent specification has just	11:32:29
23	one example that it describes, are the claims in	11:32:32
24	that patent limited to just that one example?	11:32:40
25	MR. SWISHER: Object to form.	11:32:44

1	A. I don't think so.	11:32:44
2	Q. You do not think so?	11:32:46
3	A. Don't think so. It's an example.	11:32:47
4	Q. Okay. So in paragraph 27 of Exhibit 2008	11:32:52
5	you refer to the "plain and ordinary meaning."	11:32:56
6	What -- what is your understanding of the term	11:33:01
7	"plain and ordinary meaning"?	11:33:03
8	MR. SWISHER: Object to form.	11:33:06
9	A. Plain and ordinary meaning is the -- the	11:33:09
10	meaning that would be ascribed to the words or	11:33:11
11	phrases as understood by a POSITA at the time of	11:33:15
12	the invention. So in 2003 a POSITA, person of	11:33:19
13	ordinary skill, reading the text would interpret it	11:33:26
14	in a plain and ordinary way and that there was	11:33:30
15	no -- no special -- no special meaning applied to	11:33:34
16	it.	11:33:38
17	MR. ARJOMAND: Let's take a break.	11:34:12
18	THE WITNESS: Sure.	11:34:14
19	VIDEO OPERATOR: The time is 11:34. We're	11:34:15
20	off the record.	11:34:17
21	(Whereupon the deposition recessed at	11:46:19
22	11:34 a.m.)	11:46:24

1	AFTERNOON SESSION (12:27 PM.)	11:46:24
2	VIDEO OPERATOR: The time's 12:33. We're	12:33:08
3	back on the record.	12:33:10
4	EXAMINATION	12:33:10
5	BY MS. NGUYEN:	12:27:29
6	Q. Hi, Doctor Bergeron.	12:33:13
7	A. Hi.	12:33:15
8	Q. Good afternoon.	12:33:15
9	So I wanted to ask you a few questions	12:33:16
10	about your testimony earlier when you were talking	12:33:18
11	to Mr. Arjomand.	12:33:19
12	A. Yes.	12:33:20
13	Q. Do you recall discussing the V02 max	12:33:22
14	testing that you did as a personal trainer?	12:33:27
15	A. Yes.	12:33:29
16	Q. Okay. And part of that V02 max testing,	12:33:29
17	you mentioned that you would vary the incline on	12:33:32
18	these treadmills; is that right?	12:33:35
19	A. To increase the intensity of the exercise,	12:33:37
20	yes.	12:33:39
21	Q. Okay. Would you ever vary the speeds?	12:33:40
22	A. Or the speed. Could be the speed.	12:33:43
23	Q. Okay.	12:33:43
24	A. Could be both.	12:33:46
25	Q. Could be both.	12:33:46

1 A. Yes. 12:33:47
2 Q. Okay. Do you recall the exact speeds that 12:33:48
3 you were working with? 12:33:51
4 A. No. 12:33:52
5 Q. Do you think it was maybe five miles per 12:33:53
6 hour? 12:33:57
7 MR. SWISHER: Object to form. 12:33:58
8 A. I don't remember. 12:33:59
9 Q. Okay. Do you think five miles per hour 12:34:03
10 would be a reasonable speed to test somebody for 12:34:04
11 V02 max? 12:34:08
12 MR. SWISHER: Object to form. 12:34:09
13 A. Trying to visualize the feet moving. 12:34:11
14 Depending on the person. I mean, it could 12:34:14
15 be -- you know, depends. 12:34:16
16 Q. Okay. Would it be suitable for some 12:34:17
17 people? 12:34:20
18 MR. SWISHER: Object to form. 12:34:22
19 A. I'd be guessing. I didn't -- perhaps. 12:34:26
20 Q. Perhaps? 12:34:29
21 A. I mean, if it's hypothetical or -- I don't 12:34:29
22 remember what the speed was. 12:34:32
23 Q. Okay. How about ten miles per hour? Is 12:34:33
24 that considered a suitable speed when it comes to 12:34:37
25 running on a treadmill -- 12:34:40

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1 MR. SWISHER: Object to form. 12:34:44

2 Q. -- for VO2 max testing? 12:34:44

3 MR. SWISHER: Apologies. 12:34:47

4 Object to form. 12:34:48

5 A. Seems a little fast, but depends on where 12:34:49

6 you are in the -- I'm guessing. I don't -- I don't 12:34:51

7 remember the speeds. Five seems almost like 12:34:55

8 walking fast. Ten's kind of moving up there. I 12:34:57

9 mean, if the person were older, you'd want to go 12:35:04

10 slower. If the person had some sort of potentially 12:35:06

11 a cardiovascular disease, you want to go more slow. 12:35:10

12 And -- but for general user, a general 12:35:13

13 particular -- the average person, I just don't 12:35:15

14 remember the numbers. 12:35:21

15 (Court Reporter comment.) 12:35:22

16 Q. Okay. So five miles per hour seems like 12:35:22

17 walking fast. Ten miles per hour is faster, but 12:35:38

18 perhaps people who are older, you would want to go 12:35:44

19 slower. 12:35:47

20 What about 14 miles per hour? 12:35:49

21 MR. SWISHER: Object to form. 12:35:52

22 A. Same -- don't know. Don't recall. It's 12:35:53

23 been -- it's been, I mean, 20, 25 years or so. 12:35:56

24 It's -- it's been a while. 12:36:02

25 Q. Okay. 12:36:02

1 A. So I -- I just don't recall the numbers. 12:36:04
2 Q. Do you think 14 miles per hour is too fast 12:36:06
3 for V02 max testing? 12:36:09
4 MR. SWISHER: Object to form. 12:36:11
5 A. Again, I'm just -- I'd be guessing. I 12:36:16
6 don't know. 12:36:18
7 Q. And, then, in this V02 max testing, were 12:36:21
8 you at all measuring heart rate? 12:36:24
9 MR. SWISHER: Object to form. 12:36:28
10 A. Heart rate was being monitored, yes. 12:36:29
11 Q. Okay. Were you measuring -- were you 12:36:32
12 monitoring heart rate zones? 12:36:34
13 MR. SWISHER: Object to form. 12:36:36
14 A. Zones. I don't recall. 12:36:37
15 Q. Okay. During this testing do you recall 12:36:43
16 any other values that you were measuring? 12:36:45
17 MR. SWISHER: Object to form. 12:36:50
18 A. Other than V02 max? There was a -- well, 12:36:54
19 there's an EKG attached to the person. So EKG. 12:36:59
20 Q. EKG. 12:37:02
21 And when you say "EKG," does that mean 12:37:18
22 there are sensors attached to the person you are 12:37:23
23 testing? 12:37:25
24 A. Yes. 12:37:26
25 Q. Were they electrical sensors? 12:37:27

1	A. Yes.	12:37:29
2	Q. Okay. So electrical sensors were well	12:37:31
3	known back in -- you said 1990 to 1995, give or	12:37:34
4	take.	12:37:39
5	MR. SWISHER: Object to form.	12:37:41
6	A. Well, yeah, there's that -- electrical	12:37:41
7	sensors were well known, yes.	12:37:44
8	Q. And would you agree that heart rate	12:37:45
9	sensors were well known?	12:37:47
10	MR. SWISHER: Object to form.	12:37:49
11	A. In 2003, yes.	12:37:50
12	Q. And would you agree that the heart rate	12:37:51
13	sensors that were well known in 2003 measured heart	12:37:55
14	rate zones?	12:38:00
15	MR. SWISHER: Object to form.	12:38:01
16	A. Heart rate zones? They measured heart	12:38:03
17	rate.	12:38:08
18	Q. Did they measure heart rate zones?	12:38:08
19	MR. SWISHER: Object to form.	12:38:10
20	A. They measured heart rate, not zones.	12:38:13
21	Q. Okay. And would you -- from the measured	12:38:16
22	heart rate was it common to determine heart rate	12:38:22
23	zones?	12:38:25
24	MR. SWISHER: Object to form.	12:38:27
25	A. For heart rate...	12:38:33

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1 Well, you could -- you don't need to 12:38:36
2 measure heart rate to have zones. You could 12:38:40
3 have -- you could have preestablished zones, 12:38:41
4 depending how you define zones. 12:38:45
5 So in testing -- in this -- in this 12:38:47
6 testing that was, again, 25, 30 years ago, I recall 12:38:52
7 the -- I don't recall any -- any zones being an 12:38:58
8 issue. We weren't looking at zones. We were just 12:39:02
9 measuring heart rate. 12:39:02
10 (Court Reporter comment.) We're not 12:39:02
11 measuring zones. We're just measuring just heart 12:39:09
12 rate, as I recall. 12:39:11
13 Q. Were you determining zones from measured 12:39:12
14 heart rate? 12:39:15
15 MR. SWISHER: Object to form. 12:39:16
16 A. We were determining VO2 max. 12:39:17
17 So no. 12:39:19
18 Q. And earlier you said it depends on how you 12:39:25
19 define zones. 12:39:28
20 What is a zone? 12:39:29
21 MR. SWISHER: Object to form. 12:39:32
22 A. Well, you could just -- you can define a 12:39:32
23 zone, for example, as used in these patents, you 12:39:35
24 could have a -- a zone of -- a training zone. So 12:39:38
25 once you establish the maximum heart rate for a 12:39:44

1 person, the idea is to -- to establish a training 12:39:47
2 zone -- say, 70 percent of maximum heart rate, plus 12:39:53
3 or minus some percentage -- and that's where you 12:39:57
4 want to train, for example. 12:40:00

5 Q. Okay. So just to make sure I understand 12:40:05
6 this: A training zone, would it be a heart rate 12:40:08
7 plus or minus -- you said percentage; is that 12:40:36
8 right? 12:40:38

9 MR. SWISHER: Object to form. 12:40:39

10 A. Well, if you -- again, if you're using 12:40:40
11 heart rate as the -- the thing you're measuring, 12:40:42
12 you would have -- the zone would be -- a training 12:40:49
13 zone is a -- for example, if you were training at 12:40:51
14 70 percent, the idea is to stay at 70 percent plus 12:40:55
15 or minus some slack. 12:40:58

