

WEBVTT

NOTE duration:"00:59:16.2880000"

NOTE language:en-us

NOTE Confidence: 0.8538523

00:00:16.950 --> 00:00:17.990 Alright, hi everybody,

NOTE Confidence: 0.8538523

00:00:17.990 --> 00:00:20.060 I am Lauren Tobias. I would

NOTE Confidence: 0.8538523

00:00:20.060 --> 00:00:22.230 like to welcome you to our Yale

NOTE Confidence: 0.8538523

00:00:22.230 --> 00:00:23.850 Sleep Seminar this afternoon.

NOTE Confidence: 0.8538523

00:00:23.850 --> 00:00:25.770 I'll make a few brief announcements

NOTE Confidence: 0.8538523

00:00:25.770 --> 00:00:28.567 before I turn it over to Larry Epstein

NOTE Confidence: 0.8538523

00:00:28.567 --> 00:00:30.745 to introduce our speaker today first.

NOTE Confidence: 0.8538523

00:00:30.750 --> 00:00:32.850 Please do take a moment to

NOTE Confidence: 0.8538523

00:00:32.850 --> 00:00:34.760 make sure that you're muted.

NOTE Confidence: 0.8538523

00:00:34.760 --> 00:00:36.275 In order to receive CME

NOTE Confidence: 0.8538523

00:00:36.275 --> 00:00:37.184 credit for attendance,

NOTE Confidence: 0.8538523

00:00:37.190 --> 00:00:39.318 please see the chat room for instructions.

NOTE Confidence: 0.8538523

00:00:39.320 --> 00:00:41.752 There's a unique ID that you can text

NOTE Confidence: 0.8538523

00:00:41.752 --> 00:00:43.976 anytime until 3:15 PM and if you're

NOTE Confidence: 0.8538523

00:00:43.976 --> 00:00:46.010 not already registered with go see me.

NOTE Confidence: 0.8538523

00:00:46.010 --> 00:00:48.138 You will need to do that first.

NOTE Confidence: 0.8538523

00:00:48.140 --> 00:00:49.348 If you have questions

NOTE Confidence: 0.8538523

00:00:49.348 --> 00:00:50.254 during the presentation,

NOTE Confidence: 0.8538523

00:00:50.260 --> 00:00:52.700 please make root use of the chat room

NOTE Confidence: 0.8538523

00:00:52.700 --> 00:00:54.839 throughout the hour and we will invite

NOTE Confidence: 0.8538523

00:00:54.839 --> 00:00:56.650 people also to unmute themselves and

NOTE Confidence: 0.8538523

00:00:56.650 --> 00:00:58.468 ask questions allowed at the end.

NOTE Confidence: 0.8538523

00:00:58.470 --> 00:01:01.081 We will have recorded versions of these

NOTE Confidence: 0.8538523

00:01:01.081 --> 00:01:02.833 lectures available online within two

NOTE Confidence: 0.8538523

00:01:02.833 --> 00:01:05.129 weeks at the link provided in the chat.

NOTE Confidence: 0.8538523

00:01:05.130 --> 00:01:06.846 And please feel free to share

NOTE Confidence: 0.8538523

00:01:06.846 --> 00:01:08.325 it announcements for our weekly

NOTE Confidence: 0.8538523

00:01:08.325 --> 00:01:09.725 lecture series to anyone that

NOTE Confidence: 0.8538523

00:01:09.725 --> 00:01:11.490 you think may be interested,

NOTE Confidence: 0.8538523

00:01:11.490 --> 00:01:13.006 or contact Debbie Lovejoy to
NOTE Confidence: 0.8538523

00:01:13.006 --> 00:01:14.830 be added to our email list.
NOTE Confidence: 0.8538523

00:01:14.830 --> 00:01:16.941 And then before I introduce today's speaker,
NOTE Confidence: 0.8538523

00:01:16.941 --> 00:01:19.349 I just want to let you know that
NOTE Confidence: 0.8538523

00:01:19.349 --> 00:01:21.504 next week stock is going to be
NOTE Confidence: 0.8538523

00:01:21.504 --> 00:01:23.004 given by Doctor Francesca Facco,
NOTE Confidence: 0.8538523

00:01:23.004 --> 00:01:25.130 who is an associate professor of obstetrics,
NOTE Confidence: 0.8538523

00:01:25.130 --> 00:01:26.338 gynecology and reproductive Sciences
NOTE Confidence: 0.8538523

00:01:26.338 --> 00:01:27.856 at the University of Pittsburgh,
NOTE Confidence: 0.8538523

00:01:27.856 --> 00:01:29.675 and she's going to be speaking
NOTE Confidence: 0.8538523

00:01:29.675 --> 00:01:30.887 about sleep and pregnancy.
NOTE Confidence: 0.8538523

00:01:30.890 --> 00:01:33.158 So please make a note of that
NOTE Confidence: 0.8538523

00:01:33.158 --> 00:01:35.639 and join us next week as well.
NOTE Confidence: 0.8538523

00:01:35.640 --> 00:01:37.201 So with that I will turn it
NOTE Confidence: 0.8538523

00:01:37.201 --> 00:01:38.370 over to Larry Epstein.
NOTE Confidence: 0.83137035

00:01:39.410 --> 00:01:40.920 Thank you, it's my pleasure

NOTE Confidence: 0.83137035

00:01:40.920 --> 00:01:42.430 today to introduce Doctor Doug.

NOTE Confidence: 0.83137035

00:01:42.430 --> 00:01:43.754 Curses are speaker doctor.

NOTE Confidence: 0.83137035

00:01:43.754 --> 00:01:46.302 Kirsch is a good friend is and is

NOTE Confidence: 0.83137035

00:01:46.302 --> 00:01:48.294 well known to many of us with him

NOTE Confidence: 0.83137035

00:01:48.366 --> 00:01:50.550 having spent a long time in the

NOTE Confidence: 0.83137035

00:01:50.550 --> 00:01:52.402 Boston area tended medical school at

NOTE Confidence: 0.83137035

00:01:52.402 --> 00:01:53.922 the University of Massachusetts to

NOTE Confidence: 0.83137035

00:01:53.922 --> 00:01:55.410 this neurology training in Rochester

NOTE Confidence: 0.83137035

00:01:55.410 --> 00:01:56.795 and completed a sleep fellowship

NOTE Confidence: 0.83137035

00:01:56.795 --> 00:01:58.439 at the University of Michigan.

NOTE Confidence: 0.83137035

00:01:58.440 --> 00:02:00.463 He was a member of the Brigham

NOTE Confidence: 0.83137035

00:02:00.463 --> 00:02:01.760 program for many years.

NOTE Confidence: 0.83137035

00:02:01.760 --> 00:02:03.470 First sleep health centers and at

NOTE Confidence: 0.83137035

00:02:03.470 --> 00:02:05.080 Brigham and Women's Faulkner Hospital.

NOTE Confidence: 0.83137035

00:02:05.080 --> 00:02:06.832 He's currently the director of the

NOTE Confidence: 0.83137035

00:02:06.832 --> 00:02:08.400 Sleep Program for Atrium Health,
NOTE Confidence: 0.83137035

00:02:08.400 --> 00:02:09.772 the largest healthcare system
NOTE Confidence: 0.83137035

00:02:09.772 --> 00:02:11.487 in North and South Carolina.
NOTE Confidence: 0.83137035

00:02:11.490 --> 00:02:13.455 And a clinical professor at
NOTE Confidence: 0.83137035

00:02:13.455 --> 00:02:15.027 UNC School of Medicine.
NOTE Confidence: 0.83137035

00:02:15.030 --> 00:02:17.109 He is familiar to many of you.
NOTE Confidence: 0.83137035

00:02:17.110 --> 00:02:18.001 As an educator,
NOTE Confidence: 0.83137035

00:02:18.001 --> 00:02:19.189 running many Jimmy courses,
NOTE Confidence: 0.83137035

00:02:19.190 --> 00:02:20.900 and having served as the program
NOTE Confidence: 0.83137035

00:02:20.900 --> 00:02:22.743 chair for the Annual Sleep Meeting
NOTE Confidence: 0.83137035

00:02:22.743 --> 00:02:24.681 for the American Academy of Sleep
NOTE Confidence: 0.83137035

00:02:24.681 --> 00:02:26.618 Medicine and Sleep Research Society.
NOTE Confidence: 0.83137035

00:02:26.620 --> 00:02:29.490 He's also served on the Board of
NOTE Confidence: 0.83137035

00:02:29.490 --> 00:02:33.146 directors of the ASM and is a past president.
NOTE Confidence: 0.83137035

00:02:33.150 --> 00:02:35.901 He's long held an interest in emerging
NOTE Confidence: 0.83137035

00:02:35.901 --> 00:02:37.937 sleep technologies and help has

NOTE Confidence: 0.83137035

00:02:37.937 --> 00:02:39.902 helped direct the ASM's valuation

NOTE Confidence: 0.83137035

00:02:39.902 --> 00:02:42.120 and policy towards new technology.

NOTE Confidence: 0.83137035

00:02:42.120 --> 00:02:42.499 Appropriately,

NOTE Confidence: 0.83137035

00:02:42.499 --> 00:02:44.773 his topic today is wearable Wars

NOTE Confidence: 0.83137035

00:02:44.773 --> 00:02:46.610 evolution in sleep assessment.

NOTE Confidence: 0.8325026

00:02:48.340 --> 00:02:50.668 Thanks for that kind introduction Larry,

NOTE Confidence: 0.8325026

00:02:50.670 --> 00:02:53.774 and I'd like to say coming from the

NOTE Confidence: 0.8325026

00:02:53.774 --> 00:02:56.215 Boston area, I can not think of

NOTE Confidence: 0.8325026

00:02:56.215 --> 00:02:58.864 many times at which Harvard and Yale

NOTE Confidence: 0.8325026

00:02:58.864 --> 00:03:01.139 have actually done things together.

NOTE Confidence: 0.8325026

00:03:01.140 --> 00:03:04.244 This seems like a novel in different world,

NOTE Confidence: 0.8325026

00:03:04.250 --> 00:03:06.536 so maybe while Covid has brought

NOTE Confidence: 0.8325026

00:03:06.536 --> 00:03:09.288 a lot of terrible things upon us,

NOTE Confidence: 0.8325026

00:03:09.290 --> 00:03:10.838 maybe joint Harvard Yale,

NOTE Confidence: 0.8325026

00:03:10.838 --> 00:03:12.773 things may be a bonus.

NOTE Confidence: 0.8325026

00:03:12.780 --> 00:03:14.720 Covid park. So with that,
NOTE Confidence: 0.8325026

00:03:14.720 --> 00:03:17.359 let me start by telling you a
NOTE Confidence: 0.8325026

00:03:17.359 --> 00:03:18.990 little bit about this.
NOTE Confidence: 0.91765493

00:03:21.680 --> 00:03:24.284 The world of sleep obviously has gone
NOTE Confidence: 0.91765493

00:03:24.284 --> 00:03:27.368 through a lot of changes over the years.
NOTE Confidence: 0.91765493

00:03:27.370 --> 00:03:29.782 For a long time, sleep problems
NOTE Confidence: 0.91765493

00:03:29.782 --> 00:03:32.050 were really not medical problem,
NOTE Confidence: 0.91765493

00:03:32.050 --> 00:03:34.978 but then overtime they became an
NOTE Confidence: 0.91765493

00:03:34.978 --> 00:03:36.930 ultra specialized medical problem.
NOTE Confidence: 0.91765493

00:03:36.930 --> 00:03:38.382 And they became specialized.
NOTE Confidence: 0.91765493

00:03:38.382 --> 00:03:40.560 But then testable in the home.
NOTE Confidence: 0.91765493

00:03:40.560 --> 00:03:41.649 And then Lastly,
NOTE Confidence: 0.91765493

00:03:41.649 --> 00:03:44.190 your mobile phone can be asleep tester.
NOTE Confidence: 0.91765493

00:03:44.190 --> 00:03:47.086 But the reality is this isn't the timeline.
NOTE Confidence: 0.91765493

00:03:47.090 --> 00:03:48.910 This is the timeline right?
NOTE Confidence: 0.91765493

00:03:48.910 --> 00:03:52.177 That the speed of this change has been rapid.

NOTE Confidence: 0.8466982

00:03:54.650 --> 00:03:56.904 We are all comfortable with seeing this

NOTE Confidence: 0.8466982

00:03:56.904 --> 00:03:59.031 kind of image in lab polysomnographers

NOTE Confidence: 0.8466982

00:03:59.031 --> 00:04:01.586 he is and remains the gold standard

NOTE Confidence: 0.8466982

00:04:01.648 --> 00:04:03.874 for us to assess patients sleeping

NOTE Confidence: 0.8466982

00:04:03.874 --> 00:04:05.719 problem in this particular case,

NOTE Confidence: 0.8466982

00:04:05.719 --> 00:04:08.232 you're seeing a patient who has pretty

NOTE Confidence: 0.8466982

00:04:08.232 --> 00:04:09.640 significant obstructive sleep apnea.

NOTE Confidence: 0.8466982

00:04:09.640 --> 00:04:12.083 This is a two minute respiratory page

NOTE Confidence: 0.8466982

00:04:12.083 --> 00:04:14.842 in the bottom and you can see they

NOTE Confidence: 0.8466982

00:04:14.842 --> 00:04:17.328 have a prolonged apnea with a longer

NOTE Confidence: 0.8466982

00:04:17.328 --> 00:04:19.638 saturation on the tailing behind it.

NOTE Confidence: 0.88632876

00:04:22.760 --> 00:04:24.740 More and more comfortable we have

NOTE Confidence: 0.88632876

00:04:24.740 --> 00:04:26.600 gotten with home based testing,

NOTE Confidence: 0.88632876

00:04:26.600 --> 00:04:28.630 and so here's an example of a

NOTE Confidence: 0.88632876

00:04:28.630 --> 00:04:30.401 person who has obstructive sleep

NOTE Confidence: 0.88632876

00:04:30.401 --> 00:04:32.879 apnea in the home based setting.
NOTE Confidence: 0.88632876

00:04:32.880 --> 00:04:34.276 A lot less leads,
NOTE Confidence: 0.88632876

00:04:34.276 --> 00:04:36.370 but the diagnosis still pretty clear.
NOTE Confidence: 0.8344739

00:04:39.040 --> 00:04:42.154 It starts to get trickier though in the home,
NOTE Confidence: 0.8344739

00:04:42.160 --> 00:04:43.548 sometimes the subtleties of
NOTE Confidence: 0.8344739

00:04:43.548 --> 00:04:45.283 sleep apnea can be missed.
NOTE Confidence: 0.8344739

00:04:45.290 --> 00:04:47.446 It can be harder without some of
NOTE Confidence: 0.8344739

00:04:47.446 --> 00:04:49.256 the things that were comfortable
NOTE Confidence: 0.8344739

00:04:49.256 --> 00:04:51.146 with all those, EG leads.
NOTE Confidence: 0.8344739

00:04:51.146 --> 00:04:53.442 These kinds of events that may or
NOTE Confidence: 0.8344739

00:04:53.442 --> 00:04:55.920 may not be events, but we can't tell.
NOTE Confidence: 0.8344739

00:04:55.920 --> 00:04:57.020 We don't have arousals.
NOTE Confidence: 0.8344739

00:04:57.020 --> 00:04:59.204 We have no way of kind of knowing
NOTE Confidence: 0.8344739

00:04:59.204 --> 00:05:01.546 in this particular type of home
NOTE Confidence: 0.8344739

00:05:01.546 --> 00:05:03.696 based environment what's going on.
NOTE Confidence: 0.8344739

00:05:03.700 --> 00:05:05.580 And at the same time,

NOTE Confidence: 0.8344739

00:05:05.580 --> 00:05:09.330 here's a 5 minute page of a home based test.

NOTE Confidence: 0.8344739

00:05:09.330 --> 00:05:12.696 Is that a four and a half minute apnea?

NOTE Confidence: 0.8344739

00:05:12.700 --> 00:05:14.449 Probably not right.

NOTE Confidence: 0.8344739

00:05:14.449 --> 00:05:16.198 That person is.

NOTE Confidence: 0.8344739

00:05:16.200 --> 00:05:17.645 Clearly removed the nasal flow

NOTE Confidence: 0.8344739

00:05:17.645 --> 00:05:19.665 for a period of time and then

NOTE Confidence: 0.8344739

00:05:19.665 --> 00:05:20.960 put it back into place.

NOTE Confidence: 0.8344739

00:05:20.960 --> 00:05:22.232 On the other hand,

NOTE Confidence: 0.8344739

00:05:22.232 --> 00:05:23.822 somebody who's not well trained

NOTE Confidence: 0.8344739

00:05:23.822 --> 00:05:25.496 in this wouldn't recognize that

NOTE Confidence: 0.8344739

00:05:25.496 --> 00:05:27.808 a four and a half million Afghan

NOTE Confidence: 0.8344739

00:05:27.808 --> 00:05:29.656 may not be a realistic thing.

NOTE Confidence: 0.8344739

00:05:29.660 --> 00:05:31.120 Home base tests aren't perfect,

NOTE Confidence: 0.8344739

00:05:31.120 --> 00:05:32.610 but we are increasingly comfortable

NOTE Confidence: 0.8344739

00:05:32.610 --> 00:05:34.428 with some of the areas in

NOTE Confidence: 0.8344739

00:05:34.428 --> 00:05:35.500 which they have faults.
NOTE Confidence: 0.8902484999999999

00:05:37.750 --> 00:05:41.035 So moving then into the world in which we
NOTE Confidence: 0.8902484999999999

00:05:41.035 --> 00:05:44.361 are going to have to become increasingly
NOTE Confidence: 0.8902484999999999

00:05:44.361 --> 00:05:47.793 comfortable with is is this sort of
NOTE Confidence: 0.8902484999999999

00:05:47.793 --> 00:05:50.178 idea of consumer sleep technology.
NOTE Confidence: 0.8902484999999999

00:05:50.180 --> 00:05:52.290 So consumers like technology are
NOTE Confidence: 0.8902484999999999

00:05:52.290 --> 00:05:53.978 really non prescriptive devices
NOTE Confidence: 0.8902484999999999

00:05:53.978 --> 00:05:55.937 that are directly marketed to
NOTE Confidence: 0.8902484999999999

00:05:55.937 --> 00:05:58.139 consumers that make an assertion to
NOTE Confidence: 0.8902484999999999

00:05:58.207 --> 00:06:00.287 perform sleep monitoring tracking.
NOTE Confidence: 0.8902484999999999

00:06:00.290 --> 00:06:02.262 Or sleep related interventions
NOTE Confidence: 0.8902484999999999

00:06:02.262 --> 00:06:04.727 and these can take different.
NOTE Confidence: 0.8902484999999999

00:06:04.730 --> 00:06:06.926 Sir forms that are apps which
NOTE Confidence: 0.8902484999999999

00:06:06.926 --> 00:06:08.750 obviously we're all comfortable with.
NOTE Confidence: 0.8902484999999999

00:06:08.750 --> 00:06:10.206 This device programs that
NOTE Confidence: 0.8902484999999999

00:06:10.206 --> 00:06:12.026 run on our mobile devices.

NOTE Confidence: 0.8902484999999999
00:06:12.030 --> 00:06:13.490 There are wearables which
NOTE Confidence: 0.8902484999999999
00:06:13.490 --> 00:06:15.315 are things that people wear.
NOTE Confidence: 0.8902484999999999
00:06:15.320 --> 00:06:16.644 Obviously the consumer wears
NOTE Confidence: 0.8902484999999999
00:06:16.644 --> 00:06:18.630 during their sleep period to both
NOTE Confidence: 0.8902484999999999
00:06:18.685 --> 00:06:20.285 potentially assess their sleep
NOTE Confidence: 0.8902484999999999
00:06:20.285 --> 00:06:21.885 in that particular situation.
NOTE Confidence: 0.8902484999999999
00:06:21.890 --> 00:06:24.080 And then there are near Obols,
NOTE Confidence: 0.8902484999999999
00:06:24.080 --> 00:06:27.384 which are devices that are in the
NOTE Confidence: 0.8902484999999999
00:06:27.384 --> 00:06:29.990 environment that track people sleep.
NOTE Confidence: 0.8902484999999999
00:06:29.990 --> 00:06:32.072 So let's start with what these
NOTE Confidence: 0.8902484999999999
00:06:32.072 --> 00:06:33.460 devices often started with,
NOTE Confidence: 0.8902484999999999
00:06:33.460 --> 00:06:35.200 which is that measured activity,
NOTE Confidence: 0.8902484999999999
00:06:35.200 --> 00:06:38.670 and so this is a study from 2015 that says,
NOTE Confidence: 0.8902484999999999
00:06:38.670 --> 00:06:39.050 broadly,
NOTE Confidence: 0.8902484999999999
00:06:39.050 --> 00:06:41.330 that a whole bunch of different
NOTE Confidence: 0.8902484999999999

00:06:41.330 --> 00:06:42.937 activity trackers that their
NOTE Confidence: 0.8902484999999999

00:06:42.937 --> 00:06:44.957 reliability and validity of trackers
NOTE Confidence: 0.8902484999999999

00:06:44.957 --> 00:06:47.119 for measuring step count is good.
NOTE Confidence: 0.8902484999999999

00:06:47.120 --> 00:06:47.427 However,
NOTE Confidence: 0.8902484999999999

00:06:47.427 --> 00:06:48.962 research in real life did
NOTE Confidence: 0.8902484999999999

00:06:48.962 --> 00:06:49.883 not necessarily intervene,
NOTE Confidence: 0.8902484999999999

00:06:49.890 --> 00:06:51.990 and so this is one of my
NOTE Confidence: 0.8902484999999999

00:06:51.990 --> 00:06:53.280 favorite articles I've read,
NOTE Confidence: 0.8902484999999999

00:06:53.280 --> 00:06:55.128 which was from the well known
NOTE Confidence: 0.8902484999999999

00:06:55.128 --> 00:06:56.360 scientific Journal Vanity Fair,
NOTE Confidence: 0.8902484999999999

00:06:56.360 --> 00:06:58.720 where it says that he was wearing a
NOTE Confidence: 0.8902484999999999

00:06:58.720 --> 00:07:00.976 Fitbit and jawbone at the same time.
NOTE Confidence: 0.8902484999999999

00:07:00.980 --> 00:07:03.436 In the Fitbit said I had 7000 steps,
NOTE Confidence: 0.8902484999999999

00:07:03.440 --> 00:07:04.980 Jawbone had me 2000 steps,
NOTE Confidence: 0.8902484999999999

00:07:04.980 --> 00:07:06.828 which was a bit a discrepancy,
NOTE Confidence: 0.8902484999999999

00:07:06.830 --> 00:07:08.993 and he says it's somewhat dismaying to

NOTE Confidence: 0.8902484999999999

00:07:08.993 --> 00:07:11.448 check my daily graph on the Jawbone app.

NOTE Confidence: 0.8902484999999999

00:07:11.450 --> 00:07:12.008 And behold,

NOTE Confidence: 0.8902484999999999

00:07:12.008 --> 00:07:13.682 a few skyscrapers spikes of activity

NOTE Confidence: 0.8902484999999999

00:07:13.682 --> 00:07:15.757 between wide plateaus is suspended animation.