16 So if you went too fast, you'd slow down; 12:40:59
17 if you went too slow, you'd want to speed up to 12:41:02
18 get -- let's just say 70 percent. That's where 12:41:04
19 you're trying to train. So being in a zone is that 12:41:07
20 range of, say, 65 to 75 percent of maximum heart 12:41:10
21 rate, for example. Could be over, could be higher, 12:41:14
22 depending on the person. 12:41:16

23 Q. Okay. So would it be fair to say that, in 12:41:17
24 your opinion, a zone has -- is a range defined by a 12:41:25
25 lower limit, for example, 65 percent, and an upper 12:41:29

1 limit, for example, 75 percent? 12:41:35

2 MR. SWISHER: Object to form. 12:41:36

3 A. So if we're talking zone -- yeah, if we're 12:41:38

4 talking the same -- say if the percent of maximum 12:41:45

5 heart rate, maximum heart rate is 220 minus age, 12:41:49

6 for example, and then a zone would be some number, 12:41:53

7 some percentage of that above -- above and below -- 12:41:55

8 Q. Okay. 12:42:00

9 A. -- the target. 12:42:00

10 For example, if it was 70, it could be -- 12:42:01

11 could be 10 below and 10 above. So then it would 12:42:03

12 be from 60 to 80, for example. 12:42:06

13 Q. Got it. Okay. 12:42:08

14 And, then, earlier when you were talking 12:42:27

15 to Mr. Arjomand you also mentioned that you had 12:42:29

16 experience with wireless communication systems. 12:42:34

17 Do you recall that? 12:42:36

18 A. Yes. 12:42:36

19 Q. You also testified that you had experience 12:42:38

20 with wired communication systems; is that right? 12:42:40

21 A. Yes; correct. 12:42:44

22 Q. So tell me a bit about your wired 12:42:44

23 communication systems experience. 12:42:47

24 A. Wired? Or -- or -- wired. 12:42:49

25 Q. Wired. 12:42:54

1	A. So with sensors, for example?	12:43:00
2	Q. Uh-huh.	12:43:01
3	A. Trying to think what -- how to -- I don't	12:43:11
4	want to be flip, but I don't -- okay.	12:43:14
5	So -- so wired sensors could be, see, a	12:43:15
6	touch sensor; you would touch, say, a capacitance	12:43:21
7	detector to determine when you touched it; that	12:43:25
8	could then be wired to a -- some kind of	12:43:28
9	transmitter, which would then deter that to say a	12:43:31
10	light signal and that would be -- that would set	12:43:35
11	off another sensor, which would then be wired to	12:43:38
12	another transmitter and then translates to a sound,	12:43:41
13	and that's now going to be sent by wire to a relay,	12:43:47
14	let's just say.	12:43:51
15	So a sequence of sensors for whatever	12:43:51
16	reason lined up like that. That would be a -- that	12:43:55
17	would be communications. Communications could be	12:43:58
18	from a receiver of some type. We have components	12:44:02
19	and maybe an amplifier or a detector wired to an	12:44:09
20	amplifier to -- or filter; and that would be, say,	12:44:18
21	converted to -- to a signal -- signal sound or	12:44:22
22	music or a voice signal.	12:44:26
23	It could be a sensor or -- a sensor on an	12:44:30
24	oil platform, let's say, monitoring the oil	12:44:38
25	production, and that would be sent via wire, a	12:44:40

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1 cable, to an office facility onshore; and that 12:44:42
2 would be converted to -- to a number that would be 12:44:48
3 sent to, say, the central office to determine how 12:44:52
4 much production the oil platform's doing -- 12:44:55
5 providing. 12:44:57
6 It could be a wired sensor that's on 12:45:00
7 someone's wrist, for example, for oxygen level or 12:45:04
8 pulse. And that would be wired to a -- a unit that 12:45:08
9 would then determine pulse rate based on a -- say 12:45:14
10 an LED shining a light onto the person's skin, 12:45:19
11 having a response; and that would then go to a 12:45:22
12 detector that would then read out beats per minute. 12:45:24
13 Q. Okay. 12:45:27
14 A. I mean, these are all things I've done. I 12:45:29
15 mean, I don't know starting from, like -- 12:45:32
16 Q. Okay. 12:45:33
17 A. -- doesn't matter. But, you know, since I 12:45:34
18 was, like, seven. But anyway -- so yeah. 12:45:36
19 Q. Right. So these are wired communication 12:45:38
20 systems that you designed? 12:45:41
21 A. And -- 12:45:44
22 Q. All right. 12:45:44
23 A. -- I worked with yes, so. 12:45:45
24 Q. Okay. So you're pretty familiar with all 12:45:47
25 of the components in a wired communication systems; 12:45:48

1	is that right?	12:45:51
2	MR. SWISHER: Object to form.	12:45:52
3	A. Not everything, but in general, yes.	12:45:53
4	Q. Okay.	12:45:54
5	A. I think so.	12:45:55
6	Q. And you had mentioned amplifiers and	12:45:56
7	filters. What other requirements -- or sorry.	12:45:59
8	What other components are required in a	12:46:02
9	wired communication system?	12:46:04
10	MR. SWISHER: Object to form.	12:46:05
11	A. Required.	12:46:06
12	Well, those aren't necessarily required.	12:46:10
13	You don't have to have an amplifier. You could	12:46:11
14	have a -- you have to have a source, a destination	12:46:13
15	and a connectivity.	12:46:16
16	Q. Okay.	12:46:17
17	A. So you need a component of some type on	12:46:18
18	the left-hand side and a wire, if it's a wired, or	12:46:22
19	some piece of copper or twin pair or whatever, and	12:46:26
20	then you're connecting to some other components on	12:46:30
21	the right-hand side.	12:46:31
22	So those are the -- it could be a passive	12:46:32
23	system. If you had -- it could be an active system	12:46:35
24	where you have a battery also for power as well.	12:46:40
25	So a third component. That's probably the minimum.	12:46:43

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1 Q. Uh-huh. Okay. 12:46:45

2 So you would need a component of some type 12:46:51

3 on the left side. Would you consider that 12:46:56

4 component a transmitter, for example? 12:47:01

5 MR. SWISHER: Object to form. 12:47:05

6 A. It would need to be a transducer of some 12:47:08

7 type. 12:47:11

8 Q. Transducer. Okay. 12:47:11

9 And then you have a wire. 12:47:13

10 A. Yes. 12:47:14

11 Q. And then on the receiving side is a 12:47:17

12 receiver; is that right? 12:47:20

13 A. Yes. 12:47:20

14 Q. Okay. So you'd have to have a transducer? 12:47:21

15 A. Transducer, transmitter, depends on if 12:47:28

16 it's active or passive. 12:47:31

17 Q. Okay. 12:47:33

18 A. You know, transmitter typically you need 12:47:34

19 some kind of power. If there's no power involved, 12:47:35

20 than transducer is probably a better word, but in 12:47:37

21 general, yes. 12:47:40

22 Q. Okay. Got it. 12:47:41

23 Are there any other components required in 12:47:42

24 a wired communication system? 12:47:47

25 MR. SWISHER: Object to form. 12:47:49

1 A. Well, so if you say "communication 12:47:53
2 system," so now -- so with the assumptions, I would 12:47:56
3 say, if it's a communication system we have to 12:48:02
4 assume there's a -- some kind of language being 12:48:04
5 used, some kind of signal. 12:48:06
6 Q. Okay. 12:48:08
7 A. You might have -- if there's -- if there's 12:48:09
8 noise on the line -- on the wire for some reason, 12:48:13
9 you'd have to have some way to either filter the 12:48:15
10 noise out -- 12:48:18
11 Q. Uh-huh. 12:48:19
12 A. -- or, depending what would -- if we're 12:48:20
13 talking computer or analog, whatever. If we're 12:48:24
14 talking, say, computer, you'd probably have maybe a 12:48:26
15 checksum or some way to encode the original data so 12:48:29
16 that you could make sure it reached the destination 12:48:32
17 intact by checking the -- the checks -- doing -- 12:48:35
18 adding up the bits to see if the numbers were 12:48:39
19 correct. 12:48:41
20 Q. Uh-huh. 12:48:41
21 A. Say odd or a even. 12:48:42
22 What else do you need? Source 12:48:47
23 destination, connectivity. That's -- that's 12:48:49
24 probably it at the minimum. 12:48:52
25 Q. Okay. So going back to what you had just 12:48:55

1 said. You had said that if there's noise on the 12:48:56
2 line, you would want a filter -- 12:48:59
3 A. Yes. 12:49:03
4 Q. -- right, to filter out the noise? 12:49:03
5 So would it be fair to say that the filter 12:49:04
6 is there to reduce interference? 12:49:08
7 MR. SWISHER: Object to form. 12:49:11
8 A. Well, interference is -- no. 12:49:11
9 Q. Okay. 12:49:14
10 A. No. 12:49:15
11 Q. Why is that? 12:49:16
12 A. Well, interference is something else. 12:49:17
13 Interference -- so noise is -- noise is, say, due 12:49:18
14 to, say, temperature -- 12:49:26
15 Q. Okay. 12:49:26
16 A. -- because if it's above absolute zero -- 12:49:28
17 say the temperature is above absolute zero -- so 12:49:33
18 there's apparently noise in the device 'cause it's 12:49:38
19 warm. Interference would mean there's another 12:49:40
20 device next to it, another device, it's another 12:49:42
21 transmitter receiver system that could then -- that 12:49:44
22 signal based -- that signal in that system could be 12:49:47
23 received accidentally or whatever by the first 12:49:49
24 system. 12:49:53
25 So that means there's another -- 12:49:54