NOTE Confidence: 0.8902484999999999

00:07:15.760 --> 00:07:16.476 By comparison,

NOTE Confidence: 0.8902484999999999

00:07:16.476 --> 00:07:18.624 my Fitbit chart looks downright jazzy.

NOTE Confidence: 0.8902484999999999

00:07:18.630 --> 00:07:21.074 And as he say,

NOTE Confidence: 0.8902484999999999

00:07:21.074 --> 00:07:24.129 further testing is clearly indicated.

NOTE Confidence: 0.8902484999999999

00:07:24.130 --> 00:07:24.866 And so,

NOTE Confidence: 0.8902484999999999

00:07:24.866 --> 00:07:26.706 here were some more scientific

NOTE Confidence: 0.8902484999999999

00:07:26.706 --> 00:07:29.056 based looks at some of these

NOTE Confidence: 0.8902484999999999

00:07:29.056 --> 00:07:31.390 devices and the there were accuracy

NOTE Confidence: 0.8902484999999999

00:07:31.390 --> 00:07:33.608 issues in terms of well you can

NOTE Confidence: 0.8902484999999999

00:07:33.608 --> 00:07:35.496 get 100 steps for eating cereal.

NOTE Confidence: 0.8902484999999999

00:07:35.496 --> 00:07:37.644 You're getting 1000 steps by shaving

NOTE Confidence: 0.8902484999999999

00:07:37.644 --> 00:07:39.395 and brushing your teeth, right?
NOTE Confidence: 0.8902484999999999

00:07:39.395 --> 00:07:41.170 That movement and steps are
NOTE Confidence: 0.8902484999999999

00:07:41.170 --> 00:07:42.590 not the same thing,
NOTE Confidence: 0.8902484999999999

00:07:42.590 --> 00:07:44.010 and so recognizing there
NOTE Confidence: 0.8902484999999999

00:07:44.010 --> 00:07:45.430 are some challenges here.
NOTE Confidence: 0.87980175

00:07:48.560 --> 00:07:51.213 So in the early world of using
NOTE Confidence: 0.87980175

00:07:51.213 --> 00:07:53.330 wearable technologies they were using
NOTE Confidence: 0.87980175

00:07:53.330 --> 00:07:55.610 mostly micromovements and heart rate.
NOTE Confidence: 0.87980175

00:07:55.610 --> 00:07:57.368 And the accuracy with which they
NOTE Confidence: 0.87980175

00:07:57.368 --> 00:07:59.190 tracked sleep was somewhat contentious,
NOTE Confidence: 0.87980175

00:07:59.190 --> 00:08:00.810 and so why is that?
NOTE Confidence: 0.87980175

00:08:00.810 --> 00:08:02.110 Well, because not everybody
NOTE Confidence: 0.87980175

00:08:02.110 --> 00:08:03.735 sleeps in the same way.
NOTE Confidence: 0.87980175

00:08:03.740 --> 00:08:05.624 People who move a lot during
NOTE Confidence: 0.87980175

00:08:05.624 --> 00:08:07.310 sleep may be considered awake,
NOTE Confidence: 0.87980175

00:08:07.310 --> 00:08:09.260 but they may actually be sleeping.

NOTE Confidence: 0.87980175

00:08:09.260 --> 00:08:11.042 People who sit for long periods

NOTE Confidence: 0.87980175

00:08:11.042 --> 00:08:13.005 of time but aren't sleeping may

NOTE Confidence: 0.87980175

00:08:13.005 --> 00:08:14.785 be considered to be sleeping.

NOTE Confidence: 0.87980175

00:08:14.790 --> 00:08:16.435 And there are settings within

NOTE Confidence: 0.87980175

00:08:16.435 --> 00:08:17.751 devices whether you're in

NOTE Confidence: 0.87980175

00:08:17.751 --> 00:08:19.337 regular mode or sensitive mode,

NOTE Confidence: 0.87980175

00:08:19.340 --> 00:08:22.280 that will actually change the results.

NOTE Confidence: 0.87980175

00:08:22.280 --> 00:08:24.240 So that makes this whole process a

NOTE Confidence: 0.87980175

00:08:24.240 --> 00:08:25.855 little bit concerning when you are

NOTE Confidence: 0.87980175

00:08:25.855 --> 00:08:27.535 a clinician trying to look at this.

NOTE Confidence: 0.862412327142857

00:08:29.580 --> 00:08:32.870 So. How is the difference is right?

NOTE Confidence: 0.862412327142857

00:08:32.870 --> 00:08:33.761 Two, broadly speaking,

NOTE Confidence: 0.862412327142857

00:08:33.761 --> 00:08:35.543 we're all comfortable with the lab.

NOTE Confidence: 0.862412327142857

00:08:35.550 --> 00:08:37.926 We hook him up with all these wires.

NOTE Confidence: 0.862412327142857

00:08:37.930 --> 00:08:38.860 All these things.

NOTE Confidence: 0.862412327142857

00:08:38.860 --> 00:08:41.857 We look at a bunch of funny looking waves
NOTE Confidence: 0.862412327142857

00:08:41.857 --> 00:08:44.510 and we have a scoring mechanism that
NOTE Confidence: 0.862412327142857

00:08:44.510 --> 00:08:47.297 gets us into different stages of sleep.
NOTE Confidence: 0.862412327142857

00:08:47.300 --> 00:08:48.712 However, these wearable devices,
NOTE Confidence: 0.862412327142857

00:08:48.712 --> 00:08:51.538 for instance, you get some amount of motions,
NOTE Confidence: 0.862412327142857

00:08:51.540 --> 00:08:52.839 amount, heart rate.
NOTE Confidence: 0.862412327142857

00:08:52.839 --> 00:08:55.870 There's a black box algorithm that sort
NOTE Confidence: 0.862412327142857

00:08:55.944 --> 00:08:58.877 of spits out some amount of information.
NOTE Confidence: 0.862412327142857

00:08:58.880 --> 00:09:00.535 And I'll thank Kathy Goldstein
NOTE Confidence: 0.862412327142857

00:09:00.535 --> 00:09:01.528 for this image.
NOTE Confidence: 0.862412327142857

00:09:01.530 --> 00:09:03.035 I highly recommend this article
NOTE Confidence: 0.862412327142857

00:09:03.035 --> 00:09:04.540 that she wrote about the
NOTE Confidence: 0.862412327142857

00:09:04.599 --> 00:09:06.159 topic we're discussing today.
NOTE Confidence: 0.8613916

00:09:08.180 --> 00:09:10.264 So what came of this one, 2015?
NOTE Confidence: 0.8613916

00:09:10.264 --> 00:09:12.182 There was a review and you can
NOTE Confidence: 0.8613916

00:09:12.182 --> 00:09:14.084 see the devices that they kind

NOTE Confidence: 0.8613916

00:09:14.084 --> 00:09:16.022 of reviewed and more or less.

NOTE Confidence: 0.8613916

00:09:16.030 --> 00:09:17.194 I love this discussion.

NOTE Confidence: 0.8613916

00:09:17.194 --> 00:09:18.940 The review identified a critical lack

NOTE Confidence: 0.8613916

00:09:18.995 --> 00:09:20.855 of basic information about the devices.

NOTE Confidence: 0.8613916

00:09:20.860 --> 00:09:23.188 5 out of 6 devices provided no supporting

NOTE Confidence: 0.8613916

00:09:23.188 --> 00:09:24.701 information on their sensor accuracy

NOTE Confidence: 0.8613916

00:09:24.701 --> 00:09:26.738 and four out of 6 devices provided

NOTE Confidence: 0.8613916

00:09:26.796 --> 00:09:28.406 no information on their output.

NOTE Confidence: 0.8613916

00:09:28.410 --> 00:09:30.228 Metric accuracy so broadly in 2015,

NOTE Confidence: 0.8613916

00:09:30.230 --> 00:09:32.036 which is not that long ago.

NOTE Confidence: 0.8613916

00:09:32.040 --> 00:09:34.128 Five years ago there was really

NOTE Confidence: 0.8613916

00:09:34.128 --> 00:09:36.070 no data about these things.

NOTE Confidence: 0.8613916

00:09:36.070 --> 00:09:38.035 But then we start moving

NOTE Confidence: 0.8613916

00:09:38.035 --> 00:09:39.607 in on gathering data,

NOTE Confidence: 0.8613916

00:09:39.610 --> 00:09:43.006 so this is data from 2012.

NOTE Confidence: 0.8613916

00:09:43.010 --> 00:09:45.290 Looking at an early Fitbit and
NOTE Confidence: 0.8613916

00:09:45.290 --> 00:09:47.758 measuring it against an active graph
NOTE Confidence: 0.8613916

00:09:47.758 --> 00:09:49.938 and there were some differences
NOTE Confidence: 0.8613916

00:09:49.938 --> 00:09:52.100 there versus Poly sonography.
NOTE Confidence: 0.8613916

00:09:52.100 --> 00:09:54.263 And that they found that the Fitbit
NOTE Confidence: 0.8613916

00:09:54.263 --> 00:09:55.914 overestimated the time participants were
NOTE Confidence: 0.8613916

00:09:55.914 --> 00:09:58.238 asleep by about 67 minutes on average.
NOTE Confidence: 0.8613916

00:09:58.240 --> 00:10:00.350 So about an hour missed.
NOTE Confidence: 0.8613916

00:10:00.350 --> 00:10:04.130 Compared to the polysomnogram.
NOTE Confidence: 0.8613916

00:10:04.130 --> 00:10:07.010 You can see it a few years later,
NOTE Confidence: 0.8613916

00:10:07.010 --> 00:10:07.656 again 2015.
NOTE Confidence: 0.8613916

00:10:07.656 --> 00:10:09.917 This is when this data start taking
NOTE Confidence: 0.8613916

00:10:09.917 --> 00:10:12.273 off and you can see differences
NOTE Confidence: 0.8613916

00:10:12.273 --> 00:10:13.849 in children and adolescents.
NOTE Confidence: 0.8613916

00:10:13.850 --> 00:10:15.745 So in normal mode there's
NOTE Confidence: 0.8613916

00:10:15.745 --> 00:10:17.261 an overestimation of sleep

NOTE Confidence: 0.8613916
00:10:17.261 --> 00:10:18.888 insensitive mode for the Fitbit,
NOTE Confidence: 0.8613916
00:10:18.890 --> 00:10:21.020 there is an underestimation of sleep
NOTE Confidence: 0.8613916
00:10:21.020 --> 00:10:23.568 and again this is compared to PSG,
NOTE Confidence: 0.8613916
00:10:23.570 --> 00:10:25.370 which is considered articles standard.
NOTE Confidence: 0.8186595
00:10:28.560 --> 00:10:31.158 Jawbone company that doesn't exist and
NOTE Confidence: 0.8186595
00:10:31.158 --> 00:10:33.958 went out of business in 2016, 2017.
NOTE Confidence: 0.8186595
00:10:33.958 --> 00:10:35.998 This was early data about
NOTE Confidence: 0.8186595
00:10:35.998 --> 00:10:38.545 that device and it said, oh,
NOTE Confidence: 0.8186595
00:10:38.545 --> 00:10:41.035 this device is pretty decent agreement
NOTE Confidence: 0.8186595
00:10:41.035 --> 00:10:43.220 with Poly, some Poly sonography.
NOTE Confidence: 0.8186595
00:10:43.220 --> 00:10:45.920 However, there were published in 2015,
NOTE Confidence: 0.8186595
00:10:45.920 --> 00:10:47.990 at which time the Jawbone Up,
NOTE Confidence: 0.8186595
00:10:47.990 --> 00:10:50.405 which was the device that they tested,
NOTE Confidence: 0.8186595
00:10:50.410 --> 00:10:52.720 was now three generations behind where they
NOTE Confidence: 0.8186595
00:10:52.720 --> 00:10:54.908 were actually the consumers were using,
NOTE Confidence: 0.8186595

00:10:54.910 --> 00:10:57.006 so the IT was great that they had
NOTE Confidence: 0.8186595

00:10:57.006 --> 00:10:59.059 tested it against polysomnography.
NOTE Confidence: 0.8186595

00:10:59.060 --> 00:11:02.455 But was the new device is better?
NOTE Confidence: 0.8186595

00:11:02.460 --> 00:11:04.944 Worse, different hard to know the
NOTE Confidence: 0.8186595

00:11:04.944 --> 00:11:06.996 speed of consumer technology changes
NOTE Confidence: 0.8186595

00:11:06.996 --> 00:11:09.285 done it much faster rate than that
NOTE Confidence: 0.8186595

00:11:09.285 --> 00:11:11.480 of the scientific technology.
NOTE Confidence: 0.8186595

00:11:11.480 --> 00:11:14.256 And so this is what you can see.
NOTE Confidence: 0.8186595

00:11:14.260 --> 00:11:16.409 Is that in 22,008 to 2015 there
NOTE Confidence: 0.8186595

00:11:16.409 --> 00:11:18.567 were at least nine tracker from
NOTE Confidence: 0.8186595

00:11:18.567 --> 00:11:20.901 Fitbit and six trackers from Jawbone
NOTE Confidence: 0.8186595

00:11:20.901 --> 00:11:22.930 in a short period of time,
NOTE Confidence: 0.8186595

00:11:22.930 --> 00:11:25.359 and that speed of change has continued.
NOTE Confidence: 0.8890073

00:11:27.590 --> 00:11:29.250 What you can see, though,
NOTE Confidence: 0.8890073

00:11:29.250 --> 00:11:31.567 is that the data around these devices
NOTE Confidence: 0.8890073

00:11:31.567 --> 00:11:33.864 is growing rapidly, so you can see

NOTE Confidence: 0.8890073

00:11:33.864 --> 00:11:36.200 where I was kind of pointing out,

NOTE Confidence: 0.8890073

00:11:36.200 --> 00:11:37.855 and that inflection .20 fourteen

NOTE Confidence: 0.8890073

00:11:37.855 --> 00:11:40.169 2015 that there was not much data.

NOTE Confidence: 0.8890073

00:11:40.170 --> 00:11:42.826 So this is a graph of the publications

NOTE Confidence: 0.8890073

00:11:42.826 --> 00:11:45.457 that cover Fitbit and sleep in Pub Med,

NOTE Confidence: 0.8890073

00:11:45.460 --> 00:11:47.777 and you can see it climbing rapidly.

NOTE Confidence: 0.8890073

00:11:47.780 --> 00:11:49.766 There is an entire research library

NOTE Confidence: 0.8890073

00:11:49.766 --> 00:11:51.753 devoted to Fitbit, and so there

NOTE Confidence: 0.8890073

00:11:51.753 --> 00:11:53.739 are almost 700 publications as one.

NOTE Confidence: 0.8890073

00:11:53.740 --> 00:11:57.118 I checked this the other day.

NOTE Confidence: 0.8890073

00:11:57.120 --> 00:11:59.654 And so, recognizing that we're gathering more

NOTE Confidence: 0.8890073

00:11:59.654 --> 00:12:01.899 and more information about these devices,

NOTE Confidence: 0.8890073

00:12:01.900 --> 00:12:04.580 but the challenge is that the speed of

NOTE Confidence: 0.8890073

00:12:04.580 --> 00:12:07.102 change in the consumer world is still

NOTE Confidence: 0.8890073

00:12:07.102 --> 00:12:09.999 faster than that of the research world.

NOTE Confidence: 0.842646

00:12:12.110 --> 00:12:14.310 So as of 2021, what is Fitbit saying
NOTE Confidence: 0.842646

00:12:14.310 --> 00:12:15.950 about their sleep calculation?
NOTE Confidence: 0.842646

00:12:15.950 --> 00:12:17.775 They say Fitbit estimates your
NOTE Confidence: 0.842646

00:12:17.775 --> 00:12:20.010 sleep stages using a combination of
NOTE Confidence: 0.842646

00:12:20.010 --> 00:12:21.750 movement and heart rate patterns.
NOTE Confidence: 0.842646

00:12:21.750 --> 00:12:22.539 While you're sleeping,
NOTE Confidence: 0.842646

00:12:22.539 --> 00:12:24.117 your device tracks beat to beat
NOTE Confidence: 0.842646

00:12:24.117 --> 00:12:25.612 changes in your heart rate and
NOTE Confidence: 0.842646

00:12:25.612 --> 00:12:26.556 his heart rate variability,
NOTE Confidence: 0.842646

00:12:26.560 --> 00:12:28.072 which fluctuate as you transition between
NOTE Confidence: 0.842646

00:12:28.072 --> 00:12:31.400 light sleep, deep sleep and REM sleep.
NOTE Confidence: 0.842646

00:12:31.400 --> 00:12:33.528 And then they sort of use that data,
NOTE Confidence: 0.842646

00:12:33.530 --> 00:12:34.038 calculate sleep.
NOTE Confidence: 0.842646

00:12:34.038 --> 00:12:36.450 So let me show you a couple of cases.
NOTE Confidence: 0.842646

00:12:36.450 --> 00:12:39.158 These are cases that.
NOTE Confidence: 0.842646

00:12:39.160 --> 00:12:40.670 That were patients of mine.

NOTE Confidence: 0.842646

00:12:40.670 --> 00:12:42.974 So this is a 42 year old woman who

NOTE Confidence: 0.842646

00:12:42.974 --> 00:12:45.199 came to see me said needs more

NOTE Confidence: 0.842646

00:12:45.199 --> 00:12:46.990 sleep than the average person.

NOTE Confidence: 0.842646

00:12:46.990 --> 00:12:48.455 She's always been someone who's

NOTE Confidence: 0.842646

00:12:48.455 --> 00:12:50.300 just been kind of more tired.

NOTE Confidence: 0.842646

00:12:50.300 --> 00:12:52.778 If she doesn't get that 9 to

NOTE Confidence: 0.842646

00:12:52.778 --> 00:12:54.470 10 hours of sleep.

NOTE Confidence: 0.842646

00:12:54.470 --> 00:12:57.593 And so she got in a Fitbit fairly early,

NOTE Confidence: 0.842646

00:12:57.600 --> 00:13:01.224 self tracks or sleep and she sees this.

NOTE Confidence: 0.842646

00:13:01.230 --> 00:13:03.498 Now again, this is early Fitbit data,

NOTE Confidence: 0.842646

00:13:03.500 --> 00:13:05.120 but pointing out the fact

NOTE Confidence: 0.842646

00:13:05.120 --> 00:13:06.740 that her sleep is fragmented,

NOTE Confidence: 0.842646

00:13:06.740 --> 00:13:09.260 that she's considered in restless time

NOTE Confidence: 0.842646

00:13:09.260 --> 00:13:12.374 for about 220 out of this 200 minutes

NOTE Confidence: 0.842646

00:13:12.374 --> 00:13:15.828 out of this under 7 hours of recording time.

NOTE Confidence: 0.842646

00:13:15.830 --> 00:13:16.151 Well,
NOTE Confidence: 0.842646
00:13:16.151 --> 00:13:18.077 she comes with a sleep doctor.
NOTE Confidence: 0.842646
00:13:18.080 --> 00:13:19.984 It turns out she snores and has
NOTE Confidence: 0.842646
00:13:19.984 --> 00:13:22.036 restless sleep and she's not a
NOTE Confidence: 0.842646
00:13:22.036 --> 00:13:23.209 particularly overweight person,
NOTE Confidence: 0.842646
00:13:23.210 --> 00:13:26.729 but she gets a home sleep apnea test done.
NOTE Confidence: 0.842646
00:13:26.730 --> 00:13:28.830 Finds that she has moderate sleep
NOTE Confidence: 0.842646
00:13:28.830 --> 00:13:31.403 apnea and she was placed on CPAP
NOTE Confidence: 0.842646
00:13:31.403 --> 00:13:33.243 and is sleeping much better.
NOTE Confidence: 0.842646
00:13:33.250 --> 00:13:35.357 Case 254 year old presents to the
NOTE Confidence: 0.842646
00:13:35.357 --> 00:13:36.956 clinic with Insomnia state she
NOTE Confidence: 0.842646
00:13:36.956 --> 00:13:38.876 doesn't sleep well during the night,
NOTE Confidence: 0.842646
00:13:38.880 --> 00:13:39.783 even with medication.
NOTE Confidence: 0.842646
00:13:39.783 --> 00:13:41.288 She's using ambient somewhere between
NOTE Confidence: 0.842646
00:13:41.288 --> 00:13:42.949 10 and 20 milligrams nightly.
NOTE Confidence: 0.842646
00:13:42.950 --> 00:13:45.820 She often will say that she just

NOTE Confidence: 0.842646

00:13:45.820 --> 00:13:48.557 doesn't sleep at all at night now.

NOTE Confidence: 0.842646

00:13:48.560 --> 00:13:50.961 And she too is tracking her sleep

NOTE Confidence: 0.842646

00:13:50.961 --> 00:13:53.290 with a Fitbit. And this is her.

NOTE Confidence: 0.842646

00:13:53.290 --> 00:13:54.265 Her Fitbit data,

NOTE Confidence: 0.842646

00:13:54.270 --> 00:13:56.226 which shows almost no restless time.

NOTE Confidence: 0.842646

00:13:56.230 --> 00:13:58.180 Now it's not a particularly long

NOTE Confidence: 0.842646

00:13:58.180 --> 00:13:59.155 period of time.

NOTE Confidence: 0.842646

00:13:59.160 --> 00:14:01.116 It's about five hours of recording,

NOTE Confidence: 0.842646

00:14:01.120 --> 00:14:03.332 but it shows she barely moved and

NOTE Confidence: 0.842646

00:14:03.332 --> 00:14:05.358 suggests he's in fact asleep now.

NOTE Confidence: 0.842646

00:14:05.360 --> 00:14:07.310 Is she sleeping? She not asleep?

NOTE Confidence: 0.842646

00:14:07.310 --> 00:14:09.648 The argument being is very hard to

NOTE Confidence: 0.842646

00:14:09.648 --> 00:14:12.196 stay that still for five or six hours,

NOTE Confidence: 0.842646

00:14:12.200 --> 00:14:14.156 and so the suggestion is she's

NOTE Confidence: 0.842646

00:14:14.156 --> 00:14:14.808 probably asleep,

NOTE Confidence: 0.842646

00:14:14.810 --> 00:14:16.766 which is common in patients who
NOTE Confidence: 0.842646

00:14:16.766 --> 00:14:17.418 have insomnia.
NOTE Confidence: 0.842646

00:14:17.420 --> 00:14:19.376 But she was unwilling to admit
NOTE Confidence: 0.842646

00:14:19.376 --> 00:14:20.680 this could represent sleep.
NOTE Confidence: 0.842646

00:14:20.680 --> 00:14:22.955 That there was something wrong with her.
NOTE Confidence: 0.8254207

00:14:27.640 --> 00:14:29.806 2015 timeframe Chris Winter, who's a
NOTE Confidence: 0.8254207

00:14:29.806 --> 00:14:32.458 known sleep doc down the Virginia area,
NOTE Confidence: 0.8254207

00:14:32.460 --> 00:14:35.470 decides to do something for the Huffington
NOTE Confidence: 0.8254207

00:14:35.470 --> 00:14:38.993 Post and sort of straps a whole bunch
NOTE Confidence: 0.8254207

00:14:38.993 --> 00:14:41.143 of different devices to himself.
NOTE Confidence: 0.8254207

00:14:41.150 --> 00:14:42.872 And you can see he kind of
NOTE Confidence: 0.8254207

00:14:42.872 --> 00:14:44.390 lines them all up together.
NOTE Confidence: 0.8254207

00:14:44.390 --> 00:14:46.613 Kind of post the data as they look at
NOTE Confidence: 0.8254207

00:14:46.613 --> 00:14:48.978 sort of each of the devices in sequence,
NOTE Confidence: 0.8254207

00:14:48.980 --> 00:14:50.568 comparing them all against
NOTE Confidence: 0.8254207

00:14:50.568 --> 00:14:52.156 polysomnogram at the top.

NOTE Confidence: 0.8254207
00:14:52.160 --> 00:14:54.038 And you can see the differences
NOTE Confidence: 0.8254207
00:14:54.038 --> 00:14:56.059 in what that data looks like.
NOTE Confidence: 0.8254207
00:14:56.060 --> 00:14:57.035 That different different
NOTE Confidence: 0.8254207
00:14:57.035 --> 00:14:58.660 pieces of data lined up.
NOTE Confidence: 0.8254207
00:14:58.660 --> 00:15:00.641 You can see the basis Health Tracker
NOTE Confidence: 0.8254207
00:15:00.641 --> 00:15:02.380 was one that looked a little
NOTE Confidence: 0.8254207
00:15:02.380 --> 00:15:04.319 bit more like what we would have
NOTE Confidence: 0.8254207
00:15:04.380 --> 00:15:06.460 expected compared the polysomnogram,
NOTE Confidence: 0.8254207
00:15:06.460 --> 00:15:08.735 but each device has its own data.
NOTE Confidence: 0.8254207
00:15:08.740 --> 00:15:12.385 That is what I would say not quite right.
NOTE Confidence: 0.8254207
00:15:12.390 --> 00:15:14.235 And So what he says here is with one
NOTE Confidence: 0.8254207
00:15:14.235 --> 00:15:15.896 only one night of data collected,
NOTE Confidence: 0.8254207
00:15:15.900 --> 00:15:18.399 I'm reluctant to declare winners and losers.
NOTE Confidence: 0.8254207
00:15:18.400 --> 00:15:20.158 But more purely sleep mounting perspective,
NOTE Confidence: 0.8254207
00:15:20.160 --> 00:15:22.806 the basis seem to distinguish self
NOTE Confidence: 0.8254207

00:15:22.806 --> 00:15:25.320 from her perspective and accuracy.
NOTE Confidence: 0.8254207

00:15:25.320 --> 00:15:26.928 And so does that mean anything?
NOTE Confidence: 0.8254207

00:15:26.930 --> 00:15:29.565 Now it was a one night study of a bunch of
NOTE Confidence: 0.8254207

00:15:29.565 --> 00:15:31.749 things put together back five years ago,
NOTE Confidence: 0.8254207

00:15:31.750 --> 00:15:34.126 but the point being is that there's an
NOTE Confidence: 0.8254207

00:15:34.126 --> 00:15:36.383 enormous level of variance in how these
NOTE Confidence: 0.8254207

00:15:36.383 --> 00:15:38.489 different devices track and look at data.
NOTE Confidence: 0.8254207

00:15:38.490 --> 00:15:40.898 And they are all for the most
NOTE Confidence: 0.8254207

00:15:40.898 --> 00:15:43.650 part done in a black blocksworld.
NOTE Confidence: 0.8254207

00:15:43.650 --> 00:15:46.728 So Fitbit now has over that 5-6 ten years
NOTE Confidence: 0.8254207

00:15:46.728 --> 00:15:48.987 gathered an enormous amount of data,
NOTE Confidence: 0.8254207

00:15:48.990 --> 00:15:51.606 and they can push out data about some
NOTE Confidence: 0.8254207

00:15:51.606 --> 00:15:54.382 of the things that they have, right?
NOTE Confidence: 0.8254207

00:15:54.382 --> 00:15:56.854 So this is average results based
NOTE Confidence: 0.8254207

00:15:56.854 --> 00:15:58.700 on millions of nights.
NOTE Confidence: 0.8254207

00:15:58.700 --> 00:16:00.806 So why do you like the data or not

NOTE Confidence: 0.8254207

00:16:00.806 --> 00:16:03.037 in terms of how they interpreted the

NOTE Confidence: 0.8254207

00:16:03.037 --> 00:16:05.584 fact is they have so many users and

NOTE Confidence: 0.8254207

00:16:05.584 --> 00:16:07.685 so many nights compared to in some

NOTE Confidence: 0.8254207

00:16:07.685 --> 00:16:09.890 ways we have in our laboratories that

NOTE Confidence: 0.8254207

00:16:09.890 --> 00:16:11.985 regardless of how right or wrong it is,

NOTE Confidence: 0.8254207

00:16:11.990 --> 00:16:13.440 there is an enormous amount

NOTE Confidence: 0.8254207

00:16:13.440 --> 00:16:14.310 of information there,

NOTE Confidence: 0.8254207

00:16:14.310 --> 00:16:15.446 and it's potentially helpful,

NOTE Confidence: 0.8254207

00:16:15.446 --> 00:16:18.109 and so you can kind of see that the

NOTE Confidence: 0.8254207

00:16:18.109 --> 00:16:19.609 average Fitbit user is sleeping

NOTE Confidence: 0.8254207

00:16:19.609 --> 00:16:21.527 for better or worse what they say,

NOTE Confidence: 0.8254207

00:16:21.530 --> 00:16:23.546 6 hours and 30 minutes a night.

NOTE Confidence: 0.8254207

00:16:23.550 --> 00:16:26.486 This is their average bedtime and wake time.

NOTE Confidence: 0.8254207

00:16:26.490 --> 00:16:27.462 Their average light sleep,

NOTE Confidence: 0.8254207

00:16:27.462 --> 00:16:28.679 deep sleep, and REM sleep.

NOTE Confidence: 0.8467108

00:16:30.970 --> 00:16:33.886 You can see the power of large data blocks,
NOTE Confidence: 0.8467108

00:16:33.890 --> 00:16:35.828 right? So this is useless data,
NOTE Confidence: 0.8467108

00:16:35.830 --> 00:16:37.126 But it's interesting, right?
NOTE Confidence: 0.8467108

00:16:37.126 --> 00:16:39.720 So this is Jawbone published at this point,
NOTE Confidence: 0.8467108

00:16:39.720 --> 00:16:42.627 when there was an earthquake in the Bay Area,
NOTE Confidence: 0.8467108

00:16:42.630 --> 00:16:45.550 and you can kind of see how what happens to
NOTE Confidence: 0.8467108

00:16:45.618 --> 00:16:48.466 each of the users in their different area.
NOTE Confidence: 0.8467108

00:16:48.470 --> 00:16:50.306 The earthquake was kind of based
NOTE Confidence: 0.8467108

00:16:50.306 --> 00:16:52.349 out of that Napa Sonoma area.
NOTE Confidence: 0.8467108

00:16:52.350 --> 00:16:55.150 You can see the biggest spike in wakefulness
NOTE Confidence: 0.8467108

00:16:55.150 --> 00:16:57.944 there and the further away you got from
NOTE Confidence: 0.8467108

00:16:57.944 --> 00:17:00.089 from this epicenter of the earthquake
NOTE Confidence: 0.8467108

00:17:00.089 --> 00:17:02.993 could see fewer and fewer people woke up.
NOTE Confidence: 0.8467108

00:17:03.000 --> 00:17:05.363 And so this is not surprising, right?
NOTE Confidence: 0.8467108

00:17:05.363 --> 00:17:06.149 Earthquake happens.
NOTE Confidence: 0.8467108

00:17:06.149 --> 00:17:08.900 Some number of people are actually going

NOTE Confidence: 0.8467108

00:17:08.965 --> 00:17:10.933 to wake up from it and again shows

NOTE Confidence: 0.8467108

00:17:10.933 --> 00:17:13.829 you the fact that all this data is is

NOTE Confidence: 0.8467108

00:17:13.829 --> 00:17:15.170 effectively somewhat useful potentially.

NOTE Confidence: 0.8467108

00:17:15.170 --> 00:17:17.150 But right now it's not necessary.

NOTE Confidence: 0.8467108

00:17:17.150 --> 00:17:20.370 Being used in that way.

NOTE Confidence: 0.8467108

00:17:20.370 --> 00:17:21.930 So Fitbit continues to evolve overtime.

NOTE Confidence: 0.8467108

00:17:21.930 --> 00:17:24.090 You saw kind of some of the basic data

NOTE Confidence: 0.8467108

00:17:24.090 --> 00:17:26.346 forms that I've shown you in clinic today.

NOTE Confidence: 0.8467108

00:17:26.350 --> 00:17:28.084 You're seeing things that look much

NOTE Confidence: 0.8467108

00:17:28.084 --> 00:17:30.136 more like this in the upper right

NOTE Confidence: 0.8467108

00:17:30.136 --> 00:17:31.804 corner where there is REM sleep

NOTE Confidence: 0.8467108

00:17:31.804 --> 00:17:33.619 and light sleep and deep sleep.

NOTE Confidence: 0.8467108

00:17:33.620 --> 00:17:34.600 For better or worse,

NOTE Confidence: 0.8467108

00:17:34.600 --> 00:17:36.675 in patients will come in and have these

NOTE Confidence: 0.8467108

00:17:36.675 --> 00:17:38.875 discussions about you know how right or not,

NOTE Confidence: 0.8467108

00:17:38.880 --> 00:17:39.144 right?
NOTE Confidence: 0.8467108

00:17:39.144 --> 00:17:39.936 These things are,
NOTE Confidence: 0.8467108

00:17:39.936 --> 00:17:42.025 and I will tell them that it's hard
NOTE Confidence: 0.8467108

00:17:42.025 --> 00:17:44.149 to know what to make of the data from
NOTE Confidence: 0.8467108

00:17:44.149 --> 00:17:45.895 the Fitbit because it hasn't been
NOTE Confidence: 0.8467108

00:17:45.895 --> 00:17:47.258 well compared to Poly sonography,
NOTE Confidence: 0.8467108

00:17:47.258 --> 00:17:48.722 but it's worth saying that it's
NOTE Confidence: 0.8467108

00:17:48.722 --> 00:17:49.660 important to recognize,
NOTE Confidence: 0.8467108

00:17:49.660 --> 00:17:51.445 you know when the points of start
NOTE Confidence: 0.8467108

00:17:51.445 --> 00:17:53.347 and end arc as if nothing else.
NOTE Confidence: 0.8467108

00:17:53.350 --> 00:17:55.708 You can get a sense better than sleep diary,
NOTE Confidence: 0.8467108

00:17:55.710 --> 00:17:57.276 perhaps of when there's sort of
NOTE Confidence: 0.8467108

00:17:57.276 --> 00:17:59.154 trying to get to bed and when
NOTE Confidence: 0.8467108

00:17:59.154 --> 00:18:00.444 they're trying to get up,
NOTE Confidence: 0.8467108

00:18:00.450 --> 00:18:02.546 and that is a valuable piece of information,
NOTE Confidence: 0.8467108

00:18:02.550 --> 00:18:03.598 particularly people who are

NOTE Confidence: 0.8467108

00:18:03.598 --> 00:18:04.646 tracking their sleep regularly.

NOTE Confidence: 0.84074223

00:18:07.940 --> 00:18:10.684 Now what's new in your Fitbit is

NOTE Confidence: 0.84074223

00:18:10.684 --> 00:18:12.629 oxygen measurement and this has

NOTE Confidence: 0.84074223

00:18:12.629 --> 00:18:15.065 been known to be coming for awhile.

NOTE Confidence: 0.84074223

00:18:15.070 --> 00:18:16.678 And it's not 100% clear how

NOTE Confidence: 0.84074223

00:18:16.678 --> 00:18:18.530 this fits in with sleep apnea.

NOTE Confidence: 0.84074223

00:18:18.530 --> 00:18:20.540 Yet, as presently Academy I went

NOTE Confidence: 0.84074223

00:18:20.540 --> 00:18:22.543 to meet with the Fitbit folks

NOTE Confidence: 0.84074223

00:18:22.543 --> 00:18:24.959 and I will tell you I was. Um?

NOTE Confidence: 0.84074223

00:18:24.959 --> 00:18:26.993 Surprised and amazed at how far

NOTE Confidence: 0.84074223

00:18:26.993 --> 00:18:29.249 ahead where they thought they were.

NOTE Confidence: 0.84074223

00:18:29.250 --> 00:18:30.948 They were that they had already

NOTE Confidence: 0.84074223

00:18:30.948 --> 00:18:31.797 been planning for.

NOTE Confidence: 0.84074223

00:18:31.800 --> 00:18:33.640 So how to think about sleep apnea and

NOTE Confidence: 0.84074223

00:18:33.640 --> 00:18:35.777 how to think about oxygen measurement?

NOTE Confidence: 0.84074223

00:18:35.780 --> 00:18:38.419 Then there really their quest to get
NOTE Confidence: 0.84074223

00:18:38.419 --> 00:18:41.558 their users to be as healthy as possible.
NOTE Confidence: 0.84074223

00:18:41.560 --> 00:18:43.401 And so this sort of oxygen measurement
NOTE Confidence: 0.84074223

00:18:43.401 --> 00:18:45.380 was the next step in their process,
NOTE Confidence: 0.84074223

00:18:45.380 --> 00:18:47.548 and you can see that they have what
NOTE Confidence: 0.84074223

00:18:47.548 --> 00:18:49.950 they are considering oxygen variation.
NOTE Confidence: 0.84074223

00:18:49.950 --> 00:18:52.660 So small variations is consistency.
NOTE Confidence: 0.84074223

00:18:52.660 --> 00:18:54.288 Big variations is inconsistency.
NOTE Confidence: 0.84074223

00:18:54.288 --> 00:18:57.243 And this is the kind of chart
NOTE Confidence: 0.84074223

00:18:57.243 --> 00:18:58.987 that people are getting.
NOTE Confidence: 0.84074223

00:18:58.990 --> 00:19:00.766 Now when you look at what
NOTE Confidence: 0.84074223

00:19:00.766 --> 00:19:01.950 a Fitbit actually says,
NOTE Confidence: 0.84074223

00:19:01.950 --> 00:19:02.718 it says Nope,
NOTE Confidence: 0.84074223

00:19:02.718 --> 00:19:04.254 your Fitbit device is not intended
NOTE Confidence: 0.84074223

00:19:04.254 --> 00:19:06.239 for medical purposes and consult your
NOTE Confidence: 0.84074223

00:19:06.239 --> 00:19:07.914 health care professional about any

NOTE Confidence: 0.84074223

00:19:07.967 --> 00:19:09.934 questions or health issues you may have.

NOTE Confidence: 0.84074223

00:19:09.940 --> 00:19:12.226 So as of yet they have not crossed the

NOTE Confidence: 0.84074223

00:19:12.226 --> 00:19:14.380 line into being a diagnostic device.

NOTE Confidence: 0.84074223

00:19:14.380 --> 00:19:18.146 They are still in any assessment mode.

NOTE Confidence: 0.84074223

00:19:18.150 --> 00:19:20.274 And so they answer some questions

NOTE Confidence: 0.84074223

00:19:20.274 --> 00:19:22.399 about oxygen testing, but they say,

NOTE Confidence: 0.84074223

00:19:22.399 --> 00:19:24.164 broadly speaking as a practical,

NOTE Confidence: 0.84074223

00:19:24.170 --> 00:19:27.796 met practical way of thinking about this.

NOTE Confidence: 0.84074223

00:19:27.800 --> 00:19:29.984 You get oxygen to reports but

NOTE Confidence: 0.84074223

00:19:29.984 --> 00:19:32.579 but how does it get reported?

NOTE Confidence: 0.84074223

00:19:32.580 --> 00:19:35.584 What does that variability mean? How much?

NOTE Confidence: 0.84074223

00:19:35.584 --> 00:19:38.119 How much variability is abnormal?

NOTE Confidence: 0.84074223

00:19:38.120 --> 00:19:40.164 And what does that mean in terms

NOTE Confidence: 0.84074223

00:19:40.164 --> 00:19:42.377 of how likely you are to actually

NOTE Confidence: 0.84074223

00:19:42.377 --> 00:19:44.701 need to test someone who comes in

NOTE Confidence: 0.84074223

00:19:44.701 --> 00:19:46.446 with a variable oxygen report?
NOTE Confidence: 0.84074223

00:19:46.450 --> 00:19:48.144 And then what happens as you think
NOTE Confidence: 0.84074223

00:19:48.144 --> 00:19:49.981 about this in the longer term, right?
NOTE Confidence: 0.84074223

00:19:49.981 --> 00:19:51.236 So night after night they're
NOTE Confidence: 0.84074223

00:19:51.236 --> 00:19:51.989 having these reports?
NOTE Confidence: 0.84074223

00:19:51.990 --> 00:19:53.442 What if those variable report those
NOTE Confidence: 0.84074223

00:19:53.442 --> 00:19:54.770 variability reports are actually variable?
NOTE Confidence: 0.84074223

00:19:54.770 --> 00:19:56.030 That some nights are better
NOTE Confidence: 0.84074223

00:19:56.030 --> 00:19:57.290 and some nights are worse?
NOTE Confidence: 0.84074223

00:19:57.290 --> 00:19:58.900 And what do you make of that
NOTE Confidence: 0.84074223

00:19:58.900 --> 00:20:00.180 right that the challenge?
NOTE Confidence: 0.84074223

00:20:00.180 --> 00:20:01.635 Here is that there's increasing
NOTE Confidence: 0.84074223

00:20:01.635 --> 00:20:02.508 amounts of data,
NOTE Confidence: 0.84074223

00:20:02.510 --> 00:20:04.494 but not very easy ways of taking that
NOTE Confidence: 0.84074223

00:20:04.494 --> 00:20:06.579 data into a useful reporting structure.
NOTE Confidence: 0.84074223

00:20:06.580 --> 00:20:08.526 And that was part of what we

NOTE Confidence: 0.84074223

00:20:08.526 --> 00:20:10.069 actually talked to them about,

NOTE Confidence: 0.84074223

00:20:10.070 --> 00:20:12.639 is it would be helpful to have

NOTE Confidence: 0.84074223

00:20:12.639 --> 00:20:15.440 some a way of assessing that.

NOTE Confidence: 0.84074223

00:20:15.440 --> 00:20:16.062 And affectively,

NOTE Confidence: 0.84074223

00:20:16.062 --> 00:20:17.617 how does this variability compare?

NOTE Confidence: 0.84074223

00:20:17.620 --> 00:20:19.489 In fact, to sleep apnea, right?

NOTE Confidence: 0.84074223

00:20:19.489 --> 00:20:20.107 They know,

NOTE Confidence: 0.84074223

00:20:20.107 --> 00:20:21.961 probably on the back end a

NOTE Confidence: 0.84074223

00:20:21.961 --> 00:20:23.548 little bit about what they,

NOTE Confidence: 0.84074223

00:20:23.550 --> 00:20:25.596 what their oxygen devices showing they

NOTE Confidence: 0.84074223

00:20:25.596 --> 00:20:27.571 don't necessarily at this point know

NOTE Confidence: 0.84074223

00:20:27.571 --> 00:20:29.787 whether it results in sleep apnea or not,

NOTE Confidence: 0.84074223

00:20:29.790 --> 00:20:31.566 but at some point I suspect

NOTE Confidence: 0.84074223

00:20:31.566 --> 00:20:33.540 that will be made more clear.

NOTE Confidence: 0.84074223

00:20:33.540 --> 00:20:35.694 I suspect research is going on

NOTE Confidence: 0.84074223

00:20:35.694 --> 00:20:38.049 to that level at this point.
NOTE Confidence: 0.84074223

00:20:38.050 --> 00:20:39.796 But these devices are currently in
NOTE Confidence: 0.84074223

00:20:39.796 --> 00:20:41.904 what I would consider a pre assessment
NOTE Confidence: 0.84074223

00:20:41.904 --> 00:20:43.432 mode right there, they're not.
NOTE Confidence: 0.84074223

00:20:43.432 --> 00:20:45.358 They don't want to be the
NOTE Confidence: 0.84074223

00:20:45.358 --> 00:20:46.630 diagnostic device as of yet,
NOTE Confidence: 0.84074223

00:20:46.630 --> 00:20:48.681 but they want to raise the question
NOTE Confidence: 0.84074223

00:20:48.681 --> 00:20:50.467 they want people to think about
NOTE Confidence: 0.84074223

00:20:50.467 --> 00:20:52.441 getting the test done that is going
NOTE Confidence: 0.87606055

00:20:52.499 --> 00:20:53.739 to be more conclusive,
NOTE Confidence: 0.87606055

00:20:53.740 --> 00:20:54.916 and so they've wanted.
NOTE Confidence: 0.87606055

00:20:54.916 --> 00:20:57.588 At least they went when we met with them.
NOTE Confidence: 0.87606055

00:20:57.590 --> 00:20:59.070 As the ASM said, hey,
NOTE Confidence: 0.87606055

00:20:59.070 --> 00:21:01.135 we want to work with you guys.
NOTE Confidence: 0.87606055

00:21:01.140 --> 00:21:03.205 We don't want to replace you guys.
NOTE Confidence: 0.90126

00:21:07.000 --> 00:21:08.854 I showed you a bunch of data from 2015.