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1 interference means there's something interfering as 12:49:55
2 opposed to noise is inherent in the -- 12:49:58
3 Q. System. 12:49:59
4 A. -- system, whereas interference comes from 12:49:59
5 some other device. It's -- or another system 12:50:02
6 that's nearby or that's powerful enough to cause a 12:50:05
7 disruption in the -- in the first system. 12:50:08
8 Q. Do you know whether wired communication 12:50:20
9 systems ever face issues with interference? 12:50:22
10 MR. SWISHER: Object to form. 12:50:27
11 A. Ever -- did it ever? Sure. I mean, it 12:50:32
12 could. It's less -- less so -- much less so than 12:50:35
13 wire -- wireless, but sure. Depends on what's 12:50:40
14 nearby. 12:50:46
15 Q. Yeah. 12:50:46
16 A. How it's constructed. If it's shielded 12:50:49
17 properly and other -- other issues. 12:50:51
18 Q. Okay. What about the amplifier that you 12:51:00
19 discuss? What is the purpose of the amplifier in a 12:51:25
20 wired communication system? 12:51:27
21 MR. SWISHER: Object to form. 12:51:30
22 A. So -- and we're just talking 12:51:31
23 hypothetically here; right? 12:51:33
24 Q. Yes. 12:51:34
25 A. Yeah. So an amplifier would be to 12:51:35

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1	increase the strength of the signal.	12:51:36
2	Q. Okay. Why would you want to increase the	12:51:37
3	strength of the signal?	12:51:40
4	A. Usually -- usually stronger is better	12:51:45
5	because it -- there's something called	12:51:49
6	signal-to-noise ratio. You want to make sure the	12:51:51
7	signal is much greater than the noise.	12:51:54
8	If the noise is, say, high because it's --	12:51:55
9	depends if it's -- where it's located or maybe	12:51:58
10	it's -- for whatever reason you want to have a	12:52:00
11	stronger signal so it's clearer on the receiving	12:52:03
12	side. If you have a -- let's say, a long wire, the	12:52:06
13	wire might go for -- instead of going 20 feet, it	12:52:09
14	might go 200 miles, and so you want to make sure	12:52:12
15	the amplifier -- the signal is very strong going	12:52:15
16	into that 200-mile-long cable so at the end of the	12:52:17
17	cable it's still strong enough to be detected.	12:52:21
18	Q. Okay. Would it be fair to say that you	12:52:28
19	want a higher signal-to-noise ratio because you	12:52:29
20	want to make sure your signal is more accurate or	12:52:33
21	reliable?	12:52:37
22	MR. SWISHER: Object to form.	12:52:39
23	A. Accurate.	12:52:41
24	I wouldn't say accurate. It's that you	12:52:44
25	want to make sure that the signal is -- has enough	12:52:47

1 strength to be -- to be received, to be detected on 12:52:49
2 the other -- on the receiver side. 12:52:55
3 Q. Right. But if you're signal-to-noise 12:52:56
4 ratio is lower, wouldn't that also mean that the 12:53:00
5 strength would -- of the signal would be lower -- 12:53:03
6 A. Sure. 12:53:07
7 Q. -- and therefore less accurate? 12:53:07
8 MR. SWISHER: Object to form. 12:53:08
9 A. Well -- well, assume the noise is the same 12:53:09
10 level in both instances, accuracy is -- so 12:53:12
11 signal-to-noise ratio would be one issue in terms 12:53:21
12 of accuracy. Accuracy would also mean -- you have 12:53:23
13 to look at the type of signal it is and, say, the 12:53:26
14 length of the wire because that -- you increase the 12:53:33
15 length of the wire, you have capacitance effects 12:53:36
16 that change the shape of the signal. So you lose 12:53:38
17 the sharp edges on, say, a square wave, a digital 12:53:40
18 wave. 12:53:43
19 So accuracy is much more -- much more 12:53:44
20 involved than just the signal-to-noise ratio. 12:53:46
21 Accuracy involves several other parameters. 12:53:48
22 Signal-to-noise ratio being one of them. 12:53:52
23 Q. What about reliability? Is that a problem 12:54:08
24 you ever faced when you were working on these wired 12:54:10
25 communication systems? 12:54:12

1 MR. SWISHER: Object to form. 12:54:15

2 A. So -- yes. So reliability -- well, just 12:54:16

3 -- yes. 12:54:20

4 Q. Do you have a -- well, sorry. 12:54:23

5 So if reliability is an issue in a wired 12:54:29

6 communication systems, how would you solve that 12:54:33

7 issue? 12:54:37

8 MR. SWISHER: Object to form. 12:54:38

9 A. Well, it would depend on the -- the -- the 12:54:39

10 reliability -- the reliability issue at hand. So 12:54:42

11 there's something called MTBF, mean time between 12:54:48

12 failure, so it would include the quality of 12:54:51

13 components used; you want -- if you have a 12:54:54

14 reliability issue, you want to increase the quality 12:54:56

15 of your components and expense. 12:54:58

16 Could be the architecture used is not 12:55:02

17 reliable because it's just susceptible to the 12:55:05

18 elements, for example, meaning -- means it's 12:55:10

19 encased, so you put the wire inside of a conduit 12:55:12

20 instead of just having it out in space. 12:55:15

21 It really depends on what the issue is. 12:55:17

22 If it's in a spaceship, you know, you need to worry 12:55:19

23 about meteors hitting the wire and breaking it. So 12:55:23

24 you want to put it under a shield of some type. 12:55:26

25 Q. Okay. So going back to the wired 12:55:43

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1 communication systems that you had talked about 12:55:44
2 earlier. 12:55:46
3 Were any of those systems ones that 12:55:47
4 involved multiple transmitters communicating over a 12:55:53
5 wire to a single receiver? 12:56:01
6 MR. SWISHER: Object to form. 12:56:02
7 A. A wire... 12:56:04
8 Receiver... 12:56:10
9 Yes. 12:56:22
10 Q. Okay. And maybe you can tell me a bit 12:56:25
11 more about that system that has the multiple 12:56:27
12 transmitters communicating over a wire to a single 12:56:30
13 receiver. 12:56:33
14 MR. SWISHER: Object to form. 12:56:34
15 A. So this would be -- this -- for example, I 12:56:36
16 worked for a company called -- the Offshore 12:56:39
17 Telephone Company, Datacom, and we had a -- we 12:56:43
18 serviced platforms in the Gulf -- and we had 12:56:46
19 sensors on all of the flowmeters, put flowmeters on 12:56:49
20 the -- so in the gas, the oil, the -- whatever's 12:56:53
21 coming out of the ground -- the water, salt water, 12:56:55
22 or everything else, temperature. 12:56:58
23 And that was communicated over a -- a 12:56:59
24 number of means, but one means was also -- was by 12:57:03
25 an underwater sea cable -- essentially AA wire -- a 12:57:06

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1 single cable -- to onshore; and that was then 12:57:11
2 connected to a -- a Moore, M-o-o-r-e, of, like, 12:57:15
3 Moore's law -- computer, which I maintained and, 12:57:21
4 sort of, serviced or whatever, programmed; and so 12:57:27
5 that -- that -- those signals would be read by the 12:57:29
6 computer or demultiplexed -- 12:57:35
7 Q. Uh-huh. 12:57:38
8 A. -- and then sent to the appropriate 12:57:39
9 company in terms of reports in terms of their 12:57:41
10 production. 12:57:43
11 Q. Okay. So when you say those signals were 12:57:48
12 demultiplexed by the computer, does that mean that 12:57:51
13 they were prior multiplexed? 12:57:56
14 MR. SWISHER: Object to form. 12:58:01
15 A. Yes. They were modulated in a way at 12:58:02
16 the -- on the platform and then demodulated at the 12:58:04
17 site onshore. 12:58:07
18 Q. Okay. And just to make sure I understand 12:58:12
19 this, modulated in time -- 12:58:13
20 MR. SWISHER: Object to form. 12:58:15
21 Q. -- correct? 12:58:16
22 A. Time and frequency. 12:58:17
23 Q. Time and frequency. Got it. Okay. 12:58:17
24 And why were you modulating the signals? 12:58:22
25 A. 'Cause it was a single wire, single cable. 12:58:26

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1	Sea cables are expensive, and so we had a single	12:58:28
2	conductor cable; and so we had to use multiplex	12:58:31
3	equipment to get all the signals onto one wire.	12:58:34
4	Q. Okay. In order to get all the signals	12:58:38
5	onto one wire, would it be fair to say that the	12:58:40
6	multiplexing helps distinguish the signals?	12:58:43
7	MR. SWISHER: Object to form.	12:58:47
8	A. Distinguish signals.	12:58:49
9	The signal's already distinct. The issue	12:58:55
10	is to put them onto a single carrier.	12:58:57
11	Q. Okay.	12:58:59
12	A. A single -- we have a carrier frequency,	12:59:00
13	and that -- that carrier goes from one place from	12:59:02
14	the source to the destination, and if you put those	12:59:09
15	signals on top of it, just like a wireless system,	12:59:11
16	you could have a -- you know, a band of frequencies	12:59:14
17	that are -- you know, if -- the first 100 hertz	12:59:17
18	would be for first sensor; next 100 hertz for the	12:59:20
19	next sensor, and so on.	12:59:25
20	And so that's how you would -- that's how	12:59:26
21	you get the data from one place to the other on a	12:59:29
22	single wire.	12:59:33
23	But it's not really about reliability	12:59:34
24	or -- what's -- was your question about modulation?	12:59:37
25	I'm sorry.	12:59:40

1 Q. Let me go back to my question. 12:59:41
2 Okay. In order to get all the signals -- 12:59:45
3 A. Yes. 12:59:48
4 Q. -- communicated -- 12:59:48
5 A. Yes. 12:59:49
6 Q. -- along one wire, would it be fair to say 12:59:50
7 that multiplexing the signals help distinguish the 12:59:54
8 source of the signals? 01:00:01
9 MR. SWISHER: Object to form. 01:00:03
10 A. Yeah, the -- distinguish the source. 01:00:05
11 The -- they're already -- the signal's 01:00:11
12 already distinguished. They're already separate. 01:00:13
13 You're just using it -- you're just using -- you 01:00:15
14 need to put that onto something else to carry it. 01:00:17
15 It's not really distinguishing them. It's placing 01:00:20
16 them on a conveyer belt, let's say, on a -- on a 01:00:22
17 wire so you get it from A to B. They're already -- 01:00:26
18 they're already distinguished. 01:00:29
19 The challenge is keeping them -- what's 01:00:30
20 the challenge? There's -- they're already 01:00:33
21 distinguished. 01:00:36
22 Q. Okay. 01:00:36
23 A. So on the receiver end, you have to 01:00:37
24 disentangle those. 01:00:40
25 Q. Right. Basically separate -- 01:00:42