NOTE Confidence: 0.90126
00:21:08.860 --> 00:21:10.318 Let me show you a little
NOTE Confidence: 0.90126
00:21:10.318 --> 00:21:12.089 bit of the more recent data.
NOTE Confidence: 0.90126
00:21:12.090 --> 00:21:15.716 So this is a meta analysis done
NOTE Confidence: 0.90126
00:21:15.716 --> 00:21:19.429 in 2019 and looking at sort
NOTE Confidence: 0.90126
00:21:19.429 --> 00:21:22.819 of Fitbits of various models.
NOTE Confidence: 0.90126
00:21:22.820 --> 00:21:24.269 And more or less what they said
NOTE Confidence: 0.90126
00:21:24.269 --> 00:21:26.007 is that the Fitbit model showed
NOTE Confidence: 0.90126
00:21:26.007 --> 00:21:27.431 higher sensitivity and specificity
NOTE Confidence: 0.90126
00:21:27.431 --> 00:21:29.088 and detecting sleep than the
NOTE Confidence: 0.90126
00:21:29.088 --> 00:21:30.428 quote non sleep staging model.
NOTE Confidence: 0.90126
00:21:30.430 --> 00:21:32.526 So the more recent ones are the ones
NOTE Confidence: 0.90126
00:21:32.526 --> 00:21:34.542 that will show you the rehmann light
NOTE Confidence: 0.90126
00:21:34.542 --> 00:21:36.887 sleep and deep sleep as opposed to the
NOTE Confidence: 0.90126
00:21:36.887 --> 00:21:38.882 ones that I showed earlier that are
NOTE Confidence: 0.90126
00:21:38.890 --> 00:21:43.018 only soaring sort of sleep and restless time.
NOTE Confidence: 0.90126

00:21:43.020 --> 00:21:45.450 And so there was what they said in this
NOTE Confidence: 0.90126

00:21:45.450 --> 00:21:47.858 article is promising performance definition,
NOTE Confidence: 0.90126

00:21:47.860 --> 00:21:49.590 wake from sleep and their
NOTE Confidence: 0.90126

00:21:49.590 --> 00:21:50.628 convenient and economical.
NOTE Confidence: 0.90126

00:21:50.630 --> 00:21:52.915 But there are limited specificity
NOTE Confidence: 0.90126

00:21:52.915 --> 00:21:55.600 and not a substitute for PSG.
NOTE Confidence: 0.90126

00:21:55.600 --> 00:21:58.694 Which is of course not terribly surprising.
NOTE Confidence: 0.90126

00:21:58.700 --> 00:22:00.800 And so here's something that just
NOTE Confidence: 0.90126

00:22:00.800 --> 00:22:03.341 came out late last year looking at
NOTE Confidence: 0.90126

00:22:03.341 --> 00:22:05.840 Fitbit Charge Two and Fitbit Alta HR,
NOTE Confidence: 0.90126

00:22:05.840 --> 00:22:07.970 which are again fairly recent models
NOTE Confidence: 0.90126

00:22:07.970 --> 00:22:10.119 recognizing they're not the most recent.
NOTE Confidence: 0.90126

00:22:10.120 --> 00:22:10.834 But again,
NOTE Confidence: 0.90126

00:22:10.834 --> 00:22:12.262 they showed acceptable sensitivity
NOTE Confidence: 0.90126

00:22:12.262 --> 00:22:13.333 but poor specificity,
NOTE Confidence: 0.90126

00:22:13.340 --> 00:22:16.119 and so they are not accurate enough

NOTE Confidence: 0.90126

00:22:16.119 --> 00:22:18.290 from a clinical perspective to

NOTE Confidence: 0.90126

00:22:18.290 --> 00:22:21.440 replace what we do in the laboratory.

NOTE Confidence: 0.90126

00:22:21.440 --> 00:22:23.120 I'm not sure that they want to replace

NOTE Confidence: 0.90126

00:22:23.120 --> 00:22:25.005 what we do in the laboratory as of yet,

NOTE Confidence: 0.90126

00:22:25.010 --> 00:22:26.846 but I will say I suspect some of those

NOTE Confidence: 0.90126

00:22:26.846 --> 00:22:28.365 things may be coming down the line.

NOTE Confidence: 0.84756196

00:22:30.490 --> 00:22:32.919 So as one of my favorite movies,

NOTE Confidence: 0.84756196

00:22:32.920 --> 00:22:34.996 they quote 60% of the time.

NOTE Confidence: 0.84756196

00:22:35.000 --> 00:22:36.740 It works every time, right?

NOTE Confidence: 0.84756196

00:22:36.740 --> 00:22:38.470 That's that's kind of where

NOTE Confidence: 0.84756196

00:22:38.470 --> 00:22:39.854 Fitbit is at currently.

NOTE Confidence: 0.84756196

00:22:39.860 --> 00:22:42.500 But I think they continue to

NOTE Confidence: 0.84756196

00:22:42.500 --> 00:22:45.259 refine and improve and it will

NOTE Confidence: 0.84756196

00:22:45.259 --> 00:22:47.539 be better than this overtime.

NOTE Confidence: 0.84756196

00:22:47.540 --> 00:22:49.945 So the world continues to evolve, right?

NOTE Confidence: 0.84756196

00:22:49.945 --> 00:22:52.013 They? It's not just Fitbit, right?
NOTE Confidence: 0.84756196

00:22:52.013 --> 00:22:53.728 Fitbit is part of this?
NOTE Confidence: 0.84756196

00:22:53.730 --> 00:22:56.138 And why is Fitbit part of this?
NOTE Confidence: 0.84756196

00:22:56.140 --> 00:22:58.198 Will Fitbit isn't just Fitbit anymore?
NOTE Confidence: 0.84756196

00:22:58.200 --> 00:23:01.296 Fitbit is now Google and so how do you?
NOTE Confidence: 0.84756196

00:23:01.300 --> 00:23:03.020 Why does Google by Fitbit?
NOTE Confidence: 0.84756196

00:23:03.020 --> 00:23:05.764 Well, I think you have a sense right?
NOTE Confidence: 0.84756196

00:23:05.770 --> 00:23:07.936 Here's millions of people with millions
NOTE Confidence: 0.84756196

00:23:07.936 --> 00:23:09.899 upon millions of nights of data.
NOTE Confidence: 0.84756196

00:23:09.900 --> 00:23:11.958 And what does Google do really?
NOTE Confidence: 0.84756196

00:23:11.960 --> 00:23:13.940 Well they manage data and so
NOTE Confidence: 0.84756196

00:23:13.940 --> 00:23:16.333 clearly you can see where these
NOTE Confidence: 0.84756196

00:23:16.333 --> 00:23:18.838 interconnections are going to continue.
NOTE Confidence: 0.84756196

00:23:18.840 --> 00:23:21.521 But Google Plus Fitbit is going in
NOTE Confidence: 0.84756196

00:23:21.521 --> 00:23:23.760 going to create some interesting
NOTE Confidence: 0.84756196

00:23:23.760 --> 00:23:26.280 data streams I would imagine.

NOTE Confidence: 0.84756196

00:23:26.280 --> 00:23:28.338 But Google and Fitbit are not the

NOTE Confidence: 0.84756196

00:23:28.338 --> 00:23:30.639 only people in the marketplace right?

NOTE Confidence: 0.84756196

00:23:30.640 --> 00:23:31.310 There are.

NOTE Confidence: 0.84756196

00:23:31.310 --> 00:23:32.650 Garman there's the band,

NOTE Confidence: 0.84756196

00:23:32.650 --> 00:23:34.320 the subscription model for many

NOTE Confidence: 0.84756196

00:23:34.320 --> 00:23:36.330 the athletes are using these days.

NOTE Confidence: 0.84756196

00:23:36.330 --> 00:23:38.766 Then of course the Apple Watch which

NOTE Confidence: 0.84756196

00:23:38.766 --> 00:23:41.122 is actually stayed on the sideline of

NOTE Confidence: 0.84756196

00:23:41.122 --> 00:23:43.370 those sleep world for the most part,

NOTE Confidence: 0.84756196

00:23:43.370 --> 00:23:45.585 but is clearly increasing their

NOTE Confidence: 0.84756196

00:23:45.585 --> 00:23:47.800 interest in that area based

NOTE Confidence: 0.84756196

00:23:47.885 --> 00:23:49.535 on what we can see so.

NOTE Confidence: 0.84756196

00:23:49.540 --> 00:23:51.110 These devices.

NOTE Confidence: 0.8287765

00:23:59.070 --> 00:24:00.210 You're muted, Doug.

NOTE Confidence: 0.8238456

00:24:02.460 --> 00:24:03.930 Somehow you got muted. That's

NOTE Confidence: 0.8238456

00:24:03.930 --> 00:24:06.266 interesting. I don't know when I got muted,
NOTE Confidence: 0.8238456

00:24:06.270 --> 00:24:07.438 I didn't do anything,
NOTE Confidence: 0.8238456

00:24:07.438 --> 00:24:08.606 but somebody muted me.
NOTE Confidence: 0.8238456

00:24:08.610 --> 00:24:10.954 OK, they didn't like what I was saying.
NOTE Confidence: 0.8238456

00:24:10.960 --> 00:24:15.220 Maybe it's Google. Sure would.
NOTE Confidence: 0.8238456

00:24:15.220 --> 00:24:18.660 Some point after Rupan so the Apple Watch.
NOTE Confidence: 0.8238456

00:24:18.660 --> 00:24:21.082 I will say they had stayed on
NOTE Confidence: 0.8238456

00:24:21.082 --> 00:24:23.230 the sidelines for the most part.
NOTE Confidence: 0.8238456

00:24:23.230 --> 00:24:25.926 On the sleep world, for the most part,
NOTE Confidence: 0.8238456

00:24:25.930 --> 00:24:27.282 but they're slowly entering
NOTE Confidence: 0.8238456

00:24:27.282 --> 00:24:28.634 this marketplace as well.
NOTE Confidence: 0.8238456

00:24:28.640 --> 00:24:30.505 They also have oxygen monitoring
NOTE Confidence: 0.8238456

00:24:30.505 --> 00:24:32.754 capabilities on the newer Apple Watch
NOTE Confidence: 0.8238456

00:24:32.754 --> 00:24:34.710 is so recognizing that they're going
NOTE Confidence: 0.8238456

00:24:34.710 --> 00:24:37.265 to enter this this space as well that
NOTE Confidence: 0.8238456

00:24:37.265 --> 00:24:39.194 the players are beginning to change,

NOTE Confidence: 0.8238456

00:24:39.194 --> 00:24:41.264 but the outcomes aren't changing

NOTE Confidence: 0.8238456

00:24:41.264 --> 00:24:42.506 and the technology.

NOTE Confidence: 0.8238456

00:24:42.510 --> 00:24:45.058 Of the devices is going to change

NOTE Confidence: 0.8238456

00:24:45.058 --> 00:24:47.679 faster than what we can keep up with.

NOTE Confidence: 0.8238456

00:24:47.680 --> 00:24:50.410 OK, let's see now that I'm.

NOTE Confidence: 0.8238456

00:24:50.410 --> 00:24:52.410 OK, so let me then shift a little

NOTE Confidence: 0.8238456

00:24:52.410 --> 00:24:54.122 bit and erables so these are

NOTE Confidence: 0.8238456

00:24:54.122 --> 00:24:56.210 devices like the res Med S plus.

NOTE Confidence: 0.8238456

00:24:56.210 --> 00:24:58.135 Now this device was an older device,

NOTE Confidence: 0.8238456

00:24:58.140 --> 00:24:59.616 it was fancy and expensive backrow

NOTE Confidence: 0.8238456

00:24:59.616 --> 00:25:01.570 days and then it got less expensive

NOTE Confidence: 0.8238456

00:25:01.570 --> 00:25:03.105 because people weren't using it.

NOTE Confidence: 0.8238456

00:25:03.110 --> 00:25:04.748 'cause it seems sort of bulky

NOTE Confidence: 0.8238456

00:25:04.748 --> 00:25:06.439 and complicated to have a device

NOTE Confidence: 0.8238456

00:25:06.439 --> 00:25:08.077 that's near your bed as opposed

NOTE Confidence: 0.8238456

00:25:08.077 --> 00:25:09.448 to something you could wear.
NOTE Confidence: 0.8238456

00:25:09.450 --> 00:25:10.992 But this is actually the data
NOTE Confidence: 0.8238456

00:25:10.992 --> 00:25:12.769 that I had from this device.
NOTE Confidence: 0.8238456

00:25:12.770 --> 00:25:14.555 They actually loan me one to try
NOTE Confidence: 0.8238456

00:25:14.555 --> 00:25:16.951 out at a time and you can kind of
NOTE Confidence: 0.8238456

00:25:16.951 --> 00:25:19.254 see you would get a score and you
NOTE Confidence: 0.8238456

00:25:19.254 --> 00:25:21.042 get what your mind would charge.
NOTE Confidence: 0.8238456

00:25:21.050 --> 00:25:23.306 Your body would charge and I
NOTE Confidence: 0.8238456

00:25:23.306 --> 00:25:25.210 told him that this was.
NOTE Confidence: 0.8238456

00:25:25.210 --> 00:25:27.722 A fairly a bunch of who high and
NOTE Confidence: 0.8238456

00:25:27.722 --> 00:25:29.593 there really wasn't a good reason
NOTE Confidence: 0.8238456

00:25:29.593 --> 00:25:32.120 to give me a score of some kind,
NOTE Confidence: 0.8238456

00:25:32.120 --> 00:25:34.227 but they felt it was important and
NOTE Confidence: 0.8238456

00:25:34.227 --> 00:25:36.373 now you can see that most people
NOTE Confidence: 0.8238456

00:25:36.373 --> 00:25:38.876 in some way or getting a score what
NOTE Confidence: 0.8238456

00:25:38.876 --> 00:25:41.214 that score means is hard to assess,

NOTE Confidence: 0.8238456

00:25:41.220 --> 00:25:44.466 but it is something that is.

NOTE Confidence: 0.8238456

00:25:44.470 --> 00:25:46.005 Element that patients are following

NOTE Confidence: 0.8238456

00:25:46.005 --> 00:25:48.055 this and you can kind of see

NOTE Confidence: 0.8238456

00:25:48.055 --> 00:25:49.429 the data you would get off.

NOTE Confidence: 0.8238456

00:25:49.430 --> 00:25:52.076 And S plus again a hypnogram similar to that.

NOTE Confidence: 0.8238456

00:25:52.080 --> 00:25:54.019 And this is an amazing way something

NOTE Confidence: 0.8238456

00:25:54.019 --> 00:25:55.599 that's not even touching you,

NOTE Confidence: 0.8238456

00:25:55.600 --> 00:25:55.908 right?

NOTE Confidence: 0.8238456

00:25:55.908 --> 00:25:58.064 It's able to stage your sleep based

NOTE Confidence: 0.8238456

00:25:58.064 --> 00:26:00.257 on what it can actually assess by

NOTE Confidence: 0.8238456

00:26:00.257 --> 00:26:02.295 being near you and also provide

NOTE Confidence: 0.8238456

00:26:02.295 --> 00:26:04.605 information on light and temperature.

NOTE Confidence: 0.8238456

00:26:04.610 --> 00:26:06.185 And you can kind of see where

NOTE Confidence: 0.8238456

00:26:06.185 --> 00:26:07.509 you get your score from,

NOTE Confidence: 0.8238456

00:26:07.510 --> 00:26:08.720 but it's some combination of,

NOTE Confidence: 0.8238456

00:26:08.720 --> 00:26:10.172 well, how much were you disrupted
NOTE Confidence: 0.8238456

00:26:10.172 --> 00:26:11.630 and how much you know how?
NOTE Confidence: 0.8238456

00:26:11.630 --> 00:26:13.317 Like how much light was in there,
NOTE Confidence: 0.8238456

00:26:13.320 --> 00:26:14.772 and you know what is actually
NOTE Confidence: 0.8238456

00:26:14.772 --> 00:26:15.740 not light light sleep.
NOTE Confidence: 0.8238456

00:26:15.740 --> 00:26:17.378 How much sleep did you have and
NOTE Confidence: 0.8238456

00:26:17.378 --> 00:26:19.127 how much deep sleep did you have,
NOTE Confidence: 0.8238456

00:26:19.130 --> 00:26:19.370 etc.
NOTE Confidence: 0.8580281

00:26:21.740 --> 00:26:23.665 But it's beyond that right that the
NOTE Confidence: 0.8580281

00:26:23.665 --> 00:26:25.908 beds can be trackers to sleep, IQ,
NOTE Confidence: 0.8580281

00:26:25.908 --> 00:26:28.292 sleep number beds have data that kicked out,
NOTE Confidence: 0.8580281

00:26:28.300 --> 00:26:30.309 and so this is information from one
NOTE Confidence: 0.8580281

00:26:30.309 --> 00:26:32.169 of my colleagues is asleep doctor.
NOTE Confidence: 0.8580281

00:26:32.170 --> 00:26:34.088 She was willing to share some of
NOTE Confidence: 0.8580281

00:26:34.088 --> 00:26:36.268 the data for her again looking at
NOTE Confidence: 0.8580281

00:26:36.268 --> 00:26:38.149 her breath rate, her heart rate.

NOTE Confidence: 0.8580281

00:26:38.149 --> 00:26:40.810 You know what kind of restful sleep she had.

NOTE Confidence: 0.8580281

00:26:40.810 --> 00:26:43.930 I will say at least she was getting.

NOTE Confidence: 0.8580281

00:26:43.930 --> 00:26:46.621 You know she was in bed for a good

NOTE Confidence: 0.8580281

00:26:46.621 --> 00:26:49.089 10 hours almost, which is great.

NOTE Confidence: 0.8580281

00:26:49.089 --> 00:26:51.147 You know some of that time.

NOTE Confidence: 0.8580281

00:26:51.150 --> 00:26:52.786 Clearly she's not sleeping,

NOTE Confidence: 0.8580281

00:26:52.786 --> 00:26:55.845 but but in the end she was

NOTE Confidence: 0.8580281

00:26:55.845 --> 00:26:58.435 practicing what she was preaching.

NOTE Confidence: 0.8580281

00:26:58.440 --> 00:27:00.222 But you can track it for your kids too.

NOTE Confidence: 0.8580281

00:27:00.230 --> 00:27:02.253 For those people who really want to

NOTE Confidence: 0.8580281

00:27:02.253 --> 00:27:04.218 know what's going on with their kids.

NOTE Confidence: 0.8580281

00:27:04.220 --> 00:27:05.546 Beyond the miracles,

NOTE Confidence: 0.8580281

00:27:05.546 --> 00:27:07.756 there are obviously the apps,

NOTE Confidence: 0.8580281

00:27:07.760 --> 00:27:12.646 and so in terms of the apps.

NOTE Confidence: 0.8580281

00:27:12.650 --> 00:27:17.090 There are obviously sleep apps galore.

NOTE Confidence: 0.8580281

00:27:17.090 --> 00:27:18.690 Mobile health apps in general.
NOTE Confidence: 0.8580281

00:27:18.690 --> 00:27:20.598 You know they can promote Wellness
NOTE Confidence: 0.8580281

00:27:20.598 --> 00:27:22.234 relatively inexpensively and maybe help
NOTE Confidence: 0.8580281

00:27:22.234 --> 00:27:23.809 with management of chronic diseases.
NOTE Confidence: 0.8580281

00:27:23.810 --> 00:27:25.485 There are bewildering number of
NOTE Confidence: 0.8580281

00:27:25.485 --> 00:27:27.502 apps that are available and it's
NOTE Confidence: 0.8580281

00:27:27.502 --> 00:27:29.490 difficult to see which ones are the
NOTE Confidence: 0.8580281

00:27:29.490 --> 00:27:31.431 safest or most effective and at
NOTE Confidence: 0.8580281

00:27:31.431 --> 00:27:33.405 least according to the JAMA article.
NOTE Confidence: 0.8580281

00:27:33.410 --> 00:27:35.723 It would be nice to have some sort of
NOTE Confidence: 0.8580281

00:27:35.723 --> 00:27:37.890 unbiased review and certification process,
NOTE Confidence: 0.8580281

00:27:37.890 --> 00:27:39.810 but that has yet to occur.
NOTE Confidence: 0.84577155

00:27:41.850 --> 00:27:43.440 So what kind of apps are
NOTE Confidence: 0.84577155

00:27:43.440 --> 00:27:44.500 out there regarding sleep?
NOTE Confidence: 0.84577155

00:27:44.500 --> 00:27:46.885 I thought I would cover a couple of them.
NOTE Confidence: 0.84577155

00:27:46.890 --> 00:27:49.010 This is one that was built in combination

NOTE Confidence: 0.84577155

00:27:49.010 --> 00:27:51.129 with the VA and Stanford which is CBT.

NOTE Confidence: 0.84577155

00:27:51.130 --> 00:27:53.200 I coach I still in fact use this in

NOTE Confidence: 0.84577155

00:27:53.200 --> 00:27:55.370 my clinic for some of my patients,

NOTE Confidence: 0.84577155

00:27:55.370 --> 00:27:57.858 'cause it's free and it has some things

NOTE Confidence: 0.84577155

00:27:57.858 --> 00:28:00.168 that are useful in terms of tools.

NOTE Confidence: 0.84577155

00:28:00.170 --> 00:28:03.122 But you can see it has things like

NOTE Confidence: 0.84577155

00:28:03.122 --> 00:28:04.892 a progressive muscle relaxation

NOTE Confidence: 0.84577155

00:28:04.892 --> 00:28:07.257 or or wind down exercise.

NOTE Confidence: 0.84577155

00:28:07.260 --> 00:28:09.648 It has tools for sleep Diaries

NOTE Confidence: 0.84577155

00:28:09.648 --> 00:28:12.259 and ability to chart some things.

NOTE Confidence: 0.84577155

00:28:12.260 --> 00:28:16.013 It's a useful tool and and best of all,

NOTE Confidence: 0.84577155

00:28:16.020 --> 00:28:18.110 it's free.

NOTE Confidence: 0.84577155

00:28:18.110 --> 00:28:19.358 There are circadian applications,

NOTE Confidence: 0.84577155

00:28:19.358 --> 00:28:20.918 like for instance in train,

NOTE Confidence: 0.84577155

00:28:20.920 --> 00:28:23.111 which you can gather a whole bunch

NOTE Confidence: 0.84577155

00:28:23.111 --> 00:28:25.014 of information about in terms of
NOTE Confidence: 0.84577155

00:28:25.014 --> 00:28:26.576 people who are traveling, right?
NOTE Confidence: 0.84577155

00:28:26.576 --> 00:28:28.712 This was a particularly useful thing
NOTE Confidence: 0.84577155

00:28:28.712 --> 00:28:30.988 if you're going to Tokyo in a world
NOTE Confidence: 0.84577155

00:28:30.988 --> 00:28:33.550 in which we are in covid may be less
NOTE Confidence: 0.84577155

00:28:33.550 --> 00:28:35.843 useful 'cause we're not traveling very much,
NOTE Confidence: 0.84577155

00:28:35.843 --> 00:28:37.947 but the idea is that you can use
NOTE Confidence: 0.84577155

00:28:37.947 --> 00:28:39.982 some of the information we know
NOTE Confidence: 0.84577155

00:28:39.982 --> 00:28:42.077 scientifically and put it out in
NOTE Confidence: 0.84577155

00:28:42.077 --> 00:28:44.303 a way to make patients ability to
NOTE Confidence: 0.84577155

00:28:44.303 --> 00:28:45.564 travel somewhat easier, right?
NOTE Confidence: 0.84577155

00:28:45.564 --> 00:28:47.436 When should you get bright light?
NOTE Confidence: 0.84577155

00:28:47.440 --> 00:28:49.000 When should you get dark,
NOTE Confidence: 0.84577155

00:28:49.000 --> 00:28:51.000 and how can you prep?
NOTE Confidence: 0.84577155

00:28:51.000 --> 00:28:53.114 Your trip to make your trip is
NOTE Confidence: 0.84577155

00:28:53.114 --> 00:28:55.215 as helpful as possible and make

NOTE Confidence: 0.84577155

00:28:55.215 --> 00:28:57.459 your sleep as good as possible.

NOTE Confidence: 0.84577155

00:28:57.460 --> 00:28:59.676 And this is one of the classic apps.

NOTE Confidence: 0.84577155

00:28:59.680 --> 00:29:00.808 The Sleep cycle app.