1 A. Yes. 01:00:44

2 Q. -- the signals. Yes. Okay. Okay. 01:00:44

3 So also I wanted to go back and discuss a 01:01:12

4 little bit about what you had discussed with 01:01:16

5 Mr. Arjomand. 01:01:18

6 Do you recall discussing with him the term 01:01:20

7 "resting heart rate"? 01:01:24

8 A. Yes. 01:01:30

9 Q. Okay. What is it? What is resting heart 01:01:30

10 rate? 01:01:34

11 MR. SWISHER: Object to form. 01:01:34

12 A. Resting heart rate is the heart rate when 01:01:35

13 you're not exerting any -- you're at rest. You're 01:01:37

14 not exerting anything. You're just at rest. 01:01:39

15 You're not running or walking; you're just -- could 01:01:42

16 be just sitting here, could be lying down in bed, 01:01:45

17 could be -- not -- not exerting yourself. 01:01:47

18 Q. Okay. 01:01:49

19 A. So when the heart is basically at the 01:01:50

20 minimum -- at minimum workload for the heart. 01:01:52

21 Q. Okay. Would you agree that everybody that 01:02:02

22 is alive has a resting heart rate? 01:02:05

23 MR. SWISHER: Object to form. 01:02:08

24 A. Everyone alive has a resting heart rate. 01:02:10

25 Kind of like a trick question, but of 01:02:19

1	course you do, yes, yes.	01:02:20
2	Q. And what about -- do you have an example	01:02:30
3	of a resting heart rate?	01:02:32
4	MR. SWISHER: Object to form.	01:02:33
5	Q. Can you name -- so, for example, would	01:02:34
6	70 --	01:02:37
7	A. Oh, yeah.	01:02:37
8	Q. -- beats per minute be a reasonable	01:02:37
9	example resting heart rate?	01:02:40
10	MR. SWISHER: Object to form.	01:02:41
11	A. Well, my heart rate already sits -- 60 is	01:02:43
12	my resting heart rate, for example.	01:02:46
13	Q. Okay.	01:02:47
14	A. That's a -- depending on how old you are	01:02:47
15	and other parameters, yeah. So 60, 70, around	01:02:51
16	there, depending on the person.	01:02:54
17	Q. What about maximum heart rate? Do you	01:03:00
18	recall mentioning maximum heart rate --	01:03:02
19	A. Yes.	01:03:04
20	Q. -- earlier?	01:03:04
21	A. Yes.	01:03:05
22	Q. What is it?	01:03:06
23	MR. SWISHER: Object to form.	01:03:06
24	A. It's your -- maximum beats per minute your	01:03:07
25	heart's capable of producing without going to	01:03:11

1	failure. Typically it's estimated at 220 minus	01:03:14
2	age, for example.	01:03:22
3	Q. Okay.	01:03:22
4	A. That's just an estimate, but it's a place	01:03:28
5	to start.	01:03:31
6	Q. So would you agree that everyone that is	01:03:33
7	alive has a maximum heart rate?	01:03:35
8	MR. SWISHER: Object to form.	01:03:38
9	A. I can't think of a -- I can't think of	01:03:41
10	example who wouldn't. Yes.	01:03:43
11	Q. Okay. And would it -- would, let's say,	01:03:45
12	180 beats per minute be considered an example	01:03:51
13	maximum heart rate?	01:03:54
14	MR. SWISHER: Object to form.	01:03:55
15	A. Someone young, you know, say in -- sure.	01:03:56
16	Q. Okay. And would you agree that maximum	01:04:00
17	heart rate is greater than resting heart rate --	01:04:07
18	MR. SWISHER: Object to form.	01:04:17
19	Q. -- in terms of values?	01:04:18
20	MR. SWISHER: Apologies.	01:04:20
21	Object to form.	01:04:22
22	A. I can't think of an example that -- that	01:04:26
23	wouldn't be.	01:04:28
24	So agree.	01:04:29
25	Q. Okay. And, then, earlier when you were	01:04:31

1	talking to Mr. Arjomand you also mentioned a heart	01:04:32
2	rate while exercising.	01:04:36
3	A. Okay.	01:04:36
4	Q. Would you agree that heart rate while	01:04:42
5	exercising is a value that lies between maximum	01:04:43
6	heart rate and resting heart rate?	01:04:48
7	MR. SWISHER: Object to form.	01:04:50
8	A. Should be.	01:04:51
9	Q. Okay. Let me...	01:04:51
10	Actually, let me have you turn to	01:05:36
11	paragraph 110 of your supplemental declaration,	01:05:40
12	Exhibit 2008.	01:05:44
13	A. Okay. Page 85?	01:06:01
14	Q. Uh-huh.	01:06:01
15	Why don't I have you read it to yourself,	01:06:09
16	and let me know when you're done.	01:06:11
17	A. (Witness reviews document.) Okay.	01:08:20
18	Q. Okay. So in paragraph 110 of your	01:08:21
19	supplemental declaration, Exhibit 2008, on page 85,	01:08:22
20	native page 85 --	01:08:31
21	A. Yes.	01:08:32
22	Q. -- at the bottom you state (as read):	01:08:32
23	"As I discussed above, Lubell determines	01:08:36
24	VO2 max using the Van der Walt relationship."	01:08:40
25	And then you say (as read):	01:08:46

1	"...which requires forcing the subject to	01:08:47
2	run at increasing speeds until he or she reaches	01:08:49
3	the maximal heart rate or point of exhaustion."	01:08:52
4	Do you see that?	01:08:58
5	A. Yes.	01:08:59
6	Q. So would it be fair to say that Lubell's	01:08:59
7	protocol is a maximal exercise test protocol?	01:09:02
8	MR. SWISHER: Object to form.	01:09:07
9	A. First, I don't want to ask you how you	01:09:23
10	define maximum exercise -- maximum exercise test	01:09:24
11	protocol. Is that a term -- I don't recall using	01:09:28
12	that term in my report. It's -- can you point me	01:09:34
13	to a --	01:09:36
14	Q. Yeah.	01:09:37
15	A. -- something you're referencing?	01:09:40
16	Q. I believe you were discussing with	01:09:41
17	Mr. Arjomand earlier today.	01:09:42
18	So let me find that.	01:09:47
19	So earlier when you were looking at the	01:10:06
20	Surgeon General report -- do you recall?	01:10:08
21	A. Sort of. Yes. Go ahead. So...	01:10:11
22	Q. And you had testified to Mr. Arjomand that	01:10:14
23	some of the protocols discussed in the Surgeon	01:10:20
24	General report are based on maximal exercise.	01:10:22
25	Do you recall that?	01:10:29

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1	A. Actually, I don't actually, but keep	01:10:29
2	going. I'm trying to think what the...	01:10:32
3	Do you remember the page number that we're	01:10:50
4	discussing?	01:10:51
5	Q. Yes. So it would be page 34 of Exhibit	01:10:52
6	2010.	01:10:55
7	A. (Witness reviews document.)	01:10:55
8	Q. And when you were discussing with	01:11:17
9	Mr. Arjomand, you were talking about the left	01:11:18
10	column on page 34 of Exhibit 2010?	01:11:20
11	A. That's page 34 of the printed or page 34	01:11:24
12	of the 300?	01:11:27
13	Q. Printed. Native.	01:11:48
14	A. Native, okay.	01:11:49
15	Q. So in the left column in the middle --	01:12:01
16	A. Yes.	01:12:04
17	Q. -- the beginning of the second full	01:12:04
18	paragraph it starts with "Any maximal test."	01:12:07
19	A. Yes.	01:12:07
20	Q. Okay. Do you recall that?	01:12:19
21	A. I'll say yes.	01:12:25
22	Q. Would you agree that Lubell discloses a	01:12:29
23	maximal test?	01:12:31
24	MR. SWISHER: Object to form.	01:12:34
25	A. He seems to, yes. Yes.	01:12:38

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1 Q. And so if we could pivot back to paragraph 01:12:43
2 110 of your second declaration. 01:12:46
3 A. Yeah, got it. 01:12:48
4 Q. Yes. So moving on to native page 86, same 01:12:49
5 paragraph 110, after talking about Lubell, you then 01:12:54
6 talk about Ceci. 01:12:58
7 Do you see that? 01:13:02
8 A. Yes. Yes. 01:13:02
9 Q. Specifically second sentence. Top of page 01:13:07
10 86, you say (as read): 01:13:10
11 "But if a subject were allowed to pace 01:13:11
12 themselves at the subjective RPE levels of Ceci, 01:13:14
13 there would be no way to force the user to reach 01:13:19
14 the maximum heart rate or point of exhaustion." 01:13:23
15 A. I see that. 01:13:29
16 Q. Would it be fair to say that Ceci does not 01:13:31
17 disclose a maximal test? 01:13:34
18 MR. SWISHER: Object to form. 01:13:37
19 A. (Witness reviews document.) Well, I would 01:13:59
20 say that it doesn't necessarily require a maximal 01:14:02
21 test. It doesn't necessarily include a maximal 01:14:06
22 test, but it could. 01:14:12
23 Q. Okay. How could Ceci include a maximal 01:14:20
24 test? 01:14:24
25 A. Well, it's up to the -- 01:14:25

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1 MR. SWISHER: Object to form. 01:14:25

2 A. The running speed is chosen by the 01:14:26

3 subject, by the -- by the user. 01:14:29

4 Q. Okay. 01:14:30

5 A. So if they wanted to go in and they just 01:14:31

6 go crazy, you know, and go and hit as hard as they 01:14:33

7 could run to see what the test results, they could. 01:14:36

8 Q. Okay. Okay. Are you familiar with what 01:14:47

9 an RPE level is? 01:14:49

10 A. RPE. 01:14:52

11 MR. SWISHER: Object to form. 01:14:53

12 A. "R" stands for reported perceived -- 01:14:57

13 perceived exertion. I'm not sure what the "R" is. 01:14:59

14 Perceived exertion is PE. "R" is -- I'm not sure 01:15:02

15 what the "R" stands for. 01:15:07

16 Q. Okay. 01:15:08

17 A. If I had the -- I have the -- hold on. If 01:15:09

18 I have the... 01:15:14

19 No, I don't have the -- I don't have the 01:15:15

20 reference here, but it's in the reference. 01:15:17

21 It's also in my report. I just don't have 01:15:26

22 a search function to grab it. 01:15:28

23 Is it important that I know "R" for you? 01:15:33

24 Is it -- do you -- is it -- 01:15:35

25 Q. No. Not at all. 01:15:36

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1	A.	Okay.	01:15:36
2	Q.	I just wanted to make sure that we were on	01:15:37
3		the same page when I referenced subjective RPE	01:15:40
4		levels earlier.	01:15:44
5	A.	It's perceived exertion --	01:15:45
6	Q.	Okay.	01:15:48
7	A.	-- as perceived by the user.	01:15:49
8	Q.	Are you --	01:15:51
9	A.	By the -- yeah.	01:15:51
10	Q.	Oh, sorry.	01:15:53
11		Are you familiar with this RPE levels	01:15:54
12		protocol of Ceci?	01:15:56
13	MR. SWISHER:	Object to form.	01:16:01
14	A.	I've read this -- I've read his paper.	01:16:03
15	Q.	Okay. Do you recall what exactly the	01:16:07
16		levels are?	01:16:09
17	MR. SWISHER:	Object to form.	01:16:10
18	A.	I don't recall, sitting here, no. I need	01:16:14
19		the reference to tell you.	01:16:16
20	Q.	Okay. So let me hand you Exhibit 1005.	01:16:17
21	A.	Thank you.	01:16:36
22		(Exhibit 1005, previously marked.)	01:16:37
23	A.	Rating. "R" is for rating.	01:16:45
24	Q.	Okay. So looking at page 732 of Ceci in	01:18:17
25		the right column.	01:18:23

1	A. 732, yes.	01:18:26
2	Q. It's the front page.	01:18:29
3	Ceci says -- second full paragraph (as	01:18:34
4	read):	01:18:34
5	"It is also possible to utilize the 15	01:18:37
6	graded ratings of perceived exertion scale."	01:18:41
7	Do you see that?	01:18:45
8	A. Second full paragraph, yes. Yes.	01:18:51
9	Q. Okay. Do you know what the 15 graded	01:18:53
10	ratings of perceived exertion, RPE, scale is?	01:18:54
11	MR. SWISHER: Object to form.	01:18:59
12	A. I don't. Don't recall.	01:19:02
13	Q. Okay. So, then, taking a look at page 733	01:20:03
14	of Ceci, left column, third full paragraph,	01:20:06
15	starting with "An interesting question."	01:20:21
16	In that column there's discussion of an	01:20:28
17	RPE range between 11 and 15.	01:20:32
18	A. Yes.	01:20:38
19	Q. (As read):	01:20:38
20	"...that would correspond to a range of	01:20:38
21	about 60 to 80 percent of V02 max."	01:20:40
22	Do you see that?	01:20:44
23	A. I do.	01:20:44
24	Q. So would it be fair to say that an RPE of	01:20:46
25	11 corresponds to 60 percent V02 max?	01:20:51

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1 MR. SWISHER: Object to form. 01:20:59

2 A. Well, in this particular study if 01:21:16

3 that's -- if the range is from 11 to 15 with 01:21:19

4 corresponding 60 to 80 -- so 60 to 80, then I'd 01:21:22

5 expect those two to be the same. 01:21:29

6 Q. And, then, would you also expect an RPE of 01:21:30

7 15 to be the same as 80 percent V02 max? 01:21:35

8 A. Yes. 01:21:39

9 Q. Okay. So if the RPE -- the maximum RPE is 01:21:43

10 15 in Ceci, would you agree that Ceci's protocol is 01:21:49

11 a submaximal test? 01:21:54

12 MR. SWISHER: Object to form. 01:21:59

13 A. Well, I think earlier I was -- I replied 01:22:07

14 to you earlier that it depends on the user. If the 01:22:12

15 user goes -- if the user opts to go that high, to 01:22:16

16 go all out on a -- on a study, then they could -- 01:22:21

17 they could reach their maximum heart rate 01:22:24

18 potentially. 01:22:28

19 Q. Okay. 01:22:28

20 A. In this particular study here, you know, 01:22:29

21 they also had the results between 11 to 15 01:22:31

22 encompassed a range of 60 to 80 percent of V02 max. 01:22:41

23 And so in this particular study, 80 percent is 15, 01:22:44

24 but this is -- this doesn't apply to all -- all 01:22:48

25 users. This is -- this one particular study; and, 01:22:53

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1 again, if the user selects -- the user opts to go 01:22:56
2 easier or harder, it would change the outcome, 01:23:00
3 change the mapping. 01:23:02
4 Q. Okay. If the user selects an RPE of 15 -- 01:23:03
5 A. Yes. 01:23:16
6 Q. -- then would the protocol be a submaximal 01:23:16
7 test? 01:23:20
8 MR. SWISHER: Object to form. 01:23:22
9 A. The 15, that would correspond to an 80 01:23:25
10 percent V02 max, which is below max; yes, 01:23:29
11 submaximal. 01:23:37
12 Q. Okay. Let me hand you Exhibit 1002. 01:25:19
13 A. Thank you. 01:25:22
14 (Exhibit 1002, previously marked.) 01:25:24
15 Q. Doctor Bergeron, do you recognize this 01:25:32
16 exhibit? 01:25:33
17 A. I do. 01:25:33
18 Q. Okay. What is it? 01:25:34
19 A. This is the Aman -- or sorry -- Amano 01:25:35
20 patent, '684. The '684 patent. 01:25:41
21 Q. Okay. So if you could please turn to 01:25:56
22 column 10, line 1 of Amano. 01:25:59
23 A. 10. Okay. I'm on column 10, line 1. 01:26:13
24 Q. Okay. And in column 10 of Amano, line 1, 01:26:35
25 it states (as read): 01:26:43

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1	"Prerequisite for estimating maximum	01:26:46
2	oxygen uptake quantity."	01:26:49
3	Right?	01:26:53
4	A. Right.	01:26:53
5	Q. And, then, column 10 provides the steps	01:26:55
6	involved in this "Prerequisite for estimating	01:27:02
7	maximum oxygen uptake quantity"; correct?	01:27:06
8	MR. SWISHER: Object to form.	01:27:13
9	A. Starting at line 10, you said?	01:27:14
10	Q. Yes.	01:27:18
11	A. Yes. Okay.	01:27:18
12	Q. And I guess starting at line 10, column	01:27:23
13	10 -- sorry, line 11 is step S1 followed by step S2	01:27:25
14	shown in column 10, line 14.	01:27:40
15	Do you see that?	01:27:43
16	A. Line --	01:27:46
17	MR. SWISHER: Object to the form.	01:27:46
18	A. -- 10, line 14. 14B.	01:27:47
19	Column 10, line 14?	01:27:57
20	Q. Uh-huh.	01:27:59
21	A. Which is "Next in step S2, CPU 201	01:28:05
22	determines whether or not --" that line?	01:28:09
23	Q. Yes.	01:28:11
24	A. Okay.	01:28:12
25	Q. So as described in column 10, starting at	01:28:16

1	line 14, step S2, the test subject inputs sex, body	01:28:19
2	weight, and stride.	01:28:29
3	Do you see that?	01:28:31
4	A. Yes.	01:28:32
5	MR. SWISHER: Object to form.	01:28:32
6	Q. Okay.	01:28:32
7	A. I see it.	01:28:34
8	Q. And then the next step is step S3,	01:28:36
9	discussed -- same column, 10, line 23.	01:28:43
10	A. Okay.	01:28:52
11	Q. Right?	01:28:52
12	A. Yes.	01:28:53
13	Q. Then there's step S4 discussed on line 24.	01:28:53
14	A. Okay.	01:28:59
15	Q. S step 5 discussed on line 28.	01:29:00
16	A. Yes, okay.	01:29:08
17	Q. And then step S6 discussed in line 20 --	01:29:09
18	sorry -- 36.	01:29:15
19	A. Okay. Yes.	01:29:17
20	Q. Finally, there's step S7.	01:29:18
21	MR. SWISHER: Object to form.	01:29:23
22	A. Correct. I would agree.	01:29:25
23	Q. So in step S7 of the CPU 201, it says (as	01:29:25
24	read):	01:29:25
25	"Sets those values in RAM 203."	01:29:34