NOTE Confidence: 0.84577155

00:29:00.808 --> 00:29:03.124 This is one that you could stick under

NOTE Confidence: 0.84577155

00:29:03.124 --> 00:29:05.380 the sort of sheet and it would kind

NOTE Confidence: 0.84577155

00:29:05.440 --> 00:29:07.504 of give you a report of your sleep

NOTE Confidence: 0.84577155

00:29:07.504 --> 00:29:09.305 depth at some basic level and you

NOTE Confidence: 0.84577155

00:29:09.305 --> 00:29:11.533 can see this is some what we would

NOTE Confidence: 0.84577155

00:29:11.533 --> 00:29:13.577 see is a fairly normal looking cycle,

NOTE Confidence: 0.84577155

00:29:13.580 --> 00:29:13.833 right?

NOTE Confidence: 0.84577155

00:29:13.833 --> 00:29:15.351 That somebody is in deep sleep

NOTE Confidence: 0.84577155

00:29:15.351 --> 00:29:17.286 and then in lighter sleep and deep

NOTE Confidence: 0.84577155

00:29:17.286 --> 00:29:19.314 sleep in longer sleep in cycles of

NOTE Confidence: 0.84577155

00:29:19.314 --> 00:29:21.090 somewhere between 90 and 120 minutes.

NOTE Confidence: 0.88416076

00:29:23.650 --> 00:29:26.191 Where this starts to get more interesting

NOTE Confidence: 0.88416076

00:29:26.191 --> 00:29:29.711 is in the fact that there have been a
NOTE Confidence: 0.88416076

00:29:29.711 --> 00:29:32.210 number of applications used for snoring.
NOTE Confidence: 0.88416076

00:29:32.210 --> 00:29:34.196 And there was an article published
NOTE Confidence: 0.88416076

00:29:34.196 --> 00:29:36.789 in 2016 looking at several of these
NOTE Confidence: 0.88416076

00:29:36.789 --> 00:29:38.789 apps overtime and effectively showed
NOTE Confidence: 0.88416076

00:29:38.789 --> 00:29:40.930 that there was excellent positive
NOTE Confidence: 0.88416076

00:29:40.930 --> 00:29:43.055 predictive value for snoring detection
NOTE Confidence: 0.88416076

00:29:43.055 --> 00:29:46.578 in the in the populations used.
NOTE Confidence: 0.88416076

00:29:46.580 --> 00:29:47.536 So here's an example.
NOTE Confidence: 0.88416076

00:29:47.536 --> 00:29:49.544 The smart alarm that I just showed you
NOTE Confidence: 0.88416076

00:29:49.544 --> 00:29:51.364 also has an ability to track snoring,
NOTE Confidence: 0.88416076

00:29:51.370 --> 00:29:53.176 and you could actually listen to those
NOTE Confidence: 0.88416076

00:29:53.176 --> 00:29:55.147 snores that pop pop up during the night.
NOTE Confidence: 0.88416076

00:29:55.150 --> 00:29:56.865 All those little circles or
NOTE Confidence: 0.88416076

00:29:56.865 --> 00:29:58.580 periods where you could listen.
NOTE Confidence: 0.88416076

00:29:58.580 --> 00:29:59.752 Another app called quits.

NOTE Confidence: 0.88416076

00:29:59.752 --> 00:30:02.582 Morning where you can see it was in this

NOTE Confidence: 0.88416076

00:30:02.582 --> 00:30:04.610 particular case compared to Poly sonography,

NOTE Confidence: 0.88416076

00:30:04.610 --> 00:30:07.427 and so you can see kind of the how

NOTE Confidence: 0.88416076

00:30:07.427 --> 00:30:10.389 they synced based on time the arrows.

NOTE Confidence: 0.88416076

00:30:10.390 --> 00:30:13.160 Anne and.

NOTE Confidence: 0.88416076

00:30:13.160 --> 00:30:15.680 Showed effectively in this particular app,

NOTE Confidence: 0.88416076

00:30:15.680 --> 00:30:18.090 again, the positive predictive value

NOTE Confidence: 0.88416076

00:30:18.090 --> 00:30:21.420 of these three patients at versus PSG.

NOTE Confidence: 0.88416076

00:30:21.420 --> 00:30:23.476 Was upwards of somewhere between 93 and 96%,

NOTE Confidence: 0.88416076

00:30:23.480 --> 00:30:24.760 which is really pretty good.

NOTE Confidence: 0.88416076

00:30:24.760 --> 00:30:25.792 And why is that?

NOTE Confidence: 0.88416076

00:30:25.792 --> 00:30:27.598 Well, because snoring is a pretty easy

NOTE Confidence: 0.88416076

00:30:27.598 --> 00:30:29.390 thing to track for the most part.

NOTE Confidence: 0.88416076

00:30:29.390 --> 00:30:30.878 It may be difficult if there's

NOTE Confidence: 0.88416076

00:30:30.878 --> 00:30:32.467 more than one person there, right?

NOTE Confidence: 0.88416076

00:30:32.467 --> 00:30:32.981 So remember,
NOTE Confidence: 0.88416076

00:30:32.981 --> 00:30:34.523 if you have a bed partner,
NOTE Confidence: 0.88416076

00:30:34.530 --> 00:30:36.586 you may be picking up on snoring of
NOTE Confidence: 0.88416076

00:30:36.586 --> 00:30:38.128 two people, not just one person,
NOTE Confidence: 0.88416076

00:30:38.128 --> 00:30:38.899 but broadly speaking,
NOTE Confidence: 0.88416076

00:30:38.900 --> 00:30:40.292 if you're sleeping alone,
NOTE Confidence: 0.88416076

00:30:40.292 --> 00:30:42.782 it should have a pretty good chance
NOTE Confidence: 0.88416076

00:30:42.782 --> 00:30:44.756 of picking up snoring and giving
NOTE Confidence: 0.88416076

00:30:44.756 --> 00:30:46.907 you a sense of how bad it is.
NOTE Confidence: 0.88416076

00:30:46.910 --> 00:30:48.824 Snore Lab is another app that
NOTE Confidence: 0.88416076

00:30:48.824 --> 00:30:51.217 has been used and I'll show you
NOTE Confidence: 0.88416076

00:30:51.217 --> 00:30:52.957 why I highlighted this one.
NOTE Confidence: 0.88416076

00:30:52.960 --> 00:30:56.098 This is a patient of mine.
NOTE Confidence: 0.88416076

00:30:56.100 --> 00:30:57.440 Who was an MIT engineer?
NOTE Confidence: 0.88416076

00:30:57.440 --> 00:30:59.274 And of course you know had all
NOTE Confidence: 0.88416076

00:30:59.274 --> 00:31:01.194 sorts of charting here, but he had,

NOTE Confidence: 0.88416076

00:31:01.194 --> 00:31:01.730 you know,

NOTE Confidence: 0.88416076

00:31:01.730 --> 00:31:03.434 tracked his snoring when he used

NOTE Confidence: 0.88416076

00:31:03.434 --> 00:31:05.749 nothing in the top left and then with

NOTE Confidence: 0.88416076

00:31:05.749 --> 00:31:07.709 his old kind of mouthpiece that he

NOTE Confidence: 0.88416076

00:31:07.709 --> 00:31:09.533 had built for him on the top right

NOTE Confidence: 0.88416076

00:31:09.533 --> 00:31:11.378 and then with CPAP on the bottom.

NOTE Confidence: 0.88416076

00:31:11.380 --> 00:31:13.612 And he did a bunch of calculations and

NOTE Confidence: 0.88416076

00:31:13.612 --> 00:31:15.910 you can even see where he marks off

NOTE Confidence: 0.88416076

00:31:15.910 --> 00:31:18.610 that he took where he C Pap was on and wear.

NOTE Confidence: 0.88416076

00:31:18.610 --> 00:31:19.388 His see.

NOTE Confidence: 0.88416076

00:31:19.388 --> 00:31:23.000 Pap was often kind of noises that were made.

NOTE Confidence: 0.88416076

00:31:23.000 --> 00:31:25.264 And so, broadly, you can see how these

NOTE Confidence: 0.88416076

00:31:25.264 --> 00:31:27.820 apps can be used to assess progress, right?

NOTE Confidence: 0.88416076

00:31:27.820 --> 00:31:29.922 We always talk about how, for instance,

NOTE Confidence: 0.88416076

00:31:29.922 --> 00:31:31.427 and use of dental devices.

NOTE Confidence: 0.88416076

00:31:31.430 --> 00:31:33.798 You know it's all kind of a little
NOTE Confidence: 0.88416076

00:31:33.798 --> 00:31:35.641 bit it hit or miss, right?
NOTE Confidence: 0.88416076

00:31:35.641 --> 00:31:37.447 You know, is the snoring better?
NOTE Confidence: 0.88416076

00:31:37.450 --> 00:31:38.353 Is it not?
NOTE Confidence: 0.88416076

00:31:38.353 --> 00:31:38.654 Better?
NOTE Confidence: 0.88416076

00:31:38.654 --> 00:31:40.159 Was the bed partner say,
NOTE Confidence: 0.88416076

00:31:40.160 --> 00:31:40.441 well,
NOTE Confidence: 0.88416076

00:31:40.441 --> 00:31:41.003 you know,
NOTE Confidence: 0.88416076

00:31:41.003 --> 00:31:42.970 would using an app in some basic
NOTE Confidence: 0.88416076

00:31:43.033 --> 00:31:45.371 level be useful in terms of tracking
NOTE Confidence: 0.88416076

00:31:45.371 --> 00:31:47.259 whether a mouthpiece is or is
NOTE Confidence: 0.88416076

00:31:47.259 --> 00:31:48.634 not effective and how effective
NOTE Confidence: 0.88416076

00:31:48.634 --> 00:31:50.020 is for controlling aspiring?
NOTE Confidence: 0.88416076

00:31:50.020 --> 00:31:50.850 Well, sure,
NOTE Confidence: 0.88416076

00:31:50.850 --> 00:31:53.340 something like this could be done.
NOTE Confidence: 0.88416076

00:31:53.340 --> 00:31:54.984 And and it's not an unreasonable

NOTE Confidence: 0.88416076

00:31:54.984 --> 00:31:56.809 approach for some of these things.

NOTE Confidence: 0.88416076

00:31:56.810 --> 00:31:59.770 It doesn't obviate the need for follow up.

NOTE Confidence: 0.88416076

00:31:59.770 --> 00:32:01.222 Testing at some point to ensure

NOTE Confidence: 0.88416076

00:32:01.222 --> 00:32:02.770 that sleep apnea is controlled,

NOTE Confidence: 0.88416076

00:32:02.770 --> 00:32:04.674 but if you're trying to titrate somebody,

NOTE Confidence: 0.82510924

00:32:04.680 --> 00:32:06.045 this is not an unreasonable

NOTE Confidence: 0.82510924

00:32:06.045 --> 00:32:07.137 way to consider it.

NOTE Confidence: 0.82369316

00:32:09.380 --> 00:32:10.748 So moving beyond snoring,

NOTE Confidence: 0.82369316

00:32:10.748 --> 00:32:12.458 then can you assess sleep

NOTE Confidence: 0.82369316

00:32:12.458 --> 00:32:14.067 apnea via phones and apps?

NOTE Confidence: 0.82369316

00:32:14.070 --> 00:32:16.438 And so this was sort of the original

NOTE Confidence: 0.82369316

00:32:16.438 --> 00:32:18.794 study that I could find using a

NOTE Confidence: 0.82369316

00:32:18.794 --> 00:32:20.494 phone and there actually strapped

NOTE Confidence: 0.82369316

00:32:20.560 --> 00:32:22.450 the phone to somebody's chest,

NOTE Confidence: 0.82369316

00:32:22.450 --> 00:32:23.790 which wasn't obviously going

NOTE Confidence: 0.82369316

00:32:23.790 --> 00:32:25.800 to be a long term solution,
NOTE Confidence: 0.82369316

00:32:25.800 --> 00:32:28.104 but more or less with this group showed
NOTE Confidence: 0.82369316

00:32:28.104 --> 00:32:30.943 in 2014 was that in fact they could
NOTE Confidence: 0.82369316

00:32:30.943 --> 00:32:32.817 show with reasonable sensitivity and
NOTE Confidence: 0.82369316

00:32:32.817 --> 00:32:35.176 specificity that the the RDI was decent
NOTE Confidence: 0.82369316

00:32:35.176 --> 00:32:39.330 for picking up and hi greater than 15.
NOTE Confidence: 0.82369316

00:32:39.330 --> 00:32:41.125 But it moves beyond this, right?
NOTE Confidence: 0.82369316

00:32:41.125 --> 00:32:43.195 So the University of Washington there
NOTE Confidence: 0.82369316

00:32:43.195 --> 00:32:45.869 was an app which I'll show you here.
NOTE Confidence: 0.82369316

00:32:45.870 --> 00:32:47.870 Where they actually had a
NOTE Confidence: 0.82369316

00:32:47.870 --> 00:32:50.530 again an app where they didn't.
NOTE Confidence: 0.82369316

00:32:50.530 --> 00:32:53.062 In fact, having the phone touching
NOTE Confidence: 0.82369316

00:32:53.062 --> 00:32:56.469 anybody and so they in a contactless way,
NOTE Confidence: 0.82369316

00:32:56.470 --> 00:32:59.302 was able to identify respiratory events
NOTE Confidence: 0.82369316

00:32:59.302 --> 00:33:02.429 when compared that versus Poly sonography.
NOTE Confidence: 0.82369316

00:33:02.430 --> 00:33:04.400 And so this technology ended

NOTE Confidence: 0.82369316

00:33:04.400 --> 00:33:05.976 up in the durable.

NOTE Confidence: 0.82369316

00:33:05.980 --> 00:33:08.600 The Sleep score Max.

NOTE Confidence: 0.82369316

00:33:08.600 --> 00:33:11.435 And so you know you can see the evolution

NOTE Confidence: 0.82369316

00:33:11.435 --> 00:33:14.184 of the S plus into this sleep score,

NOTE Confidence: 0.82369316

00:33:14.190 --> 00:33:16.194 where now not just to you

NOTE Confidence: 0.82369316

00:33:16.194 --> 00:33:17.912 assessing sleep quality which was

NOTE Confidence: 0.82369316

00:33:17.912 --> 00:33:19.790 effectively with the S plus did.

NOTE Confidence: 0.82369316

00:33:19.790 --> 00:33:22.457 But now you are able to assess

NOTE Confidence: 0.82369316

00:33:22.457 --> 00:33:24.470 to some level you know.

NOTE Confidence: 0.82369316

00:33:24.470 --> 00:33:28.150 The grieving someone might have.

NOTE Confidence: 0.82369316

00:33:28.150 --> 00:33:29.950 Now they have done a lot of work

NOTE Confidence: 0.82369316

00:33:29.950 --> 00:33:31.430 with this particular device,

NOTE Confidence: 0.82369316

00:33:31.430 --> 00:33:31.820 however,

NOTE Confidence: 0.82369316

00:33:31.820 --> 00:33:34.550 I haven't seen a lot of the

NOTE Confidence: 0.82369316

00:33:34.550 --> 00:33:36.329 data percolate out of this.

NOTE Confidence: 0.82369316

00:33:36.330 --> 00:33:38.226 And then there's apps like this,
NOTE Confidence: 0.82369316

00:33:38.230 --> 00:33:40.582 which is sleep check which hasn't
NOTE Confidence: 0.82369316

00:33:40.582 --> 00:33:42.740 yet hit the American market.
NOTE Confidence: 0.82369316

00:33:42.740 --> 00:33:45.944 But is it is in Europe and this is
NOTE Confidence: 0.82369316

00:33:45.944 --> 00:33:49.667 a device that was able to identify
NOTE Confidence: 0.82369316

00:33:49.667 --> 00:33:52.639 OSA with a sensitivity of 85%.
NOTE Confidence: 0.82369316

00:33:52.640 --> 00:33:53.990 For mild OSA,
NOTE Confidence: 0.82369316

00:33:53.990 --> 00:33:56.777 83% for moderately and 83% for
NOTE Confidence: 0.82369316

00:33:56.777 --> 00:33:59.999 severe OSA compared to full but
NOTE Confidence: 0.82369316

00:33:59.999 --> 00:34:01.610 unattended Poly sonography?
NOTE Confidence: 0.82369316

00:34:01.610 --> 00:34:03.060 And in the patients home,
NOTE Confidence: 0.82369316

00:34:03.060 --> 00:34:04.500 and so you can see,
NOTE Confidence: 0.82369316

00:34:04.500 --> 00:34:06.383 you know this is the wave of
NOTE Confidence: 0.82369316

00:34:06.383 --> 00:34:07.969 where this is moving now,
NOTE Confidence: 0.82369316

00:34:07.970 --> 00:34:09.566 whether they're going to be truly
NOTE Confidence: 0.82369316

00:34:09.566 --> 00:34:10.983 diagnostic or pre pre assessments

NOTE Confidence: 0.82369316
00:34:10.983 --> 00:34:12.183 before people are actually
NOTE Confidence: 0.82369316
00:34:12.183 --> 00:34:14.316 willing to go and spend the money
NOTE Confidence: 0.82369316
00:34:14.316 --> 00:34:15.476 to get formally diagnosed.
NOTE Confidence: 0.82369316
00:34:15.480 --> 00:34:17.328 But this is the stuff that is
NOTE Confidence: 0.82369316
00:34:17.328 --> 00:34:19.126 coming right that we are going to
NOTE Confidence: 0.82369316
00:34:19.126 --> 00:34:20.957 move from a world in which they
NOTE Confidence: 0.82369316
00:34:20.957 --> 00:34:22.727 are just assessing sleep to
NOTE Confidence: 0.82369316
00:34:22.727 --> 00:34:24.143 assessing sleep and breathing.
NOTE Confidence: 0.82369316
00:34:24.150 --> 00:34:26.742 And I think we have to be prepared for.
NOTE Confidence: 0.89536667
00:34:28.990 --> 00:34:31.390 So you gotta prepare yourself for this world.
NOTE Confidence: 0.89536667
00:34:31.390 --> 00:34:33.190 The world is going to change.
NOTE Confidence: 0.89536667
00:34:33.190 --> 00:34:35.290 Continue to change in front of us.
NOTE Confidence: 0.89536667
00:34:35.290 --> 00:34:38.620 We need to be ready for that. So.
NOTE Confidence: 0.89536667
00:34:38.620 --> 00:34:42.400 Is all this technology good or is it bad?
NOTE Confidence: 0.89536667
00:34:42.400 --> 00:34:47.750 I think in the end. It's neither.
NOTE Confidence: 0.89536667

00:34:47.750 --> 00:34:50.455 That adaptation and evolution of
NOTE Confidence: 0.89536667

00:34:50.455 --> 00:34:53.673 us of the practitioners of Sleep
NOTE Confidence: 0.89536667

00:34:53.673 --> 00:34:56.564 Medicine is going to be a key
NOTE Confidence: 0.89536667

00:34:56.564 --> 00:34:59.230 aspect of what we need to do.
NOTE Confidence: 0.89536667

00:34:59.230 --> 00:35:03.820 My belief is that there are.
NOTE Confidence: 0.89536667

00:35:03.820 --> 00:35:06.608 Numerous patients out there
NOTE Confidence: 0.89536667

00:35:06.608 --> 00:35:08.699 that are undiagnosed.
NOTE Confidence: 0.89536667

00:35:08.700 --> 00:35:11.220 Who have a sleep problem and this
NOTE Confidence: 0.89536667

00:35:11.220 --> 00:35:14.025 may be way this technology to get
NOTE Confidence: 0.89536667

00:35:14.025 --> 00:35:17.529 them to take that next step to come
NOTE Confidence: 0.89536667

00:35:17.529 --> 00:35:19.929 to a Sleep Medicine practitioner.
NOTE Confidence: 0.89536667

00:35:19.930 --> 00:35:20.956 The problem is,
NOTE Confidence: 0.89536667

00:35:20.956 --> 00:35:23.820 there's not a lot of clinical teams right.
NOTE Confidence: 0.89536667

00:35:23.820 --> 00:35:26.232 The number of sleep practitioners is
NOTE Confidence: 0.89536667

00:35:26.232 --> 00:35:29.710 growing at a fairly slow rate and retirement.
NOTE Confidence: 0.89536667

00:35:29.710 --> 00:35:32.110 Of sleep doctors and clinicians

NOTE Confidence: 0.89536667

00:35:32.110 --> 00:35:34.510 is a also stable rate,

NOTE Confidence: 0.89536667

00:35:34.510 --> 00:35:38.731 which means that we're not going to

NOTE Confidence: 0.89536667

00:35:38.731 --> 00:35:42.360 be increasing our team size with.

NOTE Confidence: 0.89536667

00:35:42.360 --> 00:35:43.844 Board certified sleep doctors.

NOTE Confidence: 0.89536667

00:35:43.844 --> 00:35:44.586 Very quickly,

NOTE Confidence: 0.89536667

00:35:44.590 --> 00:35:46.750 the world of Aips nurse practitioners

NOTE Confidence: 0.89536667

00:35:46.750 --> 00:35:49.013 NPS is going to grow rapidly

NOTE Confidence: 0.89536667

00:35:49.013 --> 00:35:51.257 and nurses and artizen are PSG.

NOTE Confidence: 0.89536667

00:35:51.260 --> 00:35:53.913 Tees are all going to be increasing

NOTE Confidence: 0.89536667

00:35:53.913 --> 00:35:57.195 as we look at the at the sleep team,

NOTE Confidence: 0.89536667

00:35:57.200 --> 00:35:59.559 but still there are not going to

NOTE Confidence: 0.89536667

00:35:59.559 --> 00:36:02.506 be a lot of growth in the world

NOTE Confidence: 0.89536667

00:36:02.506 --> 00:36:05.891 doctors and so we need a way of

NOTE Confidence: 0.89536667

00:36:05.891 --> 00:36:08.306 assessing and managing these patients.

NOTE Confidence: 0.89536667

00:36:08.310 --> 00:36:10.366 And where are these devices going to go?

NOTE Confidence: 0.89536667

00:36:10.370 --> 00:36:11.720 Is it going to be identification
NOTE Confidence: 0.89536667

00:36:11.720 --> 00:36:13.848 or is it and then send the to the
NOTE Confidence: 0.89536667

00:36:13.848 --> 00:36:15.376 clinical team for a formal diagnosis
NOTE Confidence: 0.89536667

00:36:15.376 --> 00:36:17.176 or they're actually going to try
NOTE Confidence: 0.89536667

00:36:17.176 --> 00:36:20.340 and diagnose them at home?
NOTE Confidence: 0.89536667

00:36:20.340 --> 00:36:23.886 And without the care of a local doctor right,
NOTE Confidence: 0.89536667

00:36:23.890 --> 00:36:26.648 you can see this with some things
NOTE Confidence: 0.89536667

00:36:26.648 --> 00:36:27.830 like the hair.
NOTE Confidence: 0.8196956

00:36:29.870 --> 00:36:32.292 The world of hair growth or erectile
NOTE Confidence: 0.8196956

00:36:32.292 --> 00:36:33.856 dysfunction, where there's all done
NOTE Confidence: 0.8196956

00:36:33.856 --> 00:36:36.150 via these sort of apps and monitoring
NOTE Confidence: 0.8196956

00:36:36.150 --> 00:36:38.165 right that they monitor you?
NOTE Confidence: 0.8196956

00:36:38.170 --> 00:36:39.940 They connected with the doctor
NOTE Confidence: 0.8196956

00:36:39.940 --> 00:36:42.102 for a quick consultation and and
NOTE Confidence: 0.8196956

00:36:42.102 --> 00:36:44.058 then you get your treatment right.
NOTE Confidence: 0.8196956

00:36:44.060 --> 00:36:46.475 The medicine is delivered to your door.