1 Do you see that? 01:29:37

2 A. I do. 01:29:37

3 MR. SWISHER: Object to form. 01:29:38

4 Q. And when step S7 talks about the CPU 01:29:43

5 storing those values in RAM 203, RAM 203 is memory; 01:29:47

6 correct? 01:29:53

7 MR. SWISHER: Object to form. 01:29:54

8 A. RAM is memory; correct. 01:30:01

9 Q. And those values being stored in memory 01:30:02

10 refer to sex, body weight, and stride from step S2. 01:30:07

11 Would you agree? 01:30:14

12 MR. SWISHER: Object to form. 01:30:16

13 A. Well, that's what it says. 01:30:40

14 Q. Okay. Does Amano ever say whether the 01:30:41

15 user changes the sex, body weight, or stride? 01:30:48

16 MR. SWISHER: Object to form. 01:30:58

17 A. Or stride? (Witness reviews document.) I 01:30:59

18 don't see that. 01:31:16

19 Q. So if the user does not change sex, body 01:31:17

20 weight, or stride, would it be fair to say that 01:31:25

21 sex, body weight, and stride are constant values? 01:31:30

22 MR. SWISHER: Object to form. 01:31:37

23 A. Well, if they don't change, they're 01:31:40

24 constant. So sure. 01:31:44

25 Q. So let's move to column 11. At the bottom 01:31:47

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1	of column 11, line 63, there's a heading titled	01:31:52
2	"Calculation display processing."	01:31:59
3	A. Got it.	01:32:01
4	Q. And I'll walk you through some of those	01:32:01
5	steps again.	01:32:11
6	So step 1 of calculation display	01:32:12
7	processing -- sorry. To be more clear, step Sa1 is	01:32:15
8	shown in column 12, line 9; correct?	01:32:21
9	MR. SWISHER: Object to form.	01:32:25
10	A. Column 12...	01:32:28
11	Okay.	01:32:33
12	Q. And then column 12, line 12 is step Sa2;	01:32:34
13	right?	01:32:42
14	MR. SWISHER: Object to form.	01:32:43
15	A. Right. Right.	01:32:44
16	Q. What happens at step Sa2?	01:32:45
17	MR. SWISHER: Object to form.	01:32:48
18	Q. In Amano?	01:32:50
19	A. It says here that the -- the next in steps	01:32:52
20	Sa2, (as read):	01:32:55
21	"The body motion signal from body motion	01:32:55
22	detector 104 is processed in the same way as in	01:32:59
23	step S9 to detect the pitch of running."	01:33:01
24	Q. Okay. And then column 12 of Amano, line	01:33:24
25	15, there is a discussion of step Sa3.	01:33:27

1	Do you see that?	01:33:31
2	A. Yes.	01:33:32
3	MR. SWISHER: Object to form.	01:33:33
4	Q. Why don't I have you read that paragraph,	01:33:37
5	more specifically, column 12, lines 15 to 21 of	01:33:40
6	Amano. And let me know when you're done.	01:33:44
7	A. (Witness reviews document.) Okay.	01:34:01
8	Q. Okay. And column 12, lines 15 to 21 talks	01:34:06
9	about a pitch; is that right?	01:34:09
10	MR. SWISHER: Object to form.	01:34:11
11	A. Yes.	01:34:13
12	Q. What is a pitch?	01:34:15
13	A. Pitch is the --	01:34:17
14	MR. SWISHER: Object to form.	01:34:19
15	A. Pitch is the pace.	01:34:20
16	Q. Okay. What is the pace?	01:34:22
17	MR. SWISHER: Object to form.	01:34:25
18	A. Strides per minute.	01:34:28
19	Q. Okay. So if I have you turn to column 7	01:34:33
20	of Amano, line 24 to 25 --	01:34:35
21	A. Wait. I'm sorry. Column 7 of Amano?	01:34:42
22	Q. Yes, Amano.	01:34:45
23	A. 24 to 25?	01:34:47
24	Q. Correct.	01:34:48
25	A. Okay.	01:34:52

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1	Q. Amano states (as read):	01:34:52
2	"The pitch during running, i.e., the	01:34:54
3	number of steps per unit time."	01:34:56
4	A. Uh-huh.	01:35:00
5	Q. Okay.	01:35:00
6	MR. SWISHER: Object to form.	01:35:01
7	A. That's consistent with what I said, I	01:35:04
8	thought.	01:35:06
9	MR. SWISHER: Doctor Bergeron, if you	01:35:06
10	don't mind pausing just to give me a chance to put	01:35:08
11	my objections on --	01:35:10
12	THE WITNESS: Sorry.	01:35:12
13	MR. SWISHER: -- so we're not talking over	01:35:13
14	each other. Thank you.	01:35:15
15	Q. So turning back to column 12, we were on	01:35:16
16	column 12, line 15 of Amano. Earlier you had said	01:35:21
17	pitch is steps per time; right?	01:35:32
18	A. Yes.	01:35:36
19	MR. SWISHER: Object to form.	01:35:37
20	THE WITNESS: Oh.	01:35:40
21	MR. SWISHER: Thank you.	01:35:41
22	Q. How is this pitch related to speed?	01:35:41
23	MR. SWISHER: Object to form.	01:35:45
24	A. Well, if you have a certain stride --	01:35:52
25	stride length and you have a certain number of	01:35:57

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1 steps per minute or per second, if you multiply 01:36:00
2 the -- the stride length times the number of steps, 01:36:07
3 you can get the distance covered -- period of time 01:36:12
4 at that speed. 01:36:16
5 (Court reporter comment.) 01:36:38
6 A. No, that would -- I think I said that 01:36:38
7 would give you the length covered -- the distance 01:36:42
8 covered in that time period, which would then -- 01:36:45
9 that -- that's speed. So distance over time is 01:36:48
10 speed. 01:36:50
11 Q. So would you agree that speed is equal to 01:37:07
12 pitch multiplied by stride? 01:37:12
13 MR. SWISHER: Object to form. 01:37:14
14 A. Distance would be -- well, let's... 01:37:23
15 Stride multiplied by the pitch -- stride 01:37:26
16 is the -- the distance covered by -- from one foot 01:37:29
17 to the next foot as you walk forward, and pitch is 01:37:34
18 the number of strides per unit time. 01:37:37
19 So the -- the speed or the -- the pitch 01:37:45
20 times the length of the stride period of time is -- 01:37:47
21 is speed, if that's what you're asking. 01:37:57
22 Q. Let me ask the question again just to make 01:38:22
23 it clearer. 01:38:26
24 A. Okay. 01:38:26
25 Q. So would you agree that speed is equal to 01:38:28

1	pitch multiplied by stride?	01:38:31
2	MR. SWISHER: Object to form.	01:38:34
3	A. Okay. If it's -- stride is -- is three	01:38:47
4	feet or one meter and the pitch is one stride --	01:38:57
5	one stride per second, then that would be one meter	01:39:02
6	per second, which would be speed.	01:39:04
7	Q. Okay. So then going to Amano, column 12,	01:39:22
8	same passage, lines 15 to 20, Amano calculates the	01:39:27
9	distance run by the test subject per unit time;	01:39:49
10	correct?	01:39:55
11	MR. SWISHER: Object to form.	01:39:57
12	A. That was the previous step we talked	01:39:59
13	about.	01:40:01
14	Q. Yeah.	01:40:01
15	A. Yes.	01:40:02
16	Q. And then this distance run per unit time	01:40:02
17	is multiplied by the user's body weight; is that	01:40:08
18	right?	01:40:11
19	MR. SWISHER: Object to form.	01:40:12
20	A. That's correct.	01:40:13
21	Q. And the same distance run multiplied by	01:40:17
22	the user's body weight is used to obtain exercise	01:40:20
23	intensity; right?	01:40:24
24	MR. SWISHER: Object to form.	01:40:27
25	A. (Witness reviews document.) That's --	01:40:37

1 that's what it says in lines 21 through 24, yes. 01:40:42

2 Q. Okay. So, Doctor Bergeron, if I could 01:40:47

3 hand you a blank piece of paper and a pen, and I -- 01:40:48

4 I'll call this -- we'll stamp this Exhibit 1016. 01:40:53

5 Looking at the same passage, column 12, 01:41:04

6 lines 15 to 20, could you write down Amano's 01:41:07

7 exercise intensity equation according to the 01:41:11

8 description in column 12 -- 01:41:15

9 MR. SWISHER: Object to form. 01:41:17

10 Q. -- lines 15 to 20? 01:41:18

11 MR. SWISHER: Object to form. 01:41:20

12 A. (Witness reviews document.) Well, I don't 01:41:22

13 have enough information here in this one paragraph 01:42:20

14 to -- to do that. 01:42:22

15 Q. Okay. What is missing from this? 01:42:26

16 A. Well, it's just -- it's saying the -- 01:42:28

17 we're talking about the pitch and the distance run, 01:42:34

18 and then the -- this distance run is then 01:42:40

19 multiplied by the user's body weight to obtain 01:42:44

20 intensity, but it's not -- as I recall, this is 01:42:50

21 intensity, "W," or work... 01:42:53

22 So I don't recall the equation used by 01:43:05

23 the -- the CPU to -- to come up with -- with work, 01:43:07

24 but then there's -- there's a conversion to 01:43:14

25 kilopond meters per minute, which is the -- the way 01:43:17

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1 they express -- one of the two ways they express 01:43:24
2 intensity in this patent. 01:43:29
3 There are two ways: One is -- this is the 01:43:31
4 kilopond meter per minute, but I don't -- I don't 01:43:34
5 have here the -- I don't know if -- I don't know 01:43:43
6 if, you know, it's in this patent and how to get -- 01:43:44
7 how to get the pond value from this -- this data. 01:43:47
8 Q. Okay. Would you be able to determine the 01:43:52
9 equation before the conversion into kilopond per 01:43:59
10 minute as described in Amano, column 12, lines 15 01:44:02
11 to 20? 01:44:05
12 MR. SWISHER: Object to form. 01:44:07
13 A. (Witness reviews document.) I'm not sure 01:44:18
14 the conversion fact- -- I'm not sure the conversion 01:44:27
15 factors that were being involved, if there's the -- 01:44:29
16 the intensity, the -- 'cause we're talking about 01:44:33
17 work here. We're also talking about intensity of 01:44:41
18 the -- which I believe is in joules. 01:44:44
19 Q. Uh-huh. 01:44:47
20 A. So I -- I need something else. There's 01:44:54
21 something else missing from the -- the -- this 01:44:57
22 description in order to give me the values I'm 01:44:59
23 looking for, I believe. 01:45:02
24 Just take -- let me just take one second 01:45:06
25 to look at my notes here. (Witness reviews 01:45:07