NOTE Confidence: 0.8196956

00:36:46.480 --> 00:36:49.534 Well the same could be true. Firstly,

NOTE Confidence: 0.8196956

00:36:49.534 --> 00:36:52.370 back again and it and it may come to that.

NOTE Confidence: 0.8196956

00:36:52.370 --> 00:36:53.746 We're not there yet.

NOTE Confidence: 0.8196956

00:36:53.746 --> 00:36:56.609 Is technology going to hurt the sleep lads?

NOTE Confidence: 0.8196956

00:36:56.610 --> 00:36:57.730 Well, maybe maybe not.

NOTE Confidence: 0.8196956

00:36:57.730 --> 00:36:59.410 Depends on how many more patients

NOTE Confidence: 0.8196956

00:36:59.460 --> 00:37:01.020 come in versus how many patients

NOTE Confidence: 0.8196956

00:37:01.020 --> 00:37:02.500 do you lose because they're

NOTE Confidence: 0.8196956

00:37:02.500 --> 00:37:04.060 being diagnosed somewhere else?

NOTE Confidence: 0.8196956

00:37:04.060 --> 00:37:06.444 And I think that that's hard to predict,

NOTE Confidence: 0.8196956

00:37:06.450 --> 00:37:07.940 but in the short term,

NOTE Confidence: 0.8196956

00:37:07.940 --> 00:37:09.620 I think more patients come in

NOTE Confidence: 0.8196956

00:37:09.620 --> 00:37:11.121 then were before because they're

NOTE Confidence: 0.8196956

00:37:11.121 --> 00:37:12.409 looking at their sleep.

NOTE Confidence: 0.8196956

00:37:12.410 --> 00:37:12.666 Please,

NOTE Confidence: 0.8196956

00:37:12.666 --> 00:37:14.714 I think that in some cases there may
NOTE Confidence: 0.8196956

00:37:14.714 --> 00:37:16.857 be too many patients right that wait
NOTE Confidence: 0.8196956

00:37:16.857 --> 00:37:18.776 times will continue to increase if
NOTE Confidence: 0.8196956

00:37:18.776 --> 00:37:20.702 too many patients are identified and
NOTE Confidence: 0.8196956

00:37:20.702 --> 00:37:23.138 you've got to be able to manage that,
NOTE Confidence: 0.8196956

00:37:23.140 --> 00:37:25.505 that comes to that Internet
NOTE Confidence: 0.8196956

00:37:25.505 --> 00:37:27.397 and clinical team question.
NOTE Confidence: 0.8196956

00:37:27.400 --> 00:37:29.062 And what about patients who have
NOTE Confidence: 0.8196956

00:37:29.062 --> 00:37:30.170 incorrect diagnosis right there,
NOTE Confidence: 0.8196956

00:37:30.170 --> 00:37:32.109 identified on technology that is black box?
NOTE Confidence: 0.8196956

00:37:32.110 --> 00:37:33.766 Or that you're not sure about,
NOTE Confidence: 0.8196956

00:37:33.770 --> 00:37:35.709 you know, is there a problem there?
NOTE Confidence: 0.8196956

00:37:35.710 --> 00:37:37.926 Is there something we have to worry about?
NOTE Confidence: 0.8196956

00:37:37.930 --> 00:37:39.532 What if patients are told that
NOTE Confidence: 0.8196956

00:37:39.532 --> 00:37:40.970 they don't have sleep apnea,
NOTE Confidence: 0.8196956

00:37:40.970 --> 00:37:43.186 when in fact not only do they have

NOTE Confidence: 0.8196956

00:37:43.186 --> 00:37:45.130 sleep apnea, but it's bad sleep apnea?

NOTE Confidence: 0.8196956

00:37:45.130 --> 00:37:47.188 How comfortable can we be with

NOTE Confidence: 0.8196956

00:37:47.188 --> 00:37:49.716 some of the things that are going

NOTE Confidence: 0.8196956

00:37:49.716 --> 00:37:51.156 on behind the scenes?

NOTE Confidence: 0.8196956

00:37:51.160 --> 00:37:52.968 And then Lastly treatment paradigm, right?

NOTE Confidence: 0.8196956

00:37:52.968 --> 00:37:55.194 So it's not just about diagnosis and

NOTE Confidence: 0.8196956

00:37:55.194 --> 00:37:57.689 then this is kind of where I'm going to.

NOTE Confidence: 0.8196956

00:37:57.690 --> 00:38:00.363 I'm going to close the talk a little bit,

NOTE Confidence: 0.8196956

00:38:00.370 --> 00:38:02.308 but it's recognition that the diagnosis

NOTE Confidence: 0.8196956

00:38:02.308 --> 00:38:04.799 of sleep apnea or diagnosis of a sleep

NOTE Confidence: 0.8196956

00:38:04.799 --> 00:38:06.899 problem is not the only thing we do.

NOTE Confidence: 0.8196956

00:38:06.900 --> 00:38:08.676 It's about the long term management

NOTE Confidence: 0.8196956

00:38:08.676 --> 00:38:09.564 of the patient,

NOTE Confidence: 0.8196956

00:38:09.570 --> 00:38:11.352 and I think that that's really

NOTE Confidence: 0.8196956

00:38:11.352 --> 00:38:12.243 crucial to recognize.

NOTE Confidence: 0.8220215

00:38:14.510 --> 00:38:17.779 So what are the ASM juice the
NOTE Confidence: 0.8220215

00:38:17.779 --> 00:38:20.497 ASM brought together a consumer
NOTE Confidence: 0.8220215

00:38:20.497 --> 00:38:22.929 sleep technology task force.
NOTE Confidence: 0.8220215

00:38:22.930 --> 00:38:26.428 They came out with the position
NOTE Confidence: 0.8220215

00:38:26.428 --> 00:38:29.684 statement in 2018 and largely
NOTE Confidence: 0.8220215

00:38:29.684 --> 00:38:32.940 said that these applications.
NOTE Confidence: 0.8220215

00:38:32.940 --> 00:38:34.520 Purport to measure an any,
NOTE Confidence: 0.8220215

00:38:34.520 --> 00:38:36.718 maybe even improve sleep and that we,
NOTE Confidence: 0.8220215

00:38:36.720 --> 00:38:38.460 as you probably all are aware
NOTE Confidence: 0.8220215

00:38:38.460 --> 00:38:39.620 we encountered this consumer
NOTE Confidence: 0.8220215

00:38:39.677 --> 00:38:41.129 sleep technology in practice.
NOTE Confidence: 0.8220215

00:38:41.130 --> 00:38:42.390 And though there's not
NOTE Confidence: 0.8220215

00:38:42.390 --> 00:38:43.335 always validation data,
NOTE Confidence: 0.8220215

00:38:43.340 --> 00:38:46.336 you gotta understand a little bit about
NOTE Confidence: 0.8220215

00:38:46.336 --> 00:38:49.249 what these devices are and what they do.
NOTE Confidence: 0.8220215

00:38:49.250 --> 00:38:51.329 You need to sort of recognize that

NOTE Confidence: 0.8220215

00:38:51.329 --> 00:38:53.420 many of them are not validated.

NOTE Confidence: 0.8220215

00:38:53.420 --> 00:38:55.667 Many of them don't have FDA clearance,

NOTE Confidence: 0.8220215

00:38:55.670 --> 00:38:57.777 and you really shouldn't use them at

NOTE Confidence: 0.8220215

00:38:57.777 --> 00:38:59.737 this point for diagnosis and treatment

NOTE Confidence: 0.8220215

00:38:59.737 --> 00:39:02.410 of sleep disorders at the at the time,

NOTE Confidence: 0.8220215

00:39:02.410 --> 00:39:04.252 but this may change in coming

NOTE Confidence: 0.8220215

00:39:04.252 --> 00:39:05.940 years would be my guess,

NOTE Confidence: 0.8220215

00:39:05.940 --> 00:39:08.005 but I think if it talking about

NOTE Confidence: 0.8220215

00:39:08.005 --> 00:39:10.120 that data when somebody says hey,

NOTE Confidence: 0.8220215

00:39:10.120 --> 00:39:12.680 do you want to see my Fitbit data?

NOTE Confidence: 0.8220215

00:39:12.680 --> 00:39:14.606 I almost never will say no.

NOTE Confidence: 0.8220215

00:39:14.610 --> 00:39:16.536 I think it's recognition that hey,

NOTE Confidence: 0.8220215

00:39:16.540 --> 00:39:18.140 they're bringing another data point.

NOTE Confidence: 0.8220215

00:39:18.140 --> 00:39:20.716 How useful is it? Hard to know.

NOTE Confidence: 0.8220215

00:39:20.720 --> 00:39:25.640 On the other hand, saying no to that.

NOTE Confidence: 0.8220215

00:39:25.640 --> 00:39:26.820 Doesn't invalidate the patients
NOTE Confidence: 0.8220215

00:39:26.820 --> 00:39:28.000 feeling about that data,
NOTE Confidence: 0.8220215

00:39:28.000 --> 00:39:30.814 and so it's worth opening that data
NOTE Confidence: 0.8220215

00:39:30.814 --> 00:39:33.073 looking through their screen and talking
NOTE Confidence: 0.8220215

00:39:33.073 --> 00:39:36.550 to them for a minute or two about that data.
NOTE Confidence: 0.8220215

00:39:36.550 --> 00:39:38.181 And so you can kind of see
NOTE Confidence: 0.8220215

00:39:38.181 --> 00:39:39.450 where the symptoms come down,
NOTE Confidence: 0.8220215

00:39:39.450 --> 00:39:40.660 which is to say, hey,
NOTE Confidence: 0.8220215

00:39:40.660 --> 00:39:41.870 the more we get validation,
NOTE Confidence: 0.8220215

00:39:41.870 --> 00:39:43.508 the more we get raw data and
NOTE Confidence: 0.8220215

00:39:43.508 --> 00:39:44.540 understanding algorithms the better.
NOTE Confidence: 0.8220215

00:39:44.540 --> 00:39:46.480 We're going to be comfortable
NOTE Confidence: 0.8220215

00:39:46.480 --> 00:39:48.420 with how these things go.
NOTE Confidence: 0.8220215

00:39:48.420 --> 00:39:48.854 Yes,
NOTE Confidence: 0.8220215

00:39:48.854 --> 00:39:51.458 I'm also created a asleep technology
NOTE Confidence: 0.8220215

00:39:51.458 --> 00:39:54.392 section on their website and part of

NOTE Confidence: 0.8220215

00:39:54.392 --> 00:39:57.241 what this task force did besides coming

NOTE Confidence: 0.8220215

00:39:57.241 --> 00:40:00.314 up with the position statement that you.

NOTE Confidence: 0.8220215

00:40:00.320 --> 00:40:03.211 See is they also built and have

NOTE Confidence: 0.8220215

00:40:03.211 --> 00:40:05.778 continued to build out a database.

NOTE Confidence: 0.8220215

00:40:05.780 --> 00:40:07.328 And so in the sleep technology,

NOTE Confidence: 0.8220215

00:40:07.330 --> 00:40:08.890 if you were an ASM member,

NOTE Confidence: 0.8220215

00:40:08.890 --> 00:40:10.954 you can log in and look at it.

NOTE Confidence: 0.8220215

00:40:10.960 --> 00:40:11.762 For instance,

NOTE Confidence: 0.8220215

00:40:11.762 --> 00:40:14.569 you can look up the outer ring

NOTE Confidence: 0.8220215

00:40:14.569 --> 00:40:17.226 and so this is a ring that is.

NOTE Confidence: 0.8220215

00:40:17.230 --> 00:40:18.498 Purports to monitor things.

NOTE Confidence: 0.8220215

00:40:18.498 --> 00:40:19.766 It's obviously a wearable

NOTE Confidence: 0.8220215

00:40:19.766 --> 00:40:21.178 'cause it's on your finger.

NOTE Confidence: 0.8220215

00:40:21.180 --> 00:40:22.800 It's small and it's easy to

NOTE Confidence: 0.8220215

00:40:22.800 --> 00:40:24.622 sort of have on through the

NOTE Confidence: 0.8220215

00:40:24.622 --> 00:40:26.650 night for at least some people,
NOTE Confidence: 0.8220215

00:40:26.650 --> 00:40:29.776 and you can kind of see.
NOTE Confidence: 0.8220215

00:40:29.780 --> 00:40:31.663 All the sort of tags of data
NOTE Confidence: 0.8220215

00:40:31.663 --> 00:40:32.830 that are compared here.
NOTE Confidence: 0.8220215

00:40:32.830 --> 00:40:35.078 You can sort of see that there was
NOTE Confidence: 0.8220215

00:40:35.078 --> 00:40:37.286 compared to PSG that you can't look at
NOTE Confidence: 0.8220215

00:40:37.286 --> 00:40:39.748 the raw data and it is not FDA cleared,
NOTE Confidence: 0.8220215

00:40:39.750 --> 00:40:41.640 but the idea here is that there
NOTE Confidence: 0.8220215

00:40:41.640 --> 00:40:43.349 are summaries of all these data.
NOTE Confidence: 0.8220215

00:40:43.350 --> 00:40:45.009 So if you have a question or
NOTE Confidence: 0.8220215

00:40:45.009 --> 00:40:47.063 if a patient brings in a device
NOTE Confidence: 0.8220215

00:40:47.063 --> 00:40:48.339 you're not familiar with,
NOTE Confidence: 0.8220215

00:40:48.340 --> 00:40:50.372 you can quickly look up to see if
NOTE Confidence: 0.8220215

00:40:50.372 --> 00:40:52.486 it's in the ASM sort of database.
NOTE Confidence: 0.8220215

00:40:52.490 --> 00:40:55.198 This is not a.
NOTE Confidence: 0.8220215

00:40:55.200 --> 00:40:56.031 There is no.

NOTE Confidence: 0.8220215
00:40:56.031 --> 00:40:58.847 The SM is trying not to give any credence
NOTE Confidence: 0.8220215
00:40:58.847 --> 00:41:01.277 to anyone device more than another.
NOTE Confidence: 0.8220215
00:41:01.280 --> 00:41:03.548 It's just trying to gather the data
NOTE Confidence: 0.8220215
00:41:03.548 --> 00:41:06.140 in a way that makes it easy for
NOTE Confidence: 0.8220215
00:41:06.140 --> 00:41:08.720 you to track and so for instance,
NOTE Confidence: 0.8220215
00:41:08.720 --> 00:41:10.976 here is the data around the
NOTE Confidence: 0.8220215
00:41:10.976 --> 00:41:12.480 aura ring from 2019
NOTE Confidence: 0.8368969
00:41:12.560 --> 00:41:14.720 and you can again see how
NOTE Confidence: 0.8368969
00:41:14.720 --> 00:41:16.880 PSG versus the ring kind of.
NOTE Confidence: 0.8368969
00:41:16.880 --> 00:41:17.921 They're fairly similar.
NOTE Confidence: 0.8368969
00:41:17.921 --> 00:41:19.656 They're not exactly the same,
NOTE Confidence: 0.8368969
00:41:19.660 --> 00:41:22.052 but you can see again that there is
NOTE Confidence: 0.8368969
00:41:22.052 --> 00:41:24.190 fairly good correlation with sleep,
NOTE Confidence: 0.8368969
00:41:24.190 --> 00:41:26.627 but a lot of source scatters, right?
NOTE Confidence: 0.8368969
00:41:26.627 --> 00:41:29.056 So the scatter plot is certainly higher.
NOTE Confidence: 0.8368969

00:41:29.060 --> 00:41:32.540 I think for the ordering that it is for PSG,
NOTE Confidence: 0.8368969

00:41:32.540 --> 00:41:35.316 and I think that's part of the challenge.
NOTE Confidence: 0.8368969

00:41:35.320 --> 00:41:36.364 With this is.
NOTE Confidence: 0.8368969

00:41:36.364 --> 00:41:38.800 Yeah, it looks good in some cases,
NOTE Confidence: 0.8368969

00:41:38.800 --> 00:41:40.928 but it's still not meeting up to
NOTE Confidence: 0.8368969

00:41:40.928 --> 00:41:42.630 the gold standard necessarily.
NOTE Confidence: 0.86432844

00:41:44.990 --> 00:41:46.294 And so I thought,
NOTE Confidence: 0.86432844

00:41:46.294 --> 00:41:48.850 I closed here just sort of saying,
NOTE Confidence: 0.86432844

00:41:48.850 --> 00:41:51.307 you know, this data is still coming.
NOTE Confidence: 0.86432844

00:41:51.310 --> 00:41:54.244 This is an article that has not yet been
NOTE Confidence: 0.86432844

00:41:54.244 --> 00:41:56.468 formally published and has been accepted
NOTE Confidence: 0.86432844

00:41:56.468 --> 00:41:59.030 for print and sleep for this year.
NOTE Confidence: 0.86432844

00:41:59.030 --> 00:42:02.036 And you can see again now, four different
NOTE Confidence: 0.86432844

00:42:02.036 --> 00:42:04.276 wearables and three non wearables.
NOTE Confidence: 0.86432844

00:42:04.280 --> 00:42:06.680 Where they were testing them
NOTE Confidence: 0.86432844

00:42:06.680 --> 00:42:09.531 versus Actigraphy and PSG and you

NOTE Confidence: 0.86432844

00:42:09.531 --> 00:42:12.065 can kind of see where there is.

NOTE Confidence: 0.86432844

00:42:12.070 --> 00:42:13.766 Again some good sensitivity,

NOTE Confidence: 0.86432844

00:42:13.766 --> 00:42:16.310 but problems with specificity and the

NOTE Confidence: 0.86432844

00:42:16.382 --> 00:42:18.567 sleep stage comparisons are mixed,

NOTE Confidence: 0.86432844

00:42:18.570 --> 00:42:21.168 and the worst the sleep is,

NOTE Confidence: 0.86432844

00:42:21.170 --> 00:42:23.330 the worst the devices do,

NOTE Confidence: 0.86432844

00:42:23.330 --> 00:42:26.546 and I think it's worth recognizing.

NOTE Confidence: 0.86432844

00:42:26.550 --> 00:42:28.708 That this is the problem, right?

NOTE Confidence: 0.86432844

00:42:28.708 --> 00:42:31.572 That our population is not a normal sleep.

NOTE Confidence: 0.86432844

00:42:31.580 --> 00:42:34.028 When you see a lot of the validation

NOTE Confidence: 0.86432844

00:42:34.028 --> 00:42:36.597 data is often comparing normal PSG.

NOTE Confidence: 0.86432844

00:42:36.600 --> 00:42:38.544 It's me patients who are normal

NOTE Confidence: 0.86432844

00:42:38.544 --> 00:42:40.710 between PSG and the wearable or

NOTE Confidence: 0.86432844

00:42:40.710 --> 00:42:42.710 niarbyl that that's under study,

NOTE Confidence: 0.86432844

00:42:42.710 --> 00:42:44.744 but we recognize we don't see

NOTE Confidence: 0.86432844

00:42:44.744 --> 00:42:46.650 normal people in our clinic.
NOTE Confidence: 0.86432844

00:42:46.650 --> 00:42:49.776 We see people who are abnormal
NOTE Confidence: 0.86432844

00:42:49.776 --> 00:42:52.570 and that's really the issue.
NOTE Confidence: 0.86432844

00:42:52.570 --> 00:42:54.845 So how am I going to close?
NOTE Confidence: 0.86432844

00:42:54.850 --> 00:42:56.806 I'm going to close by giving
NOTE Confidence: 0.86432844

00:42:56.806 --> 00:42:59.456 you sort of the tag line to the
NOTE Confidence: 0.86432844

00:42:59.456 --> 00:43:01.364 editorial I wrote in JC SM.
NOTE Confidence: 0.86432844

00:43:01.370 --> 00:43:03.645 Just a short period of time ago,
NOTE Confidence: 0.86432844

00:43:03.650 --> 00:43:05.477 but to say to seize this opportunity
NOTE Confidence: 0.86432844

00:43:05.477 --> 00:43:07.357 Miss Re Orient are thinking expanding
NOTE Confidence: 0.86432844

00:43:07.357 --> 00:43:09.097 beyond sleep apnea detection to
NOTE Confidence: 0.86432844

00:43:09.097 --> 00:43:10.920 fully embrace the holistic importance
NOTE Confidence: 0.86432844

00:43:10.920 --> 00:43:12.710 of sleep for disease prevention
NOTE Confidence: 0.86432844

00:43:12.710 --> 00:43:14.082 and management productivity and
NOTE Confidence: 0.86432844

00:43:14.082 --> 00:43:16.038 satisfaction and safety and well being.
NOTE Confidence: 0.86432844

00:43:16.040 --> 00:43:17.665 And health system that demands

NOTE Confidence: 0.86432844

00:43:17.665 --> 00:43:18.315 greater efficiency,

NOTE Confidence: 0.86432844

00:43:18.320 --> 00:43:20.714 we need to redefine the problem instead

NOTE Confidence: 0.86432844

00:43:20.714 --> 00:43:23.297 of asking how we can get more people.

NOTE Confidence: 0.86432844

00:43:23.300 --> 00:43:25.532 Into the Sleep laboratory we determine

NOTE Confidence: 0.86432844

00:43:25.532 --> 00:43:27.960 how to manage millions of people

NOTE Confidence: 0.86432844

00:43:27.960 --> 00:43:30.155 with undiagnosed sleep apnea through

NOTE Confidence: 0.86432844

00:43:30.155 --> 00:43:31.840 collaborative care models with.

NOTE Confidence: 0.86432844

00:43:31.840 --> 00:43:33.259 Primary care doctors,

NOTE Confidence: 0.86432844

00:43:33.259 --> 00:43:36.570 other specialists and our own sleep team.