1	document.)	01:45:07
2	Yeah. So as in my paragraph 36, we're	01:45:30
3	talking about power here initially. So first	01:45:32
4	embodiment -- again, my paragraph 36 -- yeah. So	01:45:38
5	we have the intensity, and we're also using some	01:45:50
6	S tran rhyming nomogram to come up with the value	01:45:56
7	for W.	01:46:00
8	So that's the factor I was talking about.	01:46:01
9	So we need to have that -- let's see. (Witness	01:46:05
10	reviews document.) So that's figure -- figure 3 in	01:46:19
11	the -- in the patent. So that's -- that's the	01:46:32
12	intensity they're citing.	01:46:37
13	(Witness reviews document.) So, let me --	01:46:51
14	so as -- as in my write-up in my Amano in pages 20	01:48:25
15	through 26, one of the problems with Amano is that	01:48:33
16	they have two -- he has two -- he or she has two	01:48:37
17	different ways of describing or defining intensity.	01:48:42
18	I just discussed intensity.	01:48:45
19	One is the -- just something measuring the	01:48:48
20	-- something measuring the -- calculating the	01:48:53
21	stride length times -- times the pitch, times the	01:48:54
22	weight, which would be the amount of work of power;	01:48:58
23	and the other would be going to the -- using the	01:49:08
24	nomogram.	01:49:18
25	So this one -- so apparently what did you	01:49:18

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1 say to me? Paragraph 15 through 20 of the '684 01:49:20
2 patent, this appears to be the -- using the first 01:49:25
3 definition. So it's simply -- simply means it's 01:49:30
4 the -- multiplying stride length times pitch times 01:49:34
5 the weight. So those three factors -- be 01:49:39
6 intensity. But, again, that's one of two ways 01:49:43
7 that's being used in the patent. 01:49:46
8 Q. Okay. So just to make sure I understand 01:49:51
9 this correctly, you had just said that the equation 01:49:55
10 would involve simply multiplying stride times pitch 01:50:03
11 times weight; is that right? 01:50:08
12 A. Yes. 01:50:10
13 MR. SWISHER: Object to form. 01:50:15
14 A. (Witness marks document.) 01:50:32
15 Q. Okay. And that is -- would you agree that 01:50:36
16 is consistent with your description in paragraph 36 01:50:44
17 of your second declaration? 01:50:50
18 MR. SWISHER: Object to form. 01:50:53
19 Q. And I'm happy to refer you to the sentence 01:50:54
20 specifically. 01:50:59
21 A. So that would be the sentence in the -- 01:51:02
22 "In this -- in this usage --" 01:51:07
23 (Court Reporter comment.) 01:51:09
24 MR. SWISHER: Start over. 01:51:09
25 A. Sorry. In this usage of exercise 01:51:10

1 intensity -- hold on. 01:51:13

2 Start over. Well, no -- in this usage of 01:51:19

3 exercise intensity, Amano is referring to power 01:51:22

4 because it's defined by (as read): 01:51:26

5 "Multiplying a subject's body weight by 01:51:29

6 the distance run and dividing the product of the 01:51:32

7 amount of time spent running expressed in the 01:51:35

8 kilopound meters per minute, KPM over MIN." 01:51:40

9 Right. That's the sentence? 01:51:47

10 Q. Yes. 01:51:47

11 A. Yes. 01:51:48

12 Q. Would you agree that the equation that you 01:51:49

13 had just written on what will be stamped Exhibit 01:51:50

14 1016 is consistent with paragraph 36 of your 01:51:58

15 declaration, Exhibit 2008? 01:52:04

16 MR. SWISHER: Object to form. 01:52:09

17 (Exhibit 1016, one-page document. 01:40:58

18 with equation written by Doctor Bergeron.) 01:40:58

19 A. I think -- 01:52:11

20 MR. SWISHER: Just pause. 01:52:12

21 A. I think it is, yes. 01:52:15

22 Q. And do you recall earlier talking about 01:52:19

23 stride and weight being constant values? 01:52:21

24 MR. SWISHER: Object to form. 01:52:24

25 A. I don't recall exactly, but that sounds 01:52:28

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1 reasonable. 01:52:30

2 Q. Okay. So looking at the equation that you 01:52:30

3 wrote on Exhibit 1016, if stride and weight are 01:52:33

4 constant values, would you agree that exercise 01:52:40

5 intensity is proportional to pitch? 01:52:43

6 MR. SWISHER: Object to form. 01:52:47

7 A. Well, if stride and weight are held 01:52:53

8 constant and pitch is increased, which is the 01:52:54

9 number of steps per minute or per time, then 01:52:57

10 intensity would also increase in proportion to that 01:53:00

11 according to this equation, yes. 01:53:05

12 MS. NGUYEN: Okay. Why don't we take a 01:53:33

13 five-minute break, if that's okay. 01:53:38

14 VIDEO OPERATOR: The time is 1:54. We're 01:53:41

15 off the record. 01:53:43

16 (Recess was taken.) 01:59:31

17 VIDEO OPERATOR: The time is 2:08. We're 02:08:07

18 back on the record. 02:08:09

19 Q. Doctor Bergeron, during the break -- this 02:08:14

20 last break and the lunch break, did you speak with 02:08:16

21 counsel at all about this matter? 02:08:18

22 A. No. 02:08:20

23 Q. And, then, before we took a break we were 02:08:20

24 discussing Amano. 02:08:27

25 Do you remember that? 02:08:30

1 A. Yes. 02:08:31

2 Q. Before your work on this matter, were you 02:08:31

3 familiar with Amano? 02:08:33

4 A. No, I was not. 02:08:35

5 Q. And about how much time did you spend 02:08:36

6 reviewing Amano? 02:08:42

7 MR. SWISHER: Object to form. 02:08:44

8 A. How much time? 02:08:46

9 Let's see -- well, I read through it one 02:08:46

10 time very well and then reviewed it several times 02:08:57

11 after that. So -- I don't know -- three hours. I 02:09:00

12 don't know. 02:09:09

13 Q. Okay. Did you understand everything 02:09:09

14 described in Amano? 02:09:11

15 MR. SWISHER: Object to form. 02:09:14

16 A. I hope so. To the best of my ability, I 02:09:15

17 mean, I think I did. 02:09:18

18 Q. Yeah. Do you think there are things in 02:09:18

19 Amano you don't understand? 02:09:22

20 MR. SWISHER: Object to form. 02:09:25

21 A. Since you're asking me, I should -- 02:09:26

22 probably should answer yes, but as far as I know, 02:09:28

23 I -- I think I understand what's in the patent. I 02:09:30

24 think I do. 02:09:35

25 Q. Okay. Let me hand you Exhibit 1003. 02:09:48

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1	A. Thank you.	02:09:52
2	Q. Do you recognize Exhibit 1003?	02:09:59
3	(Exhibit 1003, previously marked.)	02:10:02
4	A. Yes. This is -- yes.	02:10:02
5	Q. What is it?	02:10:03
6	A. It's the Matsumoto patent or the '427	02:10:04
7	patent.	02:10:09
8	Q. Okay. And before your work on this	02:10:09
9	proceeding, were you familiar with the Matsumoto	02:10:13
10	reference?	02:10:16
11	A. I was not.	02:10:17
12	Q. And did you review Matsumoto in its	02:10:17
13	entirety?	02:10:23
14	A. I did.	02:10:24
15	Q. Is there anything within Matsumoto that	02:10:24
16	you don't understand?	02:10:28
17	MR. SWISHER: Object to form.	02:10:30
18	A. I don't think there is.	02:10:31
19	Q. Okay. And about how much time did you	02:10:32
20	spend reviewing Matsumoto?	02:10:34
21	MR. SWISHER: Object to form.	02:10:36
22	A. Well, again, I read through it in detail	02:10:38
23	once, I'm sure, and then I reviewed it a couple of	02:10:41
24	times. And this is a relatively short patent.	02:10:45
25	A couple of hours.	02:10:48

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1 Q. If I could have you turn to column 7, 02:10:53
2 starting at line 36, of Matsumoto. 02:10:56
3 A. Column -- I'm sorry. Column 36? 02:11:03
4 Q. Column 7. 02:11:05
5 A. Oh, column 7. I'm sorry. 02:11:06
6 Q. Line 36. 02:11:08
7 A. Figure 10? 02:11:22
8 Q. Yes. 02:11:23
9 A. Yes. 02:11:23
10 Q. Okay. And in column 7, line 36 there is a 02:11:28
11 paragraph about figure 10; correct? 02:11:30
12 A. Correct. 02:11:34
13 Q. And there's also discussion about a 02:11:35
14 "target pulse zone, e.g., target pulse plus or 02:11:39
15 minus 5." 02:11:44
16 MR. SWISHER: Object to form. 02:11:48
17 A. Hold on. 02:11:49
18 Plus or minus 5? Are you reading -- I'm 02:11:50
19 sorry. I don't see. 02:11:54
20 Q. Yeah, I can refer you. Column 7, line 51. 02:11:55
21 A. Oh, 51. Okay. Yes. Okay. I see it. 02:11:59
22 Q. Okay. Would you agree that the discussion 02:12:11
23 in Matsumoto about figure 10 and the "target pulse 02:12:16
24 zone, e.g., target pulse plus or minus 5," could be 02:12:21
25 applied to other parts of Matsumoto in the context 02:12:31

1	of anticipation?	02:12:33
2	MR. SWISHER: Object to form.	02:12:35
3	A. Well, as I understand anticipation, you	02:12:45
4	can't mix the -- or you -- you can't mix the	02:12:49
5	embodiments. So there's -- an embodiment -- an	02:12:53
6	embodiment can be anticipated -- can be	02:12:56
7	anticipatory, but you can't take parts of one and	02:13:00
8	parts of another and parts of another one and	02:13:03
9	combine those to be anticipatory --	02:13:05
10	Q. Okay.	02:13:08
11	A. -- is my understanding. So the answer	02:13:09
12	would be -- would be no.	02:13:10
13	Q. Is it your understanding that you can	02:13:11
14	never mix embodiments for anticipation?	02:13:17
15	MR. SWISHER: Object to form.	02:13:20
16	A. Well, "never" is probably a strong word.	02:13:22
17	Well -- so, like, I have a -- see -- I have an	02:13:29
18	overview of the law, I believe. 3. Let me see.	02:13:35
19	(Witness reviews document.)	02:13:47
20	So paragraph 9 in my supplemental report,	02:13:52
21	second -- second sentence in paragraph 9 (as read):	02:14:00
22	"I also understand that for a reference to	02:14:02
23	anticipate, it must disclose invention at issue as	02:14:04
24	it -- as it is arranged in the patent claim, and	02:14:08
25	that disclosures from multiple distinct embodiments	02:14:13

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1 found within a single reference may not be combined 02:14:15
2 to show anticipation." 02:14:18
3 So if -- if -- I'm not a lawyer, but 02:14:23
4 "never" sounds strong, but in terms of how I 02:14:26
5 understand the standards and written here, they 02:14:28
6 can't be combined to be anticipatory. 02:14:32
7 Q. So you agree that you can never mix 02:14:39
8 embodiments for anticipation -- 02:14:42
9 MR. SWISHER: Object to form. 02:14:44
10 Q. -- right? 02:14:47
11 A. Well, "never's" kind of a strong word, but 02:14:47
12 let's just say, as I understand the embodiments in 02:14:54
13 this particular case, they can't be combined. 02:14:55
14 Q. Okay. Doctor Bergeron, do you recall 02:20:35
15 earlier discussing measuring heart rate and heart 02:20:40
16 rate zones? 02:20:45
17 MR. SWISHER: Object to form. 02:20:47
18 A. Measuring heart rate and heart rate zones? 02:20:48
19 In general. 02:20:49
20 Q. Okay. And do you recall testifying that 02:20:53
21 heart rate sensors were known as of 2003? 02:20:57
22 A. Yes. 02:21:02
23 MR. SWISHER: Object to form. 02:21:03
24 Q. And would you agree that it was common for 02:21:06
25 these heart rate sensors to measure heart rate 02:21:10

1 zones? 02:21:14

2 MR. SWISHER: Object to form. 02:21:15

3 Q. Sorry. Let me phrase that over. 02:21:16

4 Would you agree that it was common for 02:21:19

5 these heart rate sensors to measure or determine 02:21:21

6 heart rate zones? 02:21:23

7 MR. SWISHER: Object to form. 02:21:24

8 A. I would say that the sensors detected 02:21:27

9 heart rate -- a heart signal and that you'd have to 02:21:30

10 work on that signal to -- you'd have to incorporate 02:21:34

11 that signal and interpret it in order to come up 02:21:37

12 with zones. 02:21:43

13 By themselves, no. 02:21:46

14 Q. Okay. So would you agree that it was 02:21:49

15 common to -- in 2003 -- to use a heart rate signal 02:21:51

16 to then interpret and determine heart rate zones? 02:21:59

17 MR. SWISHER: Object to form. 02:22:05

18 A. Heart rate zones... 02:22:11

19 I guess I'd -- no, as I understand your 02:22:21

20 question. Again, the -- the -- as I understand 02:22:25

21 your question, no. 02:22:28

22 Q. Okay. Why not? 02:22:33

23 A. Well, maybe I'm misinterpreting your 02:22:35

24 question, but the -- again, the sensor is used to 02:22:36

25 determine the heart rate -- 02:22:40

1 Q. Uh-huh. 02:22:42

2 A. -- measure heart rate, which would be 02:22:43

3 beats per minute, for example. And, then, creating 02:22:45

4 -- creating zones, assuming how you define a zone, 02:22:56

5 would be -- they require additional -- additional 02:23:00

6 computation, either -- the zones could be created a 02:23:05

7 priori, before the measurement was being made, or 02:23:09

8 they could be made to reflect the measurements 02:23:11

9 or -- you know, A doesn't necessarily lead to B. 02:23:15

10 So having a heart rate measurement doesn't 02:23:21

11 necessarily give you a zone. 02:23:23

12 Q. Okay. 02:23:24

13 A. A zone could be established by some other 02:23:25

14 means. 02:23:27

15 Q. Okay. Have you heard of this concept of 02:23:30

16 exercising within 60 to 80 percent of your maximum 02:23:35

17 heart rate? 02:23:39

18 MR. SWISHER: Object to form. 02:23:40

19 A. That's -- have I heard of the concept, 02:23:43

20 yes. 02:23:46

21 Q. Yes. And would you agree that's a concept 02:23:46

22 that's typically used with athletes or individuals 02:23:49

23 that exercise? 02:23:52

24 MR. SWISHER: Object to form. 02:23:53

25 A. I would -- I would doubt athletes would 02:23:56

1	use that -- be using that, no. I would --	02:23:58
2	Q. Okay.	02:24:00
3	A. -- I would say that individuals might.	02:24:00
4	Some -- if it's a -- if you went to a -- to a	02:24:03
5	gym --	02:24:07
6	Q. Uh-huh.	02:24:07
7	A. -- which has a -- so take your age -- 220	02:24:08
8	minus age. That's your maximum heart rate as a	02:24:11
9	guesstimate.	02:24:14
10	Q. Uh-huh.	02:24:14
11	A. And you exercise between -- here's your	02:24:15
12	pulse rate. You should maintain between 60 and 80	02:24:17
13	percent of that. That's common or was common then	02:24:20
14	as well.	02:24:22
15	Q. Okay. So --	02:24:27
16	A. But, again, that is an approximation for	02:24:27
17	the average kind of person at the gym.	02:24:28
18	Q. Okay. But you would agree that it's	02:24:31
19	common to maintain your pulse rate within a heart	02:24:32
20	rate zone.	02:24:39
21	MR. SWISHER: Object to form.	02:24:42
22	A. Well, that's one way of training. So --	02:24:44
23	and a lot of assumptions there. Assuming you were	02:24:50
24	training for aerobic capacity.	02:24:52
25	Q. Okay.	02:24:52

1	A. And you're trying to -- to increase that	02:24:55
2	safely over time.	02:25:00
3	Q. Uh-huh.	02:25:00
4	A. That's a -- that's a safe way, to keep	02:25:01
5	between 60 and 80 percent. If you're training for	02:25:04
6	power and explosiveness, you'd probably do it at a	02:25:07
7	much higher rate, maybe you'd go to 80 percent, 85	02:25:10
8	percent -- depending on the athlete -- to push your	02:25:13
9	aerobic capacity.	02:25:16
10	It would depend on -- on the purpose of	02:25:18
11	training.	02:25:21
12	Q. Okay. So let's take the first purpose of	02:25:21
13	training, the 60 to 80 percent exercise type of	02:25:32
14	training.	02:25:37
15	Are you following me?	02:25:40
16	A. So for the average -- okay, a common --	02:25:41
17	Q. Okay.	02:25:45
18	A. -- or the common zone.	02:25:46
19	Q. Yes.	02:25:47
20	A. Okay.	02:25:48
21	Q. Would a person in 2003 consider it	02:25:49
22	common -- and I believe you said average	02:25:55
23	exerciser -- to have -- to target a heart rate in	02:25:57
24	that 60 to 80 percent heart rate zone?	02:26:01
25	MR. SWISHER: Object to form.	02:26:05

1 A. It would have been common back then, yes. 02:26:08

2 Q. Okay. And would you agree that in 2003 it 02:26:19

3 would -- it would be common to use heart rate zones 02:26:23

4 more generally? 02:26:28

5 MR. SWISHER: Object to form. 02:26:34

6 A. More generally. I'm not sure what you 02:26:35

7 mean. 02:26:36

8 Q. Okay. Let me rephrase that just to say 02:26:37

9 would you agree that in 2003 it would be common to 02:26:39

10 use heart rate zones? 02:26:41

11 MR. SWISHER: Object to form. 02:26:42

12 A. For an average user in a gym, I'd say 02:26:52

13 essentially it's a zone -- it's a zone between like 02:26:54

14 60 and 80 percent of your maximum heart rate was 02:26:56

15 common -- and it's still common today -- to, say, 02:27:00

16 maintain your heart rate within that range, within 02:27:03

17 that zone, in order to receive the maximum benefit 02:27:05

18 of exercise without either -- either not pushing 02:27:10

19 enough or too far, very hard to not -- not receive 02:27:15

20 the training effect you want. 02:27:20

21 (Court Reporter comment.) 02:27:26

22 A. To avoid either training too hard or not 02:27:26

23 receiving the training effect you want from 02:27:29

24 exercise. 02:27:31

25 MS. NGUYEN: Okay. We have no further 02:28:16

1 questions. 02:28:17
2 MR. SWISHER: Okay. No questions for me. 02:28:19
3 THE WITNESS: Wow. 02:28:24
4 VIDEO OPERATOR: The time is 2:28. We're 02:28:25
5 off the record. 02:28:27
6 (Whereupon the deposition ended at
7 2:28 p.m.)
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CERTIFICATE OF REPORTER

I Patricia Jodi Ohnemus, Licensed Shorthand Reporter in and for the States of California and New Hampshire and Notary Public in and for the Commonwealth of Massachusetts, the officer before whom the proceedings were taken, do hereby certify that the foregoing transcript is a true and accurate record of these proceedings; that said proceedings were taken in stenotype note by me remotely on the 21st day of December, 2023, commencing at 9:07 a.m. and ending at 2:28 p.m.

I further certify that present on behalf of Lululemon Athletica Canada, Attorneys, Mehran Arjomand and Jean Nguyen of Morrison Forester, and on behalf of Party Nike, Attorney Jonathan Swisher of Arnold & Porter.

I further certify that I am not related to, nor associated with any of the parties or their attorneys, nor do I have any disqualifying interest, personal or financial, in the actions within.

Dated this 24th day of December, 2023.



Patricia Jodi Ohnemus, CRR, RPR, RMR

ATTACH TO DEPOSITION OF: BRYAN P. BERGERON, MD
CASE: LULULEMON ATHLETICA VS. NIKE

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My Commission Expires:

1 Mehran Arjomand, Esq.

2 Marjomand@mofo.com

3 December 24, 2023

4 RE: LULULEMON ATHLETICA CANADA, INC. vs. NIKE, INC.

5 December 21, 2023, Bryan P. Bergeron, M.D. (JOB NO. 6325086)

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1 LULULEMON ATHLETICA CANADA, INC. vs. NIKE, INC.

2 Bryan P. Bergeron, M.D. (JOB NO. 6325086)

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24 WITNESS _____ Date _____

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[appeal - based]

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate.

The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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