NOTE Confidence: 0.86432844

00:43:36.570 --> 00:43:38.565 And finally we need to redirect our

NOTE Confidence: 0.86432844

00:43:38.565 --> 00:43:40.248 field by leveraging the disruptive

NOTE Confidence: 0.86432844

00:43:40.248 --> 00:43:41.784 technology like the consumer

NOTE Confidence: 0.86432844

00:43:41.784 --> 00:43:43.690 technology we're talking about today,

NOTE Confidence: 0.86432844

00:43:43.690 --> 00:43:45.846 to help us improve patient access to

NOTE Confidence: 0.86432844

00:43:45.846 --> 00:43:48.100 sleep care and improve their health,

NOTE Confidence: 0.86432844

00:43:48.100 --> 00:43:49.790 and by refraining Sleep Medicine,
NOTE Confidence: 0.86432844

00:43:49.790 --> 00:43:51.830 we can provide greater value payers,
NOTE Confidence: 0.86432844

00:43:51.830 --> 00:43:54.809 patients and employers.
NOTE Confidence: 0.86432844

00:43:54.810 --> 00:43:55.158 So.
NOTE Confidence: 0.86432844

00:43:55.158 --> 00:43:57.246 In summary, obviously the evaluation of
NOTE Confidence: 0.86432844

00:43:57.246 --> 00:43:59.690 sleep is evolved significantly overtime.
NOTE Confidence: 0.86432844

00:43:59.690 --> 00:44:01.670 It's not unique to Sleep Medicine,
NOTE Confidence: 0.86432844

00:44:01.670 --> 00:44:02.336 pathology, radiology,
NOTE Confidence: 0.86432844

00:44:02.336 --> 00:44:03.668 other fields are going
NOTE Confidence: 0.86432844

00:44:03.668 --> 00:44:05.300 through this change as well.
NOTE Confidence: 0.86432844

00:44:05.300 --> 00:44:07.280 It's just that the consumer side.
NOTE Confidence: 0.86432844

00:44:07.280 --> 00:44:08.905 This is been particularly notable
NOTE Confidence: 0.86432844

00:44:08.905 --> 00:44:11.246 in sleep just because so many people
NOTE Confidence: 0.86432844

00:44:11.246 --> 00:44:12.886 are interested in your sleep,
NOTE Confidence: 0.86432844

00:44:12.890 --> 00:44:13.814 and that's great.
NOTE Confidence: 0.86432844

00:44:13.814 --> 00:44:15.662 It means the word has gotten

NOTE Confidence: 0.86432844

00:44:15.662 --> 00:44:17.508 out that sleep is important.

NOTE Confidence: 0.86432844

00:44:17.510 --> 00:44:18.862 On the other hand,

NOTE Confidence: 0.86432844

00:44:18.862 --> 00:44:21.937 we have to deal with all this consumer

NOTE Confidence: 0.86432844

00:44:21.937 --> 00:44:24.829 technology as patients bring it in.

NOTE Confidence: 0.86432844

00:44:24.830 --> 00:44:27.567 Number two that the scientific data around

NOTE Confidence: 0.86432844

00:44:27.567 --> 00:44:29.889 consumer sleep technology is growing rapidly,

NOTE Confidence: 0.86432844

00:44:29.890 --> 00:44:32.606 though consumer technology is still not gold,

NOTE Confidence: 0.86432844

00:44:32.610 --> 00:44:34.162 standard right is validated

NOTE Confidence: 0.86432844

00:44:34.162 --> 00:44:36.102 against PSG in normal sleepers,

NOTE Confidence: 0.86432844

00:44:36.110 --> 00:44:38.826 really that same population would care about,

NOTE Confidence: 0.86432844

00:44:38.830 --> 00:44:39.610 probably not,

NOTE Confidence: 0.86432844

00:44:39.610 --> 00:44:42.340 and so it's really validating against PSG,

NOTE Confidence: 0.86432844

00:44:42.340 --> 00:44:44.280 and patients who have disease,

NOTE Confidence: 0.86432844

00:44:44.280 --> 00:44:44.678 that,

NOTE Confidence: 0.86432844

00:44:44.678 --> 00:44:47.862 to me would seem to be what eventually

NOTE Confidence: 0.86432844

00:44:47.862 --> 00:44:50.889 we need to get to and then three.
NOTE Confidence: 0.86432844

00:44:50.890 --> 00:44:51.280 We,
NOTE Confidence: 0.86432844

00:44:51.280 --> 00:44:53.230 as clinicians need to understand,
NOTE Confidence: 0.8157073

00:44:53.230 --> 00:44:56.135 adapt and evolve to this incoming technology.
NOTE Confidence: 0.8157073

00:44:56.140 --> 00:44:58.786 Because it's only going to get to be a
NOTE Confidence: 0.8157073

00:44:58.786 --> 00:45:01.208 bigger piece of what we deal with, right?
NOTE Confidence: 0.8157073

00:45:01.208 --> 00:45:03.890 I didn't even get into things like my air,
NOTE Confidence: 0.8157073

00:45:03.890 --> 00:45:05.320 right where patients are looking
NOTE Confidence: 0.8157073

00:45:05.320 --> 00:45:07.421 at their own CPAP data and giving
NOTE Confidence: 0.8157073

00:45:07.421 --> 00:45:08.946 getting some feedback from it.
NOTE Confidence: 0.8157073

00:45:08.950 --> 00:45:10.142 Is that disruptive technology?
NOTE Confidence: 0.8157073

00:45:10.142 --> 00:45:11.376 No, it's actually great.
NOTE Confidence: 0.8157073

00:45:11.376 --> 00:45:12.936 Technology is helping our patients
NOTE Confidence: 0.8157073

00:45:12.936 --> 00:45:14.731 be more successful and it's adding
NOTE Confidence: 0.8157073

00:45:14.731 --> 00:45:16.399 to things that we already do,
NOTE Confidence: 0.8157073

00:45:16.400 --> 00:45:18.192 but this is the world in which

NOTE Confidence: 0.8157073

00:45:18.192 --> 00:45:20.331 we are going to see continued and

NOTE Confidence: 0.8157073

00:45:20.331 --> 00:45:22.293 constant growth and staying on top

NOTE Confidence: 0.8157073

00:45:22.362 --> 00:45:24.150 of it's going to be difficult.

NOTE Confidence: 0.8157073

00:45:24.150 --> 00:45:26.159 I know the ASM is working to

NOTE Confidence: 0.8157073

00:45:26.159 --> 00:45:27.580 try and keep people.

NOTE Confidence: 0.8157073

00:45:27.580 --> 00:45:29.512 Educated as much as they can about

NOTE Confidence: 0.8157073

00:45:29.512 --> 00:45:31.637 devices as they come out and apps and

NOTE Confidence: 0.8157073

00:45:31.637 --> 00:45:33.490 all the things that are out there.

NOTE Confidence: 0.8157073

00:45:33.490 --> 00:45:34.758 But even for them,

NOTE Confidence: 0.8157073

00:45:34.758 --> 00:45:36.343 it's going to be difficult,

NOTE Confidence: 0.8157073

00:45:36.350 --> 00:45:38.569 and I think it's important to recognize

NOTE Confidence: 0.8157073

00:45:38.569 --> 00:45:40.800 if we just shut this all down.

NOTE Confidence: 0.8157073

00:45:40.800 --> 00:45:42.708 Say, you know I'm not dealing

NOTE Confidence: 0.8157073

00:45:42.708 --> 00:45:43.980 with any of that.

NOTE Confidence: 0.8157073

00:45:43.980 --> 00:45:45.926 I think that that's going to lead

NOTE Confidence: 0.8157073

00:45:45.926 --> 00:45:47.892 you down the path where you're
NOTE Confidence: 0.8157073

00:45:47.892 --> 00:45:50.028 eventually going to be left behind.
NOTE Confidence: 0.8157073

00:45:50.030 --> 00:45:51.854 That these folks who do technology
NOTE Confidence: 0.8157073

00:45:51.854 --> 00:45:53.974 work are very smart and they are
NOTE Confidence: 0.8157073

00:45:53.974 --> 00:45:55.941 moving much more rapidly than I think
NOTE Confidence: 0.8157073

00:45:56.007 --> 00:45:57.977 we feel sometimes comfortable with.
NOTE Confidence: 0.8157073

00:45:57.980 --> 00:45:59.996 But eventually we'll get to a
NOTE Confidence: 0.8157073

00:45:59.996 --> 00:46:02.304 place where I think we will meet
NOTE Confidence: 0.8157073

00:46:02.304 --> 00:46:04.086 in a both comfort and use.
NOTE Confidence: 0.8157073

00:46:04.090 --> 00:46:04.395 Perspective,
NOTE Confidence: 0.8157073

00:46:04.395 --> 00:46:06.530 so with that I wanted to thank
NOTE Confidence: 0.8157073

00:46:06.530 --> 00:46:08.540 everybody for their time and attention.
NOTE Confidence: 0.8157073

00:46:08.540 --> 00:46:09.960 I'm happy to take questions
NOTE Confidence: 0.8157073

00:46:09.960 --> 00:46:11.805 at this point and if anybody
NOTE Confidence: 0.8157073

00:46:11.805 --> 00:46:13.630 has questions after the fact,
NOTE Confidence: 0.8157073

00:46:13.630 --> 00:46:16.166 my emails on the bottom of the slide.

NOTE Confidence: 0.8157073

00:46:16.170 --> 00:46:17.130 So thank you.

NOTE Confidence: 0.86353695

00:46:19.070 --> 00:46:20.694 Thank you John drive.

NOTE Confidence: 0.86353695

00:46:20.694 --> 00:46:23.130 That really was very timely appreciated.

NOTE Confidence: 0.86353695

00:46:23.130 --> 00:46:26.378 I'm gonna ask people if they have questions.

NOTE Confidence: 0.86353695

00:46:26.380 --> 00:46:28.804 Just make some sort of notation

NOTE Confidence: 0.86353695

00:46:28.804 --> 00:46:32.059 in the chat box and will call you.

NOTE Confidence: 0.86353695

00:46:32.060 --> 00:46:34.636 I'll start you off with a multipart

NOTE Confidence: 0.86353695

00:46:34.636 --> 00:46:36.709 question given your knowledge of

NOTE Confidence: 0.86353695

00:46:36.709 --> 00:46:38.954 and working with the organization.

NOTE Confidence: 0.86353695

00:46:38.960 --> 00:46:40.584 Are there any current

NOTE Confidence: 0.86353695

00:46:40.584 --> 00:46:42.208 collaborations between the Academy,

NOTE Confidence: 0.86353695

00:46:42.210 --> 00:46:45.045 an industry and what that looks like?

NOTE Confidence: 0.86353695

00:46:45.050 --> 00:46:47.522 What are the opportunities for the

NOTE Confidence: 0.86353695

00:46:47.522 --> 00:46:49.580 people here to collaborate with?

NOTE Confidence: 0.86353695

00:46:49.580 --> 00:46:53.108 Industry and is the Academy providing any

NOTE Confidence: 0.86353695

00:46:53.108 --> 00:46:55.947 structure slash funding for any of them.
NOTE Confidence: 0.8693684

00:46:57.400 --> 00:46:59.696 So that's a that's a really wide question,
NOTE Confidence: 0.8693684

00:46:59.700 --> 00:47:02.004 Larry, but but thank you for making it.
NOTE Confidence: 0.8693684

00:47:02.010 --> 00:47:03.970 I'm obviously less well connected that I
NOTE Confidence: 0.8693684

00:47:03.970 --> 00:47:06.327 once was as I've rotated off the board.
NOTE Confidence: 0.8693684

00:47:06.330 --> 00:47:09.138 But I will say my belief is that The
NOTE Confidence: 0.8693684

00:47:09.138 --> 00:47:11.297 Academy Is still working towards.
NOTE Confidence: 0.8693684

00:47:11.300 --> 00:47:13.964 A partnership in which there is clarity on
NOTE Confidence: 0.8693684

00:47:13.964 --> 00:47:17.107 how how the data the technology can be used.
NOTE Confidence: 0.8693684

00:47:17.110 --> 00:47:19.252 Right so I think the challenge that
NOTE Confidence: 0.8693684

00:47:19.252 --> 00:47:21.002 the Academy has these technology
NOTE Confidence: 0.8693684

00:47:21.002 --> 00:47:22.922 companies like Fitbit or Google
NOTE Confidence: 0.8693684

00:47:22.922 --> 00:47:24.979 or really large and we asleep.
NOTE Confidence: 0.8693684

00:47:24.980 --> 00:47:27.367 Doctors are not a very large group.
NOTE Confidence: 0.8693684

00:47:27.370 --> 00:47:29.918 They are interested in working with us
NOTE Confidence: 0.8693684

00:47:29.918 --> 00:47:32.345 but sometimes on their terms more than

NOTE Confidence: 0.8693684

00:47:32.345 --> 00:47:35.313 our terms and I think that that is a

NOTE Confidence: 0.8693684

00:47:35.313 --> 00:47:37.630 challenge that we will continue to face.

NOTE Confidence: 0.8693684

00:47:37.630 --> 00:47:41.050 I think it is true also of things like AI,

NOTE Confidence: 0.8693684

00:47:41.050 --> 00:47:41.792 sleep staging.

NOTE Confidence: 0.8693684

00:47:41.792 --> 00:47:43.647 Right that that there is,

NOTE Confidence: 0.8693684

00:47:43.650 --> 00:47:46.210 the Academy has some data on sleep scoring

NOTE Confidence: 0.8693684

00:47:46.210 --> 00:47:48.452 that AI companies would probably like

NOTE Confidence: 0.8693684

00:47:48.452 --> 00:47:51.270 to have to use this comparison points.

NOTE Confidence: 0.8693684

00:47:51.270 --> 00:47:53.671 So I think that there are partnerships

NOTE Confidence: 0.8693684

00:47:53.671 --> 00:47:56.033 that are being worked on and I

NOTE Confidence: 0.8693684

00:47:56.033 --> 00:47:57.935 think that there is interest from

NOTE Confidence: 0.8693684

00:47:58.002 --> 00:47:59.619 the research perspective.

NOTE Confidence: 0.8693684

00:47:59.620 --> 00:48:02.164 I think if you look at the foundation

NOTE Confidence: 0.8693684

00:48:02.164 --> 00:48:04.284 they're always looking for technology they

NOTE Confidence: 0.8693684

00:48:04.284 --> 00:48:07.301 don't want people to be trying to promote

NOTE Confidence: 0.8693684

00:48:07.301 --> 00:48:09.779 their own technology with foundation funds.

NOTE Confidence: 0.8693684

00:48:09.780 --> 00:48:12.180 But I think that they are

NOTE Confidence: 0.8693684

00:48:12.180 --> 00:48:14.100 looking for research that is.

NOTE Confidence: 0.8693684

00:48:14.100 --> 00:48:15.258 Interesting within that

NOTE Confidence: 0.8693684

00:48:15.258 --> 00:48:16.416 particular technology world,

NOTE Confidence: 0.8693684

00:48:16.420 --> 00:48:18.826 so I think the Academy recognizes

NOTE Confidence: 0.8693684

00:48:18.826 --> 00:48:21.190 that the challenges are out there

NOTE Confidence: 0.8693684

00:48:21.190 --> 00:48:23.254 and I think they're really open

NOTE Confidence: 0.8693684

00:48:23.254 --> 00:48:25.709 to ways trying to work together.

NOTE Confidence: 0.8693684

00:48:25.710 --> 00:48:28.833 But at the same time want to protect the

NOTE Confidence: 0.8693684

00:48:28.833 --> 00:48:31.516 sleep clinician as much as possible.

NOTE Confidence: 0.8693684

00:48:31.520 --> 00:48:33.878 Recognizing that you know we don't

NOTE Confidence: 0.8693684

00:48:33.878 --> 00:48:36.549 want to be replaced by the robots.

NOTE Confidence: 0.9095628

00:48:38.930 --> 00:48:39.530 And then.

NOTE Confidence: 0.83030736

00:48:41.830 --> 00:48:44.780 We have other questions. Yeah, can I

NOTE Confidence: 0.83030736

00:48:44.780 --> 00:48:48.147 ask Doug a question or make a comment

NOTE Confidence: 0.83030736

00:48:48.150 --> 00:48:50.670 so there are millions of people

NOTE Confidence: 0.83030736

00:48:50.670 --> 00:48:53.649 that are using oximeters.

NOTE Confidence: 0.83030736

00:48:53.650 --> 00:48:57.626 At home, and it turns out that the ox,

NOTE Confidence: 0.83030736

00:48:57.626 --> 00:48:59.836 the standards in order to

NOTE Confidence: 0.83030736

00:48:59.836 --> 00:49:02.490 sell an oximeter do not take

NOTE Confidence: 0.7956973

00:49:02.490 --> 00:49:05.390 into account different pigment types.

NOTE Confidence: 0.7956973

00:49:05.390 --> 00:49:08.565 And so there's a huge as a matter

NOTE Confidence: 0.7956973

00:49:08.565 --> 00:49:10.945 of fact that couple of senators

NOTE Confidence: 0.7956973

00:49:10.945 --> 00:49:12.935 Elizabeth Warren and Cory Booker

NOTE Confidence: 0.7956973

00:49:12.935 --> 00:49:15.706 have asked the FDA to look into

NOTE Confidence: 0.8849044

00:49:15.710 --> 00:49:18.890 this issue because there has not been any

NOTE Confidence: 0.8849044

00:49:18.890 --> 00:49:21.267 validation of these devices on people

NOTE Confidence: 0.8849044

00:49:21.267 --> 00:49:24.338 with different skin colors. So this

NOTE Confidence: 0.84685284

00:49:24.340 --> 00:49:26.708 is, you know there are millions of these

NOTE Confidence: 0.84685284

00:49:26.710 --> 00:49:28.775 out there an we just need to

NOTE Confidence: 0.84685284

00:49:28.780 --> 00:49:31.740 keep that in mind that a lot of these devices

NOTE Confidence: 0.84685284

00:49:31.740 --> 00:49:34.230 have really not been validated.

NOTE Confidence: 0.84685284

00:49:34.230 --> 00:49:35.856 I think that's an excellent point.

NOTE Confidence: 0.84685284

00:49:35.860 --> 00:49:37.799 I mean, I think they certainly oximeters

NOTE Confidence: 0.84685284

00:49:37.799 --> 00:49:40.191 have blown up in the setting of kovid, right?

NOTE Confidence: 0.84685284

00:49:40.191 --> 00:49:42.088 That there's more and more of them

NOTE Confidence: 0.84685284

00:49:42.088 --> 00:49:43.212 being sold, which interesting,

NOTE Confidence: 0.84685284

00:49:43.212 --> 00:49:45.249 of course, is that patients will also

NOTE Confidence: 0.84685284

00:49:45.249 --> 00:49:47.235 use that in the clinical sense to say,

NOTE Confidence: 0.84685284

00:49:47.240 --> 00:49:48.860 hey, I don't have sleep apnea,

NOTE Confidence: 0.84685284

00:49:48.860 --> 00:49:50.757 'cause every time I check my oximeter,

NOTE Confidence: 0.84685284

00:49:50.760 --> 00:49:52.928 it's normal, so I couldn't have sleep apnea,

NOTE Confidence: 0.84685284

00:49:52.930 --> 00:49:56.608 to which I say yes, but you're awake.

NOTE Confidence: 0.84685284

00:49:56.610 --> 00:49:57.996 And to your point around validation,

NOTE Confidence: 0.84685284

00:49:58.000 --> 00:49:59.150 I think the issue is,

NOTE Confidence: 0.84685284

00:49:59.150 --> 00:50:00.390 you know there's been a.

NOTE Confidence: 0.84685284

00:50:00.390 --> 00:50:02.910 Real push to get these things out

NOTE Confidence: 0.84685284

00:50:02.910 --> 00:50:04.910 because people wanted to have them.

NOTE Confidence: 0.84685284

00:50:04.910 --> 00:50:07.889 And yet at the same time knowing how much

NOTE Confidence: 0.84685284

00:50:07.889 --> 00:50:09.939 variability there may be and whether

NOTE Confidence: 0.84685284

00:50:09.939 --> 00:50:12.568 skin type or pigmentation or whatever, right?

NOTE Confidence: 0.84685284

00:50:12.568 --> 00:50:13.960 That variance among population

NOTE Confidence: 0.84685284

00:50:13.960 --> 00:50:15.004 really does matter,

NOTE Confidence: 0.84685284

00:50:15.010 --> 00:50:17.086 and that's true for the oximeters,

NOTE Confidence: 0.84685284

00:50:17.090 --> 00:50:19.874 but it's also true for all these wearables.

NOTE Confidence: 0.84685284

00:50:19.880 --> 00:50:22.302 Yeah, now I think that the wearables

NOTE Confidence: 0.84685284

00:50:22.302 --> 00:50:24.399 obviously they have tried to gather,

NOTE Confidence: 0.84685284

00:50:24.400 --> 00:50:25.696 you know, for instance,

NOTE Confidence: 0.84685284

00:50:25.696 --> 00:50:28.090 Fitbit has so many users that they

NOTE Confidence: 0.84685284

00:50:28.090 --> 00:50:30.394 probably have looked at some variances.

NOTE Confidence: 0.84685284

00:50:30.400 --> 00:50:32.602 Around skin color if they have

NOTE Confidence: 0.84685284

00:50:32.602 --> 00:50:33.703 access to that.
NOTE Confidence: 0.84685284

00:50:33.710 --> 00:50:34.398 But again,
NOTE Confidence: 0.84685284

00:50:34.398 --> 00:50:37.150 who knows because that data is not always
NOTE Confidence: 0.84685284

00:50:37.218 --> 00:50:39.600 being published in a scientific way.
NOTE Confidence: 0.84685284

00:50:39.600 --> 00:50:41.435 It's in their back rooms
NOTE Confidence: 0.84685284

00:50:41.435 --> 00:50:42.903 being discussed amongst them,
NOTE Confidence: 0.84685284

00:50:42.910 --> 00:50:44.378 which is a challenge.
NOTE Confidence: 0.76784277

00:50:51.020 --> 00:50:52.500 River question from Karen Johnson.
NOTE Confidence: 0.76784277

00:50:52.500 --> 00:50:54.558 You wanna unmute and ask your question?
NOTE Confidence: 0.85475516

00:50:56.640 --> 00:50:59.340 So I just want your thoughts on sort of,
NOTE Confidence: 0.85475516

00:50:59.340 --> 00:51:01.008 you know when we think about
NOTE Confidence: 0.85475516

00:51:01.008 --> 00:51:02.496 public health issues like daylight
NOTE Confidence: 0.85475516

00:51:02.496 --> 00:51:04.434 savings time or school start times,
NOTE Confidence: 0.85475516

00:51:04.440 --> 00:51:06.568 what can we get from you know Fitbit
NOTE Confidence: 0.85475516

00:51:06.568 --> 00:51:08.512 and Google and where do you think
NOTE Confidence: 0.85475516

00:51:08.512 --> 00:51:10.631 it'll sort of help answer some of

NOTE Confidence: 0.85475516

00:51:10.631 --> 00:51:12.381 these sort of unanswerable questions

NOTE Confidence: 0.85475516

00:51:12.381 --> 00:51:14.340 about the effects on sleep and

NOTE Confidence: 0.85475516

00:51:14.340 --> 00:51:15.840 potentially sleep disparities and such.

NOTE Confidence: 0.85475516

00:51:15.840 --> 00:51:17.940 Well, I think that's a great question.

NOTE Confidence: 0.85475516

00:51:17.940 --> 00:51:20.316 I think the real issue is will we

NOTE Confidence: 0.85475516

00:51:20.316 --> 00:51:22.583 have access to that data, right?

NOTE Confidence: 0.85475516

00:51:22.583 --> 00:51:24.069 I think.

NOTE Confidence: 0.85475516

00:51:24.070 --> 00:51:27.091 The number of people who have a wearable

NOTE Confidence: 0.85475516

00:51:27.091 --> 00:51:29.588 device is growing continues to grow.

NOTE Confidence: 0.85475516

00:51:29.590 --> 00:51:32.125 As these devices get more

NOTE Confidence: 0.85475516

00:51:32.125 --> 00:51:33.646 and more affordable.

NOTE Confidence: 0.85475516

00:51:33.650 --> 00:51:35.155 The companies will have more

NOTE Confidence: 0.85475516

00:51:35.155 --> 00:51:36.660 and more data points right?

NOTE Confidence: 0.85475516

00:51:36.660 --> 00:51:38.466 And so just like I showed

NOTE Confidence: 0.85475516

00:51:38.466 --> 00:51:39.670 you with an earthquake,

NOTE Confidence: 0.85475516

00:51:39.670 --> 00:51:41.777 you know it's not just that right,
NOTE Confidence: 0.85475516

00:51:41.780 --> 00:51:43.817 it's what is your sleep look like
NOTE Confidence: 0.85475516

00:51:43.817 --> 00:51:45.992 the day after some big event, right?
NOTE Confidence: 0.85475516

00:51:45.992 --> 00:51:47.752 You know the inauguration, you know,
NOTE Confidence: 0.85475516

00:51:47.752 --> 00:51:49.960 for whether you are for or against the
NOTE Confidence: 0.85475516

00:51:50.020 --> 00:51:52.604 current President you know was that you know?
NOTE Confidence: 0.85475516

00:51:52.610 --> 00:51:54.721 Was the sleep better or worse, right?
NOTE Confidence: 0.85475516

00:51:54.721 --> 00:51:56.527 Is it on a school day,
NOTE Confidence: 0.85475516

00:51:56.530 --> 00:51:57.718 all 17 year olds?
NOTE Confidence: 0.85475516

00:51:57.718 --> 00:51:59.500 How much sleep are they short
NOTE Confidence: 0.85475516

00:51:59.568 --> 00:52:01.338 and how much does it matter?
NOTE Confidence: 0.85475516

00:52:01.340 --> 00:52:03.146 And how much can we involve
NOTE Confidence: 0.85475516

00:52:03.146 --> 00:52:04.350 ourselves in that right?
NOTE Confidence: 0.85475516

00:52:04.350 --> 00:52:05.166 I think.
NOTE Confidence: 0.85475516

00:52:05.166 --> 00:52:08.430 This data is not as of yet publicly
NOTE Confidence: 0.85475516

00:52:08.523 --> 00:52:11.400 available, and if it became so,

NOTE Confidence: 0.85475516
00:52:11.400 --> 00:52:14.892 I think it would be a goldmine of research,
NOTE Confidence: 0.85475516
00:52:14.900 --> 00:52:16.840 but as it currently stands,
NOTE Confidence: 0.85475516
00:52:16.840 --> 00:52:20.725 it's all behind firewalls and I think.
NOTE Confidence: 0.85475516
00:52:20.730 --> 00:52:22.716 The more that the Academy and
NOTE Confidence: 0.85475516
00:52:22.716 --> 00:52:24.040 these technology companies are
NOTE Confidence: 0.85475516
00:52:24.096 --> 00:52:25.886 able to work together, the better.
NOTE Confidence: 0.85475516
00:52:25.886 --> 00:52:27.902 I think we chance we have of
NOTE Confidence: 0.85475516
00:52:27.902 --> 00:52:30.430 being able to use that data for
NOTE Confidence: 0.85475516
00:52:30.430 --> 00:52:31.516 public health initiatives.
NOTE Confidence: 0.85475516
00:52:31.520 --> 00:52:33.476 I think it would be lovely.
NOTE Confidence: 0.85475516
00:52:33.480 --> 00:52:35.601 I just don't know that we can
NOTE Confidence: 0.85475516
00:52:35.601 --> 00:52:37.409 plan on having that access.
NOTE Confidence: 0.8261133
00:52:43.840 --> 00:52:46.513 I was wondering if I could ask a question.
NOTE Confidence: 0.8261133
00:52:46.520 --> 00:52:48.904 This is under his truck over from Yell,
NOTE Confidence: 0.8261133
00:52:48.910 --> 00:52:49.852 really nice talk.
NOTE Confidence: 0.8261133

00:52:49.852 --> 00:52:51.736 Thanks for talking about a topic
NOTE Confidence: 0.8261133

00:52:51.736 --> 00:52:53.477 that is very actual for patients
NOTE Confidence: 0.8261133

00:52:53.477 --> 00:52:55.759 and and a little bit distant for us.
NOTE Confidence: 0.8261133

00:52:55.760 --> 00:52:57.692 So I like your point of acknowledging
NOTE Confidence: 0.8261133

00:52:57.692 --> 00:52:59.702 that you know we should be looking
NOTE Confidence: 0.8261133

00:52:59.702 --> 00:53:01.794 at these devices and looking at the
NOTE Confidence: 0.8261133

00:53:01.794 --> 00:53:03.509 data that patients are presenting.
NOTE Confidence: 0.8261133

00:53:03.510 --> 00:53:05.298 And I'm faced with that everyday.
NOTE Confidence: 0.8261133

00:53:05.300 --> 00:53:07.484 I've I've seen patients bring in every
NOTE Confidence: 0.8261133

00:53:07.484 --> 00:53:09.461 single app report that you have shown
NOTE Confidence: 0.8261133

00:53:09.461 --> 00:53:11.550 in others and so I don't curiosity.
NOTE Confidence: 0.8261133

00:53:11.550 --> 00:53:12.636 You know what?
NOTE Confidence: 0.8261133

00:53:12.636 --> 00:53:14.446 Which one of these apps?
NOTE Confidence: 0.8261133

00:53:14.450 --> 00:53:16.480 And do you actually use and how
NOTE Confidence: 0.8261133

00:53:16.480 --> 00:53:17.770 do you use them?
NOTE Confidence: 0.8261133

00:53:17.770 --> 00:53:20.742 So I mean, I've used nor lab for, you know,

NOTE Confidence: 0.8261133

00:53:20.742 --> 00:53:22.950 titration off the back on the back and

NOTE Confidence: 0.8261133

00:53:23.007 --> 00:53:25.017 maybe oral appliance stuff as well.

NOTE Confidence: 0.8261133

00:53:25.020 --> 00:53:27.028 I think I've found a little bit more

NOTE Confidence: 0.8261133

00:53:27.028 --> 00:53:28.880 difficult to find devices that measure

NOTE Confidence: 0.8261133

00:53:28.880 --> 00:53:30.818 oxygen reliably and also devices that

NOTE Confidence: 0.8261133

00:53:30.875 --> 00:53:32.570 measure position reliably or not.

NOTE Confidence: 0.8261133

00:53:32.570 --> 00:53:33.174 Devices, apps,

NOTE Confidence: 0.8261133

00:53:33.174 --> 00:53:35.288 I should say the measure position reliably,

NOTE Confidence: 0.8261133

00:53:35.290 --> 00:53:37.722 so was wondering what what do you do

NOTE Confidence: 0.8261133

00:53:37.722 --> 00:53:39.440 with information that comes in from

NOTE Confidence: 0.8261133

00:53:39.440 --> 00:53:41.814 the sleep cycle or it comes in from

NOTE Confidence: 0.8261133

00:53:41.814 --> 00:53:44.004 another particular like circle for example?

NOTE Confidence: 0.8261133

00:53:44.010 --> 00:53:44.344 Right,

NOTE Confidence: 0.8261133

00:53:44.344 --> 00:53:46.682 so I think I think that's an

NOTE Confidence: 0.8261133

00:53:46.682 --> 00:53:48.559 excellent question and I think I

NOTE Confidence: 0.8261133

00:53:48.559 --> 00:53:50.269 think we're all faced with this.
NOTE Confidence: 0.8261133

00:53:50.270 --> 00:53:53.290 Is is the challenge of how do we use this
NOTE Confidence: 0.8261133

00:53:53.363 --> 00:53:56.523 data and what do we use in our own clinics?
NOTE Confidence: 0.8261133

00:53:56.530 --> 00:53:58.408 So what I'll tell you is,
NOTE Confidence: 0.8261133

00:53:58.410 --> 00:54:00.906 at least in, at least in my clinic,
NOTE Confidence: 0.8261133

00:54:00.910 --> 00:54:03.134 I don't tend to use much more than
NOTE Confidence: 0.8261133

00:54:03.134 --> 00:54:05.608 sort of generics, which is to say,
NOTE Confidence: 0.8261133

00:54:05.608 --> 00:54:05.920 hey,
NOTE Confidence: 0.8261133

00:54:05.920 --> 00:54:08.737 if you download an app such as quit snoring,
NOTE Confidence: 0.8261133

00:54:08.740 --> 00:54:09.481 or snore lab,
NOTE Confidence: 0.8261133

00:54:09.481 --> 00:54:11.619 it might tell us how bad your snoring
NOTE Confidence: 0.8261133

00:54:11.619 --> 00:54:13.689 is with that custom mouthpiece or
NOTE Confidence: 0.8261133

00:54:13.689 --> 00:54:15.420 without the custom mouthpiece.
NOTE Confidence: 0.8261133

00:54:15.420 --> 00:54:16.964 And I will say the number of times
NOTE Confidence: 0.8261133

00:54:16.964 --> 00:54:18.920 I get that feedback back from the
NOTE Confidence: 0.8261133

00:54:18.920 --> 00:54:20.780 patient with that recommendation is small,

NOTE Confidence: 0.8261133

00:54:20.780 --> 00:54:21.033 right?

NOTE Confidence: 0.8261133

00:54:21.033 --> 00:54:22.551 But sometimes they just never come

NOTE Confidence: 0.8261133

00:54:22.551 --> 00:54:24.350 back 'cause they're tracking their own data.

NOTE Confidence: 0.8261133

00:54:24.350 --> 00:54:26.470 Sometimes they come back and

NOTE Confidence: 0.8261133

00:54:26.470 --> 00:54:28.166 they never did it.

NOTE Confidence: 0.8261133

00:54:28.170 --> 00:54:32.319 Similarly, I think one of the things that we.

NOTE Confidence: 0.8261133

00:54:32.320 --> 00:54:34.714 We may have use for is the

NOTE Confidence: 0.8261133

00:54:34.714 --> 00:54:37.241 patients and I have seen several

NOTE Confidence: 0.8261133

00:54:37.241 --> 00:54:40.073 of these recently who are really.

NOTE Confidence: 0.8261133

00:54:40.080 --> 00:54:41.712 Not well scheduled and we don't

NOTE Confidence: 0.8261133

00:54:41.712 --> 00:54:43.800 have a great sense of what that

NOTE Confidence: 0.8261133

00:54:43.800 --> 00:54:45.365 schedule for sleeping looks like,

NOTE Confidence: 0.8261133

00:54:45.370 --> 00:54:47.239 so I've had several these recently where

NOTE Confidence: 0.8261133

00:54:47.239 --> 00:54:49.488 I've made a recommendation to say look.

NOTE Confidence: 0.8261133

00:54:49.490 --> 00:54:52.430 You know I'd love to get an actigraph on you,

NOTE Confidence: 0.8261133

00:54:52.430 --> 00:54:54.606 but the wait time for our actigraph is

NOTE Confidence: 0.8261133

00:54:54.606 --> 00:54:56.840 long and ones out 'cause it's broken.

NOTE Confidence: 0.8261133

00:54:56.840 --> 00:54:58.667 And so why don't you buy yourself

NOTE Confidence: 0.8261133

00:54:58.667 --> 00:55:00.842 a device of some kind and actually

NOTE Confidence: 0.8261133

00:55:00.842 --> 00:55:01.838 look at schedule?

NOTE Confidence: 0.8261133

00:55:01.840 --> 00:55:03.898 I don't even care what the sleep

NOTE Confidence: 0.8261133

00:55:03.898 --> 00:55:04.780 quality looks like,

NOTE Confidence: 0.8261133

00:55:04.780 --> 00:55:06.538 it can be the cheapest non

NOTE Confidence: 0.8261133

00:55:06.538 --> 00:55:07.417 sleep staging Fitbit.

NOTE Confidence: 0.8261133

00:55:07.420 --> 00:55:09.724 But I just need to know when you're

NOTE Confidence: 0.8261133

00:55:09.724 --> 00:55:12.265 going to bed and getting up every day.

NOTE Confidence: 0.8261133

00:55:12.270 --> 00:55:13.014 And to me,

NOTE Confidence: 0.8261133

00:55:13.014 --> 00:55:14.006 the most valuable information

NOTE Confidence: 0.8261133

00:55:14.006 --> 00:55:15.899 I can get from these devices is

NOTE Confidence: 0.8261133

00:55:15.899 --> 00:55:17.537 really that is how well scheduled

NOTE Confidence: 0.8261133

00:55:17.593 --> 00:55:18.933 are these 'cause the people

NOTE Confidence: 0.8261133

00:55:18.933 --> 00:55:20.273 for whom they are bringing

NOTE Confidence: 0.88394594

00:55:20.280 --> 00:55:20.796 these devices?

NOTE Confidence: 0.88394594

00:55:20.796 --> 00:55:23.749 A lot of the time and want to talk about it?

NOTE Confidence: 0.88394594

00:55:23.750 --> 00:55:26.795 Or the people who aren't sleeping well.

NOTE Confidence: 0.88394594

00:55:26.800 --> 00:55:29.768 And a lot of the time that understanding

NOTE Confidence: 0.88394594

00:55:29.768 --> 00:55:32.262 that schedule to me becomes so crucial

NOTE Confidence: 0.88394594

00:55:32.262 --> 00:55:34.570 and suspected is for you as well.

NOTE Confidence: 0.88394594

00:55:34.570 --> 00:55:36.852 And you know, even then I can

NOTE Confidence: 0.88394594

00:55:36.852 --> 00:55:39.318 scan through that data and take a

NOTE Confidence: 0.88394594

00:55:39.318 --> 00:55:41.088 couple of screenshots and upload

NOTE Confidence: 0.88394594

00:55:41.088 --> 00:55:43.379 it to their medical file, but.

NOTE Confidence: 0.88394594

00:55:43.379 --> 00:55:45.752 I have no good way of summarizing

NOTE Confidence: 0.88394594

00:55:45.752 --> 00:55:48.339 that data in a one page snapshot of.

NOTE Confidence: 0.88394594

00:55:48.340 --> 00:55:49.900 Well, here's their bedtime and wait

NOTE Confidence: 0.88394594

00:55:49.900 --> 00:55:51.440 time average and their variances.

NOTE Confidence: 0.88394594

00:55:51.440 --> 00:55:53.696 And wouldn't that be really nice and useful?

NOTE Confidence: 0.88394594

00:55:53.700 --> 00:55:55.924 And that's kind of what we told Fitbit

NOTE Confidence: 0.88394594

00:55:55.924 --> 00:55:57.930 when we went to meet with them.

NOTE Confidence: 0.88394594

00:55:57.930 --> 00:55:59.616 We have yet to see that.

NOTE Confidence: 0.92221045

00:56:03.210 --> 00:56:06.230 Thank you. I think another opportunity

NOTE Confidence: 0.92221045

00:56:06.230 --> 00:56:08.537 is for respironics and res Med to put

NOTE Confidence: 0.92221045

00:56:08.537 --> 00:56:10.210 in some smaller emitters in the masks

NOTE Confidence: 0.92221045

00:56:10.210 --> 00:56:12.397 so we have a sense of what's happening

NOTE Confidence: 0.92221045

00:56:12.397 --> 00:56:14.246 with the patients and rash leaping in,

NOTE Confidence: 0.92221045

00:56:14.246 --> 00:56:16.147 and I think that there is a

NOTE Confidence: 0.92221045

00:56:16.147 --> 00:56:17.557 wealth of options out there.

NOTE Confidence: 0.92221045

00:56:17.560 --> 00:56:19.368 There is no question and I think I

NOTE Confidence: 0.92221045

00:56:19.368 --> 00:56:21.105 will say I think technology companies

NOTE Confidence: 0.92221045

00:56:21.105 --> 00:56:22.941 some of them are more willing

NOTE Confidence: 0.92221045

00:56:22.994 --> 00:56:24.626 to listen to other than others.

NOTE Confidence: 0.92221045

00:56:24.630 --> 00:56:26.478 Some of them are just trying to provide

NOTE Confidence: 0.92221045

00:56:26.478 --> 00:56:28.437 the best consumer experience they have.

NOTE Confidence: 0.92221045

00:56:28.440 --> 00:56:31.088 Some of them are just kicking out scores

NOTE Confidence: 0.92221045

00:56:31.088 --> 00:56:33.478 that have no relevance to anything.

NOTE Confidence: 0.92221045

00:56:33.480 --> 00:56:35.916 The ones that are at least willing

NOTE Confidence: 0.92221045

00:56:35.916 --> 00:56:37.912 to collaborate a little bit and

NOTE Confidence: 0.92221045

00:56:37.912 --> 00:56:40.332 sit down in some way as much as

NOTE Confidence: 0.92221045

00:56:40.332 --> 00:56:42.084 a big company can sit down,

NOTE Confidence: 0.92221045

00:56:42.090 --> 00:56:44.410 but you know there was a sleep scientist

NOTE Confidence: 0.92221045

00:56:44.410 --> 00:56:46.754 who spoke at a from Fitbit who spoke

NOTE Confidence: 0.92221045

00:56:46.754 --> 00:56:48.358 at an Academy American Accounting

NOTE Confidence: 0.92221045

00:56:48.358 --> 00:56:50.388 medicine conference like to me,

NOTE Confidence: 0.92221045

00:56:50.390 --> 00:56:52.581 those are the small steps and what

NOTE Confidence: 0.92221045

00:56:52.581 --> 00:56:54.816 they can release is small and they

NOTE Confidence: 0.92221045

00:56:54.816 --> 00:56:57.049 can talk about the algorithm and they

NOTE Confidence: 0.92221045

00:56:57.049 --> 00:56:58.999 have NDA's and all these things,

NOTE Confidence: 0.92221045

00:56:59.000 --> 00:57:01.331 but it shows at least that they're
NOTE Confidence: 0.92221045

00:57:01.331 --> 00:57:03.600 willing to take step step to meet.
NOTE Confidence: 0.92221045

00:57:03.600 --> 00:57:05.238 Somewhere in the middle we may never
NOTE Confidence: 0.92221045

00:57:05.238 --> 00:57:06.825 be thrilled with having an algorithm
NOTE Confidence: 0.92221045

00:57:06.825 --> 00:57:08.771 determine what we see about somebody sleep.
NOTE Confidence: 0.92221045

00:57:08.780 --> 00:57:10.724 At the same time, I'm using a watch
NOTE Confidence: 0.92221045

00:57:10.724 --> 00:57:12.670 path that does the exact same thing.
NOTE Confidence: 0.92221045

00:57:12.670 --> 00:57:14.910 How comfortable might with that?
NOTE Confidence: 0.92221045

00:57:14.910 --> 00:57:17.214 OK, 'cause there's a lot of data behind it,
NOTE Confidence: 0.92221045

00:57:17.220 --> 00:57:19.050 but.
NOTE Confidence: 0.92221045

00:57:19.050 --> 00:57:20.358 Probably the Fitbit has more data,
NOTE Confidence: 0.92221045

00:57:20.360 --> 00:57:22.468 we just don't know what it looks like, right?
NOTE Confidence: 0.92221045

00:57:22.468 --> 00:57:25.044 So the more that there is openness
NOTE Confidence: 0.92221045

00:57:25.044 --> 00:57:26.862 about the data, the better.
NOTE Confidence: 0.92221045

00:57:26.862 --> 00:57:28.467 I think we care about,
NOTE Confidence: 0.92221045

00:57:28.470 --> 00:57:30.390 but Fitbit as a general rule,

NOTE Confidence: 0.92221045

00:57:30.390 --> 00:57:32.658 doesn't they want best health but their

NOTE Confidence: 0.92221045

00:57:32.658 --> 00:57:34.890 company they want to sell things right?

NOTE Confidence: 0.92221045

00:57:34.890 --> 00:57:35.853 And so how?

NOTE Confidence: 0.92221045

00:57:35.853 --> 00:57:38.100 What is that validation do for them?

NOTE Confidence: 0.92221045

00:57:38.100 --> 00:57:40.900 Maybe not a lot.

NOTE Confidence: 0.92221045

00:57:40.900 --> 00:57:41.868 Because they're already selling

NOTE Confidence: 0.92221045

00:57:41.868 --> 00:57:42.836 millions of the devices,

NOTE Confidence: 0.92221045

00:57:42.840 --> 00:57:43.080 right?

NOTE Confidence: 0.8732282

00:57:45.670 --> 00:57:47.720 On that. On that note,

NOTE Confidence: 0.8732282

00:57:47.720 --> 00:57:51.392 I think we're getting close to the end here.

NOTE Confidence: 0.8732282

00:57:51.400 --> 00:57:53.420 Clearly this is something that

NOTE Confidence: 0.8732282

00:57:53.420 --> 00:57:56.323 we will be talking about a lot

NOTE Confidence: 0.8732282

00:57:56.323 --> 00:57:57.939 for the foreseeable future,

NOTE Confidence: 0.8732282

00:57:57.940 --> 00:58:00.388 so thank you for coming on.

NOTE Confidence: 0.8732282

00:58:00.390 --> 00:58:04.290 Starting our conversation on it and.

NOTE Confidence: 0.8732282

00:58:04.290 --> 00:58:05.320 Andrea, don't know there's anything

NOTE Confidence: 0.8732282

00:58:05.320 --> 00:58:06.710 you want to do to wrap up.

NOTE Confidence: 0.8542916

00:58:07.950 --> 00:58:09.735 I know I just wanted to thank

NOTE Confidence: 0.8542916

00:58:09.735 --> 00:58:10.829 everybody who participates in

NOTE Confidence: 0.8542916

00:58:10.829 --> 00:58:11.957 these the joint conferences.

NOTE Confidence: 0.8542916

00:58:11.960 --> 00:58:13.880 I think. So far it's been a great

NOTE Confidence: 0.8542916

00:58:13.880 --> 00:58:15.280 success and we're looking forward

NOTE Confidence: 0.8542916

00:58:15.280 --> 00:58:17.296 to more and more of these talks.

NOTE Confidence: 0.8542916

00:58:17.300 --> 00:58:18.248 And thank you Doug,

NOTE Confidence: 0.8542916

00:58:18.248 --> 00:58:20.255 for making the time for us and just

NOTE Confidence: 0.8542916

00:58:20.255 --> 00:58:21.833 for everybody else for next week

NOTE Confidence: 0.8542916

00:58:21.833 --> 00:58:23.572 will have another session of the

NOTE Confidence: 0.8542916

00:58:23.572 --> 00:58:25.306 yields the conference at 2:00 PM,

NOTE Confidence: 0.8542916

00:58:25.310 --> 00:58:27.880 so we'll see you then.

NOTE Confidence: 0.8542916

00:58:27.880 --> 00:58:29.364 Say very much everybody.

NOTE Confidence: 0.8542916

00:58:29.364 --> 00:58:30.480 Take care everybody